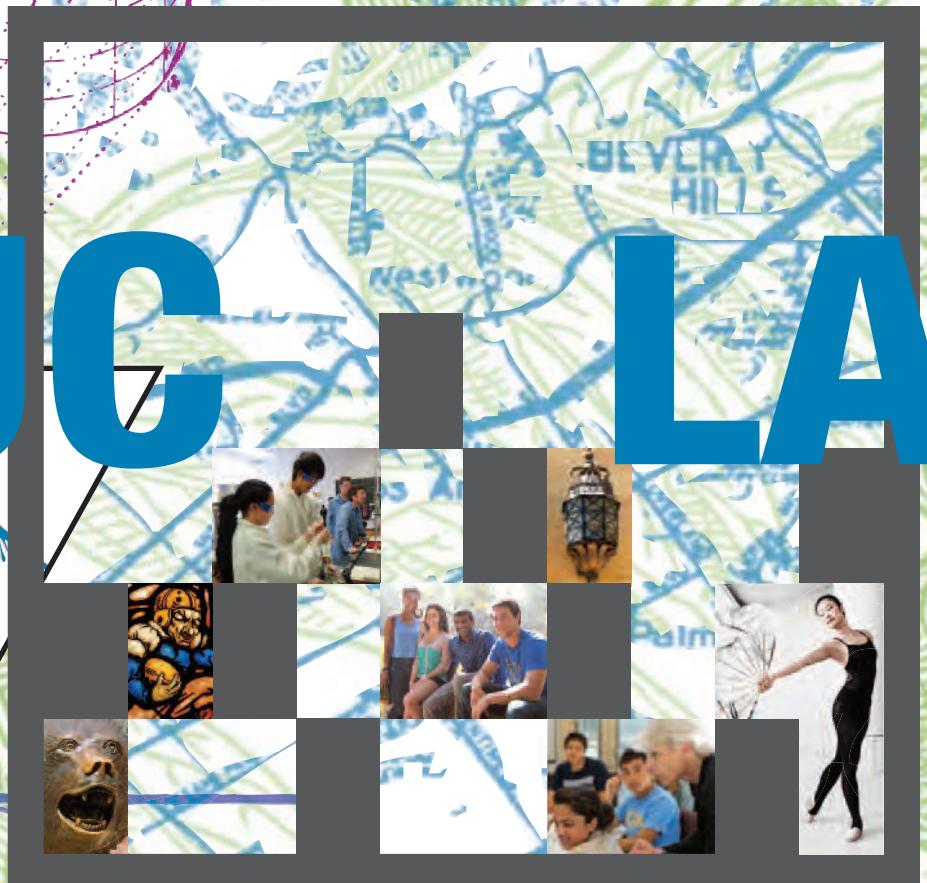


UCLA



**General
Catalog
2016-17**



Academic Calendars

2016 – 2017

Fall Quarter 2016

Quarter begins	September 19
Instruction begins	September 22
Veterans Day holiday	November 11
Thanksgiving holiday	November 24–25
Instruction ends	December 2
Common final examinations	December 3–4
Final examinations	December 5–9
Quarter ends	December 9
Christmas holiday	December 23, 26
New Year's holiday	December 30, January 2
Winter campus closure (tentative)	December 27–29

Winter Quarter 2017

Quarter begins	January 4
Instruction begins	January 9
Martin Luther King, Jr. holiday	January 16
Presidents' Day holiday	February 20
Instruction ends	March 17
Common final examinations	March 18–19
Final examinations	March 20–24
Quarter ends	March 24

Spring Quarter 2017

Quarter begins	March 29
César Chávez holiday	March 31
Instruction begins	April 3
Memorial Day holiday	May 29
Instruction ends	June 9
Common final examinations	June 10–11
Final examinations	June 12–16
Quarter ends	June 16
Commencement ceremonies	June 16–18

2017 – 2018

Fall Quarter 2017

Quarter begins	September 25
Instruction begins	September 28
Veterans Day holiday	November 10
Thanksgiving holiday	November 23–24
Instruction ends	December 8
Common final examinations	December 9–10
Final examinations	December 11–15
Quarter ends	December 15
Christmas holiday	December 25–26
New Year's holiday	January 1–2
Winter campus closure (tentative)	TBD

Winter Quarter 2018

Quarter begins	January 3
Instruction begins	January 8
Martin Luther King, Jr. holiday	January 15
Presidents' Day holiday	February 19
Instruction ends	March 16
Common final examinations	March 17–18
Final examinations	March 19–23
Quarter ends	March 23

Spring Quarter 2018

Quarter begins	March 28
César Chávez holiday	March 30
Instruction begins	April 2
Memorial Day holiday	May 28
Instruction ends	June 8
Common final examinations	June 9–10
Final examinations	June 11–15
Quarter ends	June 15
Commencement ceremonies	June 15–17

Online Publications

The *UCLA General Catalog* is available at <http://catalog.registrar.ucla.edu>. Links to updates of UCLA courses and curricula are available from the online *Catalog* main menu.

Consult the online *Schedule of Classes* for detailed information on registration and enrollment and for academic and administrative deadlines. The online *Schedule* at <http://www.registrar.ucla.edu/schedule/> has the most current information about fees, deadlines, and courses.

UCLA

General Catalog



2016-17

UCLA® General Catalog

Published July 2016

Associate Registrar: Claire McCluskey

Research Analyst and Text Editor: Leann J. Hennig

Layout and Design, Text Editor, Online Design and Production: Karen Robbins

Photography: Kyle Alexander, Jeffrey Lamont Brown, Christina L. Buswell, Todd Cheney, Kathleen Copenhaver, Michal Czerwonka, Stephanie Diani, Rajat Ghosh, Ken Hively, Reed Hutchinson, Harlan Lebo, Don Liebig, Christoph Niemann, Karen Robbins, Sonja Smith, Juan Tallo, Paul Turang, Coral Von Zumwalt, Elena Zhukova (UCOP). Special thanks to ASUCLA Photography; ASUCLA Store; Chancellor's Office; College of Letters and Science; School of the Arts and Architecture; School of Dentistry; School of Engineering; School of Nursing; School of Public Health; School of Theater, Film, and Television; Center for 17th and 18th Century Studies/Clark Library; Cultural and Recreational Affairs; Dashev Center; Education Abroad Program; Film and Television Archive; Fowler Museum; Fraternity and Sorority Relations; Grunwald Center for the Graphic Arts; Hammer Museum; Housing and Hospitality Services; Image Library; International Institute; Lesbian, Gay, Bisexual, Transgender Campus Resource Center; Library; Materials Science Engineering; Morgan Center; Newsroom/UCLA Today; Quarter in Washington DC Program; UCLA/Getty Conservation Program; University Communications; Volunteer Center; and World Arts and Cultures/Dance for contributing photographs from their collections. Additional credits: Alan Nyiri, Photographer, Atkinson Photographic Archive, UCLA University Archives, copyright University of California Regents. NASA/John Moore. Photo by notfromutrecht, used under the Creative Commons ShareAlike 3.0 Unported License.

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The *UCLA General Catalog* is available online at <http://catalog.registrar.ucla.edu>.

Every effort has been made to ensure the accuracy of the information presented in the *UCLA General Catalog*. However, all courses, course descriptions, instructor designations, curricular degree requirements, and fees described herein are subject to change or deletion without notice.

The departmental websites referenced in department addresses in this catalog are maintained by independent operators and do not necessarily reflect approved curricula and courses information. Consult the online *Catalog* for the most current, officially approved courses and curricula.

Other information about UCLA may be found in the announcements of the Schools of Dentistry, Education and Information Studies, Engineering and Applied Science, Law, Management, Medicine, Nursing, Public Affairs, and Public Health, and in literature produced by the School of the Arts and Architecture and School of Theater, Film, and Television. The most current information on graduate programs is available at <https://grad.ucla.edu>, which contains a link to Graduate Division information and publications, including Program Requirements for UCLA Graduate Degrees that contains the complete text for officially approved graduate programs.

UCLA is a premier American public research institution, and courses at UCLA are taught in the English language, unless otherwise noted in the course description (for example, foreign language courses).

UCLA Accreditation

UCLA is accredited by the Accrediting Commission for Schools, Western Association of Schools and Colleges and by numerous special agencies. Information regarding the University's accreditation may be obtained in the Office of Academic Planning and Budget, 2107 Murphy Hall.

Accrediting Commission for Schools, Western Association of Schools and Colleges

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Los Angeles, CA 90095-1361

Main telephone: 310-825-4321

Speech- and hearing-impaired access: TTY 310-825-2833

<http://www.ucla.edu>

FROM THE CHANCELLOR OF UCLA

T

his *Catalog* describes the almost endless academic choices available to you at UCLA. Choose from 5,000 courses each term, 125 undergraduate majors, 97 master's and professional programs, 109 doctoral and professional programs, and 91 minors as you build a course of study that suits your own interests and aspirations. The size and scope of our campus enables us to offer you a remarkable range of academic possibilities. At the same time, almost 70 percent of our undergraduate classes have fewer than 30 students so you can get to know your professors and classmates.

Your fellow students at UCLA come from incredibly diverse backgrounds. Those admitted to our freshman class for 2016-17 are from 50 states and 110 countries. But, like you, all of them are driven by an unwavering commitment to excellence and a determination to make a difference wherever they go.

Our faculty of more than 4,700 is made up of renowned scholars who are highly regarded as leaders in their fields. Undergraduates, as well as graduate students, have opportunities to study with top professors and conduct research under their guidance.

This *Catalog* includes opportunities for graduate and undergraduate students, including those that offer priority enrollment for lower division students. Among these are *Fiat Lux* Seminars, which are small classes in a broad range of subjects; Freshman Clusters, which engage students in yearlong, team-taught interdisciplinary study of timely topics; and advanced research opportunities.

Our campus is a vibrant community made up of forward-thinking achievers who think outside traditional academic boundaries and share an exuberant sense of possibility. The UCLA experience prepares leaders who go on to excel all over the world.

I invite you to explore UCLA beyond the contents of this catalog. Visit us on campus, or online at <http://www.ucla.edu>.

A handwritten signature in black ink that reads "Gene D. Block". The signature is fluid and cursive, with "Gene" on the first line and "D. Block" on the second line.

Gene D. Block
Chancellor

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Majors and Degrees

COLLEGE OF LETTERS AND SCIENCE

African American Studies Department

African American Studies BA, MA

African Studies Interdepartmental Program

African Studies MA

American Indian Studies Interdepartmental Program

American Indian Studies BA, MA

Anthropology Department

Anthropology BA, BS, MA, PhD

Archaeology Interdepartmental Program

Archaeology MA, CPhil, PhD

Art History Department

Art History BA, MA, PhD

Asian American Studies Department

Asian American Studies BA, MA

Asian Languages and Cultures Department

Asian Humanities BA

Asian Languages and Cultures MA, CPhil, PhD

Asian Languages and Linguistics BA

Asian Religions BA

Chinese BA

Japanese BA

Korean BA

Atmospheric and Oceanic Sciences Department

Atmospheric, Oceanic, and Environmental

Sciences BS

Atmospheric and Oceanic Sciences

..... MS, CPhil, PhD

Bioinformatics Interdepartmental Program

Bioinformatics MS, PhD

Chemistry and Biochemistry Department

Biochemistry BS

Biochemistry, Molecular and Structural

Biology MS, CPhil, PhD

Chemistry BS, MS, CPhil, PhD

Chemistry/Materials Science BS

General Chemistry BS

Chicana and Chicano Studies Department, César E. Chávez

Chicana and Chicano Studies BA, MA, PhD

Classics Department

Classics MA, CPhil, PhD

Classical Civilization BA

Greek BA, MA

Greek and Latin BA

Latin BA, MA

Communication Studies Department

Communication Studies BA

Comparative Literature Department

Comparative Literature BA, MA, CPhil, PhD

Computational and Systems Biology

Interdepartmental Program

Computational and Systems Biology BS

Conservation of Archaeological and Ethnographic Materials Interdepartmental Program

Conservation of Archaeological and Ethnographic Materials MA

Earth, Planetary, and Space Sciences Department

Earth and Environmental Science BA

Engineering Geology BS

Geochemistry MS, CPhil, PhD

Geology BS, MS, CPhil, PhD

Geophysics BS

Geophysics and Space Physics MS, PhD

East Asian Studies Interdepartmental Program

East Asian Studies MA

Ecology and Evolutionary Biology Department

Biology BS, MS, CPhil, PhD

Ecology, Behavior, and Evolution BS

Marine Biology BS

Economics Department

Applied Economics MAE

Business Economics BA

Economics BA, MA, CPhil, PhD

English Department

American Literature and Culture BA

English BA, MA, CPhil, PhD

French and Francophone Studies Department

French BA

French and Francophone Studies

..... MA, CPhil, PhD

French and Linguistics BA

Gender Studies Department

Gender Studies BA, MA, PhD

Geography Department

Geography BA, MA, CPhil, PhD

Geography/Environmental Studies BA

Germanic Languages Department

German BA

Germanic Languages MA, CPhil, PhD

Scandinavian MA

Scandinavian Languages and Cultures BA

Global Studies Interdepartmental Program

Global Studies BA

History Department

History BA, MA, CPhil, PhD

Individual Field of Concentration

Individual Field of Concentration BA

Indo-European Studies Interdepartmental Program

Indo-European Studies CPhil, PhD

Institute for Society and Genetics, Center for Interdisciplinary Instruction

Human Biology and Society BA, BS

Institute of the Environment and Sustainability, Center for Interdisciplinary Instruction

Environmental Science BS

Environmental Science and Engineering DEnv

Integrative Biology and Physiology Department

Physiological Science BS, MS

International and Area Studies Interdepartmental Program	Near Eastern Languages and Cultures	MA, CPhil, PhD
African and Middle Eastern Studies	BA	
Asian Studies	BA	
European Studies	BA	
Latin American Studies	BA	
International Development Studies Interdepartmental Program	International Development Studies	BA
Italian Department	Italian	BA, MA, CPhil, PhD
	Italian and Special Fields	BA
Latin American Studies Interdepartmental Program	Latin American Studie	MA
Linguistics Department	Applied Linguistics	BA
	Linguistics	BA, MA, CPhil, PhD
	Linguistics and Anthropology	BA
	Linguistics and Asian Languages and Cultures	BA
	Linguistics and Computer Science	BA
	Linguistics and English	BA
	Linguistics and French	BA
	Linguistics and Italian	BA
	Linguistics and Philosophy	BA
	Linguistics and Psychology	BA
	Linguistics and Scandinavian Languages	BA
	Linguistics and Spanish	BA
Mathematics Department	Applied Mathematics	BS
	Financial Actuarial Mathematics	BS
	Mathematics	BS, MA, MAT, CPhil, PhD
	Mathematics/Applied Science	BS
	Mathematics for Teaching	BS
	Mathematics of Computation	BS
Mathematics/Atmospheric and Oceanic Sciences Interdepartmental Program	Mathematics/Atmospheric and Oceanic Sciences	BS
Mathematics/Economics Interdepartmental Program	Mathematics/Economics	BS
Microbiology, Immunology, and Molecular Genetics Department	Microbiology, Immunology, and Molecular Genetics	BS, MS, PhD
Molecular Biology Interdepartmental Program	Molecular Biology	PhD
Molecular, Cell, and Developmental Biology Department	Molecular, Cell, and Developmental Biology	BS, MA, CPhil, PhD
Molecular, Cellular, and Integrative Physiology Interdepartmental Program	Molecular, Cellular, and Integrative Physiology	PhD
Near Eastern Languages and Cultures Department	Ancient Near East and Egyptology	BA
	Arabic	BA
	Iranian Studies	BA
	Islamic Studies	MA, CPhil, PhD
	Jewish Studies	BA
	Middle Eastern Studies	BA
Neuroscience Interdepartmental Program	Neuroscience	BS
Philosophy Department	Philosophy	BA, MA, CPhil, PhD
Physics and Astronomy Department	Astronomy	MS, MAT, PhD
	Astrophysics	BS
	Biophysics	BS
	Physics	BA, BS, MS, MAT, PhD
Political Science Department	Political Science	BA, MA, CPhil, PhD
	Public Administration	MPA
Psychology Department	Cognitive Science	BS
	Psychobiology	BS
	Psychology	BA, MA, CPhil, PhD
Slavic, East European, and Eurasian Languages and Cultures Department	Central and East European Languages and Cultures	BA
	Russian Language and Literature	BA
	Russian Studies	BA
	Slavic, East European, and Eurasian Languages and Cultures	MA, CPhil, PhD
Social Science Interdepartmental Program	Social Science	MSS
Sociology Department	Sociology	BA, MA, CPhil, PhD
Spanish and Portuguese Department	Hispanic Languages and Literatures	CPhil, PhD
	Portuguese	BA, MA
	Spanish	BA, MA
	Spanish and Community and Culture	BA
	Spanish and Linguistics	BA
	Spanish and Portuguese	BA
Statistics Department	Applied Statistics	MAS
	Statistics	BS, MS, CPhil, PhD
Study of Religion Interdepartmental Program	Study of Religion	BA
DAVID GEFFEN SCHOOL OF MEDICINE		
Biological Chemistry Department	Biological Chemistry	MS, PhD
Biomathematics Department	Biomathematics	MS, PhD
	Clinical Research	MS
Human Genetics Department	Human Genetics	MS, PhD
Medicine Schoolwide Program	Medicine	MD
Microbiology, Immunology, and Molecular Genetics Department	Microbiology, Immunology, and Molecular Genetics	MS, PhD
Molecular and Medical Pharmacology Department	Molecular and Medical Pharmacology	MS, PhD

Molecular, Cellular, and Integrative Physiology Interdepartmental Program
Molecular, Cellular, and Integrative Physiology.....PhD
Neurobiology Department
Neurobiology.....MS, CPhil, PhD
Neuroscience Interdepartmental Program
Neuroscience.....PhD
Pathology and Laboratory Medicine Department
Cellular and Molecular Pathology.....MS, PhD
Physics and Biology in Medicine Interdepartmental Program
Physics and Biology in Medicine.....MS, PhD

GRADUATE SCHOOL OF EDUCATION AND INFORMATION STUDIES

Education Department
Education.....MA, MEd, EdD, PhD
Educational Administration.....Joint EdD with UCI
Special Education.....Joint PhD with CSULA
Information Studies Department
Information Studies.....PhD
Library and Information Science.....MLIS

HENRY SAMUELI SCHOOL OF ENGINEERING AND APPLIED SCIENCE

Bioengineering Department
Bioengineering.....BS, MS, PhD
Chemical and Biomolecular Engineering Department
Chemical Engineering.....BS, MS, PhD
Civil and Environmental Engineering Department
Civil Engineering.....BS, MS, PhD
Computer Science Department
Computer Science.....BS, MS, PhD
Computer Science and Engineering.....BS
Electrical Engineering Department
Electrical Engineering.....BS, MS, PhD
Engineering Schoolwide Programs
Engineering.....MEngr, MS, Engr
Engineering—Aerospace.....MS
Engineering—Computer Networking.....MS
Engineering—Electrical.....MS
Engineering—Electronic Materials.....MS
Engineering—Integrated Circuits.....MS
Engineering—Manufacturing and Design.....MS
Engineering—Materials Science.....MS
Engineering—Mechanical.....MS
Engineering—Signal Processing and Communications.....MS
Engineering—Structural Materials.....MS

Materials Science and Engineering Department
Materials Engineering.....BS
Materials Science and Engineering.....MS, PhD

Mechanical and Aerospace Engineering Department
Aerospace Engineering.....BS, MS, PhD
Manufacturing Engineering.....MS
Mechanical Engineering.....BS, MS, PhD

HERB ALPERT SCHOOL OF MUSIC

Ethnomusicology Department
Ethnomusicology.....BA, MA, CPhil, PhD
Music Department
Music.....BA, MA, MM, DMA, CPhil, PhD
Musicology Department
Music History.....BA
Musicology.....MA, CPhil, PhD

JOHN E. ANDERSON GRADUATE SCHOOL OF MANAGEMENT

Management Department
Business AdministrationMBA, EMBA, FEMBA, GEMBA
Financial Engineering.....MFE
Management.....MS, CPhil, PhD

JONATHAN AND KARIN FIELDING SCHOOL OF PUBLIC HEALTH

Biostatistics Department
Biostatistics.....MS, PhD
Community Health Sciences Department
Community Health SciencesMPH-HP, MS, PhD
Environmental Health Sciences Department
Environmental Health Sciences.....MS, PhD
Epidemiology Department
Epidemiology.....MS, PhD
Health Policy and Management Department
Health Policy and ManagementEMPH, MS, PhD
Molecular Toxicology Interdepartmental Program
Molecular Toxicology.....PhD
Public Health Schoolwide Programs
Preventive Medicine and Public Health.....MS
Public Health.....MPH, DrPH

MEYER AND RENEE LUSKIN SCHOOL OF PUBLIC AFFAIRS

Public Policy Department
Public Policy.....MPP
Social Welfare Department
Social Welfare.....MSW, PhD
Urban Planning Department
Urban and Regional Planning.....MURP
Urban Planning.....PhD

SCHOOL OF THE ARTS AND ARCHITECTURE

Architecture and Urban Design Department
Architectural Studies.....BA
Architecture.....MArch I, MArch II, MA, PhD
Art Department
Art.....BA, MFA
Design Media Arts Department
Design Media Arts.....BA, MFA
Individual Field
Individual Field.....BA
World Arts and Cultures/Dance Department
Culture and Performance.....MA, PhD
Dance.....BA, MFA
World Arts and Cultures.....BA

SCHOOL OF DENTISTRY

Dentistry Department

Dental Surgery DDS

Oral Biology Section

Oral Biology MS, PhD

SCHOOL OF LAW

Law Department

Law LLM, JD, SJD

SCHOOL OF NURSING

Nursing Department

Nursing BS, MS, MSN, PhD

SCHOOL OF THEATER, FILM, AND TELEVISION

Film, Television, and Digital Media Department

Film and Television BA, MA, MFA, CPhil, PhD

Individual Field

Individual Field BA

Theater Department

Theater BA, MFA

Theater and Performance Studies CPhil, PhD

UNDERGRADUATE MINORS AND SPECIALIZATIONS

MINORS

College of Letters and Science

African American Studies
African and Middle Eastern Studies
African Studies
American Indian Studies
Ancient Near East and Egyptology
Anthropology
Applied Developmental Psychology
Arabic and Islamic Studies
Armenian Studies
Art History
Asian American Studies
Asian Humanities
Asian Languages
Atmospheric and Oceanic Sciences
Biomedical Research
Central and East European Studies
Chicana and Chicano Studies
Civic Engagement
Classical Civilization
Cognitive Science
Comparative Literature
Conservation Biology
Digital Humanities
Disability Studies
Earth and Environmental Science
East Asian Studies
English
Environmental Systems and Society
European Studies
Evolutionary Medicine
Food Studies

French
Gender Studies
Geochemistry
Geography
Geography/Environmental Studies
Geology
Geophysics and Planetary Physics
Geospatial Information Systems and Technologies
German
Global Health
Global Studies
Greek
Hebrew and Jewish Studies
History of Science and Medicine
Iranian Studies
Israel Studies
Italian
Labor and Workplace Studies
Latin
Latin American Studies
Lesbian, Gay, Bisexual, Transgender, and Queer
Studies
Linguistics
Literature and Environment
Mathematical Biology
Mathematics
Mexican Studies
Middle Eastern Studies
Neuroscience
Philosophy
Portuguese
Russian Language
Russian Literature
Russian Studies
Scandinavian
Science Education
Social Thought
Society and Genetics
South Asian Studies
Southeast Asian Studies
Spanish
Spanish Linguistics
Statistics
Structural Biology
Study of Religion
Systems Biology
Teaching Secondary Mathematics

Graduate School of Education and Information Studies

Education Studies

Henry Samueli School of Engineering and Applied Science

Bioinformatics
Environmental Engineering

Herb Alpert School of Music

Music History
Music Industry

John E. Anderson Graduate School of Management

Accounting
Entrepreneurship

Jonathan and Karin Fielding School of Public Health

Public Health

Meyer and Renee Luskin School of Public Affairs

Gerontology
Public Affairs
Urban and Regional Studies

School of the Arts and Architecture

Visual and Performing Arts Education

School of Theater, Film, and Television

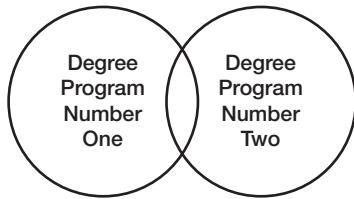
Film, Television, and Digital Media
Theater

SPECIALIZATIONS**College of Letters and Science**

Computing
Chemistry
Communication Studies
Ecology and Evolutionary Biology
Linguistics
Mathematics
Mathematics/Economics
Molecular, Cell, and Developmental Biology
Psychology
Sociology

**GRADUATE CONCURRENT
AND ARTICULATED
DEGREES**

Inquiries about concurrent and articulated degree programs should be directed to graduate advisers in the departments and schools involved. Students should contact Graduate Admissions/Student and Academic Affairs for information on designing articulated programs.

CONCURRENT DEGREES

Concurrent degree programs allow students to reduce the number of courses required for two degrees, since some courses may apply to both degrees.

African American Studies Interdepartmental MA/
Law JD
African Studies Interdepartmental MA/Public
Health MPH
American Indian Studies Interdepartmental MA/
Law JD
Architecture MArch I/Urban Planning MURP
Asian American Studies Interdepartmental MA/
Public Health MPH

Asian American Studies Interdepartmental MA/

Social Welfare MSW

Community Health Sciences MPH/Urban Planning
MURP

Education MA, PhD, MEd, or EdD/Law JD

Environmental Health Sciences MPH/Urban
Planning MURP

Latin American Studies Interdepartmental MA/
Urban Planning MURP

Management MBA/Computer Science MS

Management MBA/Dentistry DDS

Management MBA/Latin American Studies
Interdepartmental MA

Management MBA/Law JD

Management MBA/Library and Information Science
MLIS

Management MBA/Medicine MD

Management MBA/Nursing MSN

Management MBA/Public Health MPH

Management MBA/Public Policy MPP

Management MBA/Urban Planning MURP

Philosophy PhD/Law JD

Public Health MPH/Law JD

Public Health MPH/Public Policy MPP

Public Health MPH/Social Welfare MSW

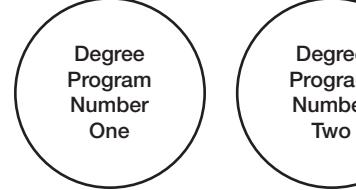
Public Policy MPP/Law JD

Public Policy MPP/Medicine MD

Social Welfare MSW/Law JD

Social Welfare MSW/Public Policy MPP

Urban Planning MURP/Law JD

ARTICULATED DEGREES

Articulated degree programs permit no credit overlap; students must complete degree requirements separately for each degree.

Latin American Studies Interdepartmental MA/

Education MEd in Curriculum

Latin American Studies Interdepartmental MA/
Library and Information Science MLIS

Latin American Studies Interdepartmental MA/
Public Health MPH

Medicine MD/Graduate Division health science
major PhD

Oral Biology MS or PhD/Dentistry DDS or
Certificate

Public Health MPH/Medicine MD

About UCLA

Few universities in the world offer the extraordinary range and diversity of academic programs that students enjoy at UCLA. Leadership in teaching, research, and public service make UCLA a beacon of excellence in higher education, as students, faculty members, and staff come together in a true community of scholars to advance knowledge, address societal challenges, and pursue intellectual and personal fulfillment.

TEACHING

The National Research Council Committee to Assess Research-Doctorate Programs evaluates the quality of the faculty in 212 American research universities approximately every 15 years. Of the 62 doctoral degree disciplines studied in the 2011 evaluation, 33 UCLA academic departments ranked among the top 10 in the country and 12 ranked among the top 20.

Distinguished faculty members at UCLA include Nobel prizewinners, Guggenheim fellows, Sloan fellows, and Fulbright scholars, as well as numerous members of the National Academy of Sciences and the American Academy of Arts and Sciences. In fact, UCLA consistently places among the leading universities nationwide in the number of these prestigious awards granted to its faculty members.

This remarkable pool of talent is shared between one college and 12 professional schools. The College of Letters and Science offers programs leading to both undergraduate and graduate degrees, as do the School of the Arts and Architecture, Henry Samueli School of Engineering and Applied Science, Herb Alpert School of Music, School of Nursing, and School of Theater, Film, and Television. The other professional schools offer graduate programs exclusively: the Graduate School of Education and Information Studies, School of Law, John E. Anderson Graduate School of Management, Meyer and Renee Luskin School of Public Affairs and, in the health sciences, the School of Dentistry, David Geffen School of Medicine, and Jonathan and Karin Fielding School of Public Health.

Undergraduates may earn a Bachelor of Arts or Bachelor of Science degree in one of 125 different disciplines; graduate students may earn one of 97 master's/ professional and 109 doctoral/ professional degrees.

Academic programs undergo continuous review and evaluation to maintain their excellence, and new degree programs are added as they are approved by the Academic Senate or the Regents.

RESEARCH

Pushing the boundaries of the known, UCLA researchers—faculty members and students, both graduate and undergraduate—venture every day into uncharted worlds from the molecular to the galactic.

Whether it's tracing the roots of urban decay, pioneering new drug therapies for cancer, or revealing a black

hole at the center of our galaxy, research at UCLA is advancing the frontiers of knowledge.

Among the 10 leading research universities in the country, UCLA received \$1.03 billion in 2014-15 in extramural grants and contracts to support its research. Each year it hosts hundreds of postdoctoral scholars who share its facilities.

Its laboratories have seen major breakthroughs in scientific and medical research; its study centers have helped foster understanding among the various cultures of the world; ongoing pursuits of new knowledge in vital areas continue to improve the quality of life for people around the world.

Faculty members teach both undergraduate and graduate courses and, through their research, create knowledge as well as transmit it. At UCLA, students are taught by the people making the discoveries. They exchange ideas with faculty members who are authorities in their fields and, even as undergraduate students, are encouraged to participate in research to experience firsthand the discovery of new knowledge.

SERVICE

As a public university, serving the community is one of UCLA's greatest commitments. Undergraduate and graduate programs, research activities, community outreach programs, and grass-roots participation by students, faculty, staff, and alumni help to forge a partnership between the University and the entire Los Angeles region.

With the Ronald Reagan UCLA Medical Center, UCLA furthers its tradition of medical outreach and assures the highest quality of care to Los Angeles and the world. Low-income families receive top-quality treatment from School of Dentistry clinics on campus and in Venice. The Santa Monica-UCLA Medical

In terms of overall excellence, UCLA is one of America's most prestigious and influential public universities. It is consistently rated among the best universities in the nation.





The Los Angeles branch of the State Normal School welcomed students in 1882. Ground was broken for the Westwood campus in 1927, when construction began on Royce Hall.



A BRIEF HISTORY OF UCLA

With only 11,000 inhabitants in 1880, the pueblo of Los Angeles convinced the state government to establish a State Normal School in Southern California. Enthusiastic citizens contributed between \$2 and \$500 to purchase a site, and on August 29, 1882, the Los Angeles Branch of the State Normal School welcomed its first students in a Victorian building that had been erected on the site of an orange grove. By 1914 Los Angeles had grown to a city of 350,000, and the school moved to new quarters—a Hollywood ranch off a dirt road that later became Vermont Avenue. In 1919, the school became the Southern Branch of the University of California and offered two years of instruction in Letters and Science. Third- and fourth-year courses were soon added; the first class of 300 students was graduated in 1925, and by 1927 the Southern Branch had earned its new name: University of California at Los Angeles. (The name was changed again in 1958 to University of California, Los Angeles.)

Continued growth mandated the selection of a site that could support a larger campus and, in 1927, ground was broken in the chaparral-covered hills of Westwood. The four original buildings—Royce Hall, Powell Library, Haines Hall, and Kinsey Hall (now called the Humanities Building)—formed a lonesome cluster in the middle of 400 empty acres. The campus hosted some 5,500 students its first term in 1929. The Regents established the master's degree at UCLA in 1933 and, three years later, the doctorate. UCLA was fast becoming a full-fledged university offering advanced study in almost every field.

The most spectacular growth at UCLA occurred in the 25 years following World War II, when it tripled its prewar enrollment of 9,000 students and undertook what would become a \$260 million building program that included residence halls, parking structures, laboratories, more classrooms, service buildings, athletic and recreational facilities, and a 581-bed teaching hospital that is now one of the largest and most highly respected in the world.

THE UNIVERSITY OF CALIFORNIA SYSTEM

The University of California traces its origins to 1868, when Governor Henry H. Haight signed the Organic Act providing for California's first "complete University." Classes began the following year at the College of California in Oakland. The first buildings on the Berkeley campus were completed in 1873, and the University moved into its new home. The following June, the University conferred bachelor's degrees on 12 graduates.

Today the University is one of the largest and most renowned centers of higher education in the world. Its 10 campuses span the state, from Davis in the north to San Diego in the south. In between are Berkeley, San Francisco, Santa Cruz, Merced, Santa Barbara, Riverside, Irvine and, of course, Los Angeles.

All campuses adhere to the same admission guidelines and high academic standards, yet each has its own distinct character and academic individuality. Riverside, for example, excels in the plant sciences and entomology; Davis has a large agricultural school and the University's only veterinary medicine program; San Diego has excellent oceanography and marine biology programs; San Francisco is devoted exclusively to the health sciences. Among the campuses there are six medical schools and four law schools, as well as schools of architecture, business administration, education, engineering, and many others.

The UC campuses have a combined enrollment exceeding 257,438 students, over 84 percent of them California residents. About one fifth study at the graduate level. Some 150 laboratories, extension centers, and research and field stations strengthen teaching and research while providing public service to California and the nation. The collections of over 100 UC libraries on the 10 campuses are surpassed in size on the American continent only by the Library of Congress collection.

The UC faculty is internationally known for its distinguished academic achievements. On its 10 campuses the University has 31 living Nobel laureates, and membership in the National Academy of Sciences is the largest of any university in the country.

The UC system is governed by a Board of Regents whose regular members are appointed by the Governor of California. In addition to setting general policy and making budgetary decisions for the UC system, The Regents appoint the President of the University, the 10 chancellors, and the directors and deans who administer the affairs of the individual campuses and divisions of the University.

The Regents delegate authority in academic matters to the Academic Senate, which determines academic policy for the University as a whole. The Senate, composed of faculty members and certain administrative officers, determines the conditions for admission and granting of degrees, authorizes and supervises courses and curricula, and advises University administrators on budgets and faculty appointments and promotions. Individual divisions of the Universitywide Academic Senate determine academic policy for each campus. Students participate in policymaking at both campuswide and systemwide levels.



Center's Rape Treatment Center offers 24-hour care to victims. The Fielding School of Public Health's Community Health Promotion Program supports community-service projects to benefit poor and underserved communities, and the School of Nursing offers care through its nurse-managed Health Center at the Union Rescue Mission. The University also supports K-12 enhancement programs such as the Music Partnership Program in the Herb Alpert School of Music, which funds UCLA students to be academic and musical mentors for at-risk youth.

As UCLA gives to the community, Los Angeles gives something back. The University's arts and cultural programs, for example, attract more than half a million people each year, drawn by everything from world-class acts performing at Royce Hall to classic-film screenings from the School of Theater, Film, and Television archives. These relationships create opportunities for partnerships and growth that ensure UCLA's preeminence in the twenty-first century and beyond.

LIFE ON CAMPUS

Just five miles from the ocean, UCLA lies in one of the most attractive areas of Southern California. It is bordered on the north by the protected wilderness of the Santa Monica Mountains and on the south by Westwood Village. Some 213 buildings on 419 acres house the College of Letters and Science plus 12 professional schools and serve more than 43,300 students.

A UNIQUE SETTING

The Romanesque architecture of early UCLA buildings blends with the modern design of new structures and provides a backdrop for diverse campus settings. Bruin Walk continually echoes with the chatter of students and vendors, but nearby, the botanical gardens provide a serene escape. While a hip-hop band energizes lunchtime crowds in the Ackerman quad, a classical recital may be taking place in Schoenberg Music Building, and students contemplating a Rodin or Lachaise in the Murphy Sculpture Garden may be unaware of a political rally organizing in Meyerhoff Park.

To give a feel for the dynamic atmosphere at UCLA, Undergraduate Admission offers tours tailored to prospective undergraduates. See <http://www.admission.ucla.edu/tours.htm> or call 310-825-8764 or 310-206-3719.

A LARGE CAMPUS WITH A COMFORTABLE FEEL

The general campus population, some 39,362 students, is enriched by an additional 3,939 in the health sciences schools of Dentistry, Medicine, Nursing, and Public Health. While such numbers sound daunting, the University provides orientation sessions and innovative academic assistance programs to help acclimate new students and, through a range of services and social programs, new students quickly meet people with common interests in their academic departments, residence halls, or clubs and organizations. Even athletic events help to cement relationships as the campus comes together to celebrate Bruin victories.

Large lecture groups exist, especially in introductory courses; however, 82 percent of lower division lecture

classes in 2014-15 had under 200 students, and the University is striving to further reduce class size. Large lecture classes typically include discussion sections of about 25 students or smaller seminars and laboratory classes. There is an overall ratio of one faculty member for approximately 17 students.

Most UCLA faculty members set aside office hours for students and appreciate the opportunity for informal conversation. Professors are often aided by graduate student teaching assistants (TAs) who are available to talk about academic problems.

A DYNAMIC STUDENT BODY

Students at UCLA pride themselves on academic excellence. The fall quarter 2015 entering freshman class had an average high school GPA of 4.33, with an average composite score on the SAT Reasoning Test of 1,950 out of a possible 2,400.

One of the University's highest priorities is to advance the diversity of its students, faculty, staff, and administrators. The UCLA student population—nearly equally divided between men and women—yields the wide range of opinion and perspective essential to a great university.

Although most students are from California, they come from all 50 states and 110 foreign countries to study at UCLA. Ethnic minorities comprise 73 percent of the undergraduates and 63.8 percent of the graduate student population, and international students and scholars presently number over 12,000, making this one of the most popular American universities for students from abroad.

ACADEMIC PROGRAMS

UCLA has a tradition of advancing higher education and the common good through excellence in scholarship, research, and public service. Academic excellence, faculty distinction, and a comprehensive curriculum are hallmarks of the UCLA experience. The College of Letters and Science and 12 graduate and professional schools present an extraordinary richness and diversity of teaching programs. The International Education Office, Summer Sessions, UCLA Extension, and



UCLA International Institute provide academic and professional resources to UCLA and the greater Los Angeles community, as well as to the international community.

UCLA COLLEGE AND SCHOOLS

Academic programs offered at UCLA span the breadth and depth of over 200 disciplines and areas of study. Lecture, discussion, laboratory, research, and creative courses are supplemented by seminars, honors programs, specialized freshman clusters, internships, and education abroad opportunities. Instruction takes place in many unique venues, including specialized classrooms, computer and scientific laboratories, performance and studio spaces, and off-campus settings. Students and faculty members themselves mirror the cultural and racial diversity of Los Angeles. Academic programs are described in detail in the Curricula and Courses section of this catalog.

INTERNATIONAL EDUCATION OFFICE

The International Education Office (IEO) believes that study abroad and student exchange are exciting and broadening experiences that enrich any educational curriculum. The office works to facilitate international education by serving as the campuswide portal for the development and administration of study abroad and student exchange activity. It provides assistance to academic units seeking to develop study abroad programs, and it collaborates with the Academic Senate and departments to insure academic oversight of study abroad programs. The IEO also coordinates student advising services for undergraduate and graduate students interested in studying abroad.

The IEO administers several programs, including the UC Education Abroad Program (UCEAP), Summer Travel Study, Non-UC Programs, and various student exchange agreements.

Full details about academic programs abroad, requirements, and application procedures are available in 1332 Murphy Hall, 310-825-4995. See <http://ieo.ucla.edu>.

EDUCATION ABROAD PROGRAM

The UC Education Abroad Program (UCEAP) offers short- and long-term study programs in cooperation with over 115 host universities and

colleges in more than 40 countries throughout the world. Participating students remain registered on their home campuses while studying abroad and receive full academic credit for their work. With careful planning, study abroad should not delay progress toward graduation. While on EAP, students are eligible for financial aid. See <http://ieo.ucla.edu/uceap>.



SUMMER TRAVEL STUDY

Summer Travel Study offers short-term summer programs on five different continents. The Summer Travel Study programs offer UC credit, the promise of an exciting summertime adventure, and intensive learning experiences taught by distinguished UCLA faculty members. Over 20 academic departments offer Summer Travel Study programs that include from 8 to 16 quarter units of UC credit. Financial aid is available for qualified UC students. Registration begins in November for the following summer on a first-come, first-served basis. Summer Travel Study is open to all students at any academic level. There is no grade-point average requirement to participate. See <http://ieo.ucla.edu/travelstudy>.

NON-UC PROGRAMS

Students may also study abroad through other universities and programs not affiliated with UCLA. The IEO strongly recommends that all students considering non-UC programs consult with the IEO early in the planning process about UCLA policies on planned academic leave (PAL), transfer credit, financial support, and more. UC financial aid is not available for study abroad on non-UC programs. See <http://ieo.ucla.edu/nonucprograms>.

SUMMER SESSIONS

Throughout the summer, UCLA provides three ways to earn UCLA credit—academic courses, summer institutes, and travel study. More than 1,600 courses from over 70 departments are offered in six-, eight-, nine-, and 10-week sessions. Developed from courses that are already part of UCLA's regular curriculum, summer institutes offer the breadth and depth of UCLA's academic rigor in an intensive, holistic format that allows students to share a unique hands-on learning experience. Some summer institute programs are specifically designed for advanced high school students. Travel study programs offer the option to study various subjects as part of an exciting and challenging travel experience. Many students take advantage of summer sessions to put themselves closer to graduation, explore possibilities, and broaden perspectives.

Although visiting students are welcome to enroll, admission to summer sessions does not constitute admission to the University in either undergraduate or graduate standing. Students who wish to attend UCLA in regular academic terms must follow admission procedures described in the Undergraduate Study and Graduate Study sections of this catalog.

Regularly enrolled UCLA undergraduate students may attend summer sessions for full unit and grade credit. Summer sessions work is recorded on the UCLA transcript, and grades earned are computed in the grade-point average. Check with a College or school counselor about applying these courses toward degree requirements and about any limitations the College or school may impose on summer sessions study. UCLA financial aid is available to qualified UCLA students.

Regularly enrolled UCLA graduate students may, with departmental approval, take courses offered in summer sessions for credit toward a master's or doctoral degree; consult a graduate adviser in advance concerning this possibility. Summer sessions courses may also satisfy

the academic residence requirement for master's or doctoral degrees.

Unlike enrollment in regular terms, students may attend another college institution for credit while they are enrolled in summer sessions. Registration information is available in 1331 Murphy Hall, 310-825-4101. See <http://www.summer.ucla.edu>.

UCLA EXTENSION

With over 90,000 adult student enrollments each year, UCLA Extension is one of the largest university continuing education programs in the world. It is designed to bring the benefits of the University—its scholars, research, and resources—to the community and the state as a whole.

Many of UCLA Extension's 5,300 classes are innovative and experimental in content, format, and teaching methods. Credit and noncredit courses are offered in nearly every academic discipline, in many interdisciplinary areas, and in emerging fields.

In addition, Extension offers special programs each term on topical issues as well as those of ongoing public concern. Many noncredit Extension courses offer the opportunity to earn Continuing Education Units, widely used for relicensure and other professional/career-related purposes.

Although registering for Extension courses does not constitute admission to regular session, degree credit earned through Extension may apply toward the UCLA bachelor's or master's degree; consult a College or school counselor or graduate adviser before enrolling. For more information, refer to UCLA Extension under Transfer Credit in the Academic Policies section of this catalog.

To obtain the current *UCLA Extension Catalog*, request a copy at <https://www.uclaextension.edu> or contact the Registration Office, 113 UCLA Extension Building, 10995 Le Conte Avenue, 310-825-9971.

UCLA INTERNATIONAL INSTITUTE

The UCLA International Institute promotes interdisciplinary education and research on global and area studies. The institute offers six undergraduate majors, eight undergraduate minors, and three graduate programs. Its academic programs enroll nearly 1,000 students and graduate 400 to 450 each year. More than 25 centers and programs promote innovative multidisciplinary research and educational opportunities in virtually every region of the world. Together with its centers, the institute serves the entire campus through a wide range of academic events, scholarships, and grants. And it brings together globally and regionally focused UCLA faculty members, departments, and research centers in collaborative initiatives to address pressing world challenges such as climate change, migration patterns, and the role of nonstate actors.

The U.S. Department of Education has designated the institute's programs in East Asia, Latin America, and Southeast Asia as National Resource Centers. Its specialized center for heritage language teaching is the nation's first National Heritage Language Research Center. The institute also houses thematic centers, including the Burkle Center for International Relations and the Center for the Study of International Migration. Other programs include the Fulbright

Enrichment Program and the International Visitors Bureau that hosts almost 700 international educational and professional visitors each year.

A gateway to the world for UCLA and the global city of Los Angeles, the International Institute and its centers organize a robust schedule of free public events, along with research conferences, cultural programs and K-12 outreach. The Vice Provost for International Studies and Global Engagement manages the institute, promotes international education, the UCLA global branch, and partnerships worldwide, and oversees the University's more than 350 formal research, teaching, and student exchange agreements. See <http://web.international.ucla.edu> or call 310-825-4811.

RESEARCH PROGRAMS

At any given time, more than 6,000 funded research programs are in progress at UCLA. For more information on the Organized Research Units listed below, see <https://vcr.ucla.edu/organized-research-units-orus-1>.



ORGANIZED RESEARCH UNITS

Organized Research Units (ORUs) are campuswide research programs. Members come from more than one department and normally from more than one school, college, or division.

BRAIN RESEARCH INSTITUTE

The Brain Research Institute (BRI) has one of the largest programs for neuroscience research and education in the country, with approximately 300 scientists from nearly 30 departments involved in every aspect of neuroscience research from molecular organization to human behavior. The BRI provides facilities with new technologies for research and training and sponsors affinity groups, conferences, and symposia to strengthen ties among neuroscientists. Public service activities include an elementary and secondary school outreach program and a joint educational program with UCLA Extension. See <http://www.bri.ucla.edu> or call 310-825-5061.

CENTER FOR EUROPEAN AND RUSSIAN STUDIES

The Center for European and Russian Studies (CEES) develops and coordinates teaching and research on Russia and the successor states of the former Soviet Union, as well as the countries of western Europe, through conferences, lectures, seminars, and academic exchange programs with European and Russian institutions. It also funds advanced instruction in languages such as Czech, Hungarian, Romanian, Polish, and Serbian/Croatian and provides fellowships to graduate students in European area studies. See <http://web.international.ucla.edu/euro/> or call 310-825-8030.

CENTER FOR MEDIEVAL AND RENAISSANCE STUDIES

The Center for Medieval and Renaissance Studies (CMRS) supports the research activities of some 125 faculty members in 24 academic disciplines dealing with the development of civilization between A.D. 300 and 1650. Programs include appointing visiting professors, organizing conferences, and supporting departments in inviting lecturers. The center sponsors two journals, *Viator*, with emphasis on intercultural and interdisciplinary studies, and *Comitatus*, with articles by graduate students and recent PhD graduates. See <http://cmrs.ucla.edu> or call 310-825-1880.

The Clark Library holds a renowned collection that focuses on Oscar Wilde and his era.



CENTER FOR SEVENTEENTH- AND EIGHTEENTH-CENTURY STUDIES

The Center for Seventeenth- and Eighteenth-Century Studies organizes scholarly programs and workshops, publishes conference results, provides long- and short-term fellowships to students and scholars, offers graduate research assistantships and master classes, and organizes public programs and classical music concerts. See <http://www.1718.ucla.edu> or call 310-206-8552.

The center administers the William Andrews Clark Memorial Library, located 13 miles from UCLA, that specializes in seventeenth- and eighteenth-century British works. It also has a renowned collection centering on Oscar Wilde and his era and significant holdings of modern fine printing and Western Americana. The library is closed for seismic retrofit through summer 2016. See <http://www.clarklibrary.ucla.edu> or call 323-731-8529.

CENTER FOR THE STUDY OF WOMEN

The Center for the Study of Women (CSW) draws on the expertise of more than 200 faculty members from 10 professional schools and 34 departments. To facilitate faculty research, the center organizes conferences and lecture series on feminist theory, administers research grants, and offers an affiliation for research and visiting scholars. The center sponsors working groups, produces calendar of events posters, and hosts graduate programs, as well as an annual graduate student research conference. See <https://csw.ucla.edu> or call 310-825-0590.

COTSEN INSTITUTE OF ARCHAEOLOGY

The Cotsen Institute of Archaeology (CIA) studies and seeks to understand the human past through artifacts, analysis of field data, and the creation of archives. The institute, the only one of its kind in the U.S., coordinates facilities for more than 30 researchers and many graduate students and volunteers in 11 associated academic departments. Facilities include the Ceramics Research Group, Cotsen Digital Archive, Lithic Analysis Research Group, Moche Archive, Rock Art Archive, and many laboratories such as the Channel Islands Laboratory, East Asian Laboratory, Human Origins Laboratory, and Zooarchaeology Laboratory.

It publishes the findings of scholars from UCLA and other archaeology centers and provides a forum for the public presentation of archaeological discoveries and advances. See <http://www.ioa.ucla.edu> or call 310-206-8934.

CRUMP INSTITUTE FOR MOLECULAR IMAGING

The Crump Institute for Molecular Imaging (CIMI) brings together physical, biomathematical, chemical, biological, and clinical scientists and students to merge the principles of imaging with those of molecular and cellular biology, genetics, and biochemistry. The imaging domains range from the molecular organization of viruses and cellular subunits to the biological processes of organ systems in the living human. A major focus is the development and use of imaging technologies to collect, analyze, and communicate biological data. The institute has research and educational programs for visiting scientists, postdoctoral scholars, and PhD graduate students that include the development of multimedia computer-based learning technologies. See <http://www.crump.ucla.edu> or call 310-825-4903 or 310-825-6539.

GUSTAVE E. VON GRUNEBAUM CENTER FOR NEAR EASTERN STUDIES

The von Grunebaum Center for Near Eastern Studies (CNES) coordinates research and academic programs related to the Near East. It supports the degree program in African and Middle Eastern Studies. Resources of the center include the largest faculty, one of the most comprehensive library holdings, and the richest variety of Near and Middle Eastern studies courses of any institution in the Western Hemisphere. The center conducts publication, community outreach, and scholarly exchange programs. See <http://web.international.ucla.edu/cnes/> or call 310-825-1181.

INSTITUTE FOR RESEARCH ON LABOR AND EMPLOYMENT

The interdisciplinary research program of the Institute for Research on Labor and Employment (IRLE) studies employment relationships, including labor markets, labor law, labor and management relations, equal employment opportunity, occupational safety and health, and related issues. Its Center for Labor Research and Education offers social policy and employment relations programs to the public, unions, and management. The academic unit of the institute oversees the Labor and Workplace Studies minor. See <http://www.irle.ucla.edu> or call 310-794-5957.

INSTITUTE OF AMERICAN CULTURES

The Institute of American Cultures (IAC) oversees four ORUs associated with UCLA ethnic studies centers. Applying the University's capabilities to the analysis and solution of social issues, the institute makes funds available for research and fellowships and promotes the study and illumination of the histories of African Americans, American Indians, Asian Americans, and Chicanas/Chicanos. See <http://www.iac.ucla.edu> or call 310-825-6815.

Ralph J. Bunche Center for African American Studies

The Bunche Center for African American Studies (CAAS) conducts and sponsors research on the African American experience, supports the African American

studies curriculum, publishes research results, and sponsors community service programming. See <http://www.bunchecenter.ucla.edu> or call 310-825-7403.

American Indian Studies Center

The American Indian Studies Center (AISC) serves as an educational and research catalyst and includes a library, postdoctoral fellowship programs, a publishing unit that produces books and a quarterly journal, and a student/community relations unit. See <http://www.aisc.ucla.edu> or call 310-825-7315.

Asian American Studies Center

The Asian American Studies Center (AASC) seeks to increase the knowledge and understanding of the experiences of Asian and Pacific Islander peoples in America and promotes the development of material resources related to Asian American studies. The center includes a library, publications unit, student/community projects unit, and postdoctoral fellowships. See <http://www.aasc.ucla.edu> or call 310-825-2974.

Chicano Studies Research Center

The Chicano Studies Research Center (CSRC) promotes the study and dissemination of knowledge on the experience of the people of Mexican descent and other Latinos in the U.S. The center supports interdisciplinary and collaborative research and the analysis, understanding, and articulation of issues critical to the development of Chicano and Latino communities in the U.S. It seeks to establish and maintain relationships with communities with similar academic and research interests at the state, national, and international levels. The center also includes a library, academic press, and grant fellowship programs. See <http://www.chicano.ucla.edu> or call 310-825-2363.

INSTITUTE OF GEOPHYSICS AND PLANETARY PHYSICS

The Institute of Geophysics and Planetary Physics (IGPP) is a multicampus research unit of the University of California; the branch at UCLA researches climate dynamics, geophysics, geochemistry, space physics, biochemistry, and biology. Research topics include the nature of the Earth, moon, and other planetary bodies; global and regional environmental change; the origin of terrestrial life; dynamical properties of the sun and solar wind; and the nonlinear dynamics of complex systems. Facilities include analytical laboratories in geochemistry, meteoritics, glaciology, petrology, geochronology, archaeology, and the origins of life; laboratories for experiments in fluid dynamics and high-pressure physics; developmental laboratories for instrumentation in space physics and seismology; and computational laboratories for large-scale numerical modeling. See <http://www.igpp.ucla.edu> or call 310-206-2285.

INTELLECTUAL AND DEVELOPMENTAL DISABILITIES RESEARCH CENTER

The Intellectual and Developmental Disabilities Research Center (IDDRC) provides laboratories and clinical facilities for research and training in intellectual and developmental disabilities. Interdisciplinary activities range from anthropological studies to molecular aspects of inherited metabolic diseases. See <http://www.mrcc.npi.ucla.edu/iddrc/> or call 310-825-9395 or 310-825-6429.

JAMES S. COLEMAN AFRICAN STUDIES CENTER

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ABOUT UCLA

The Coleman African Studies Center (JSCASC) coordinates research and teaching on Africa in the humanities, social sciences, and natural sciences, as well as in the Schools of Arts and Architecture, Education and Information Studies, Law, Medicine, Public Affairs, Public Health, and Theater, Film, and Television. The center sponsors public lectures, seminars, publications, and academic exchanges with African institutions and an outreach service to the Southern California community. See <http://web.international.ucla.edu/africa/> or call 310-825-3686.

JULES STEIN EYE INSTITUTE

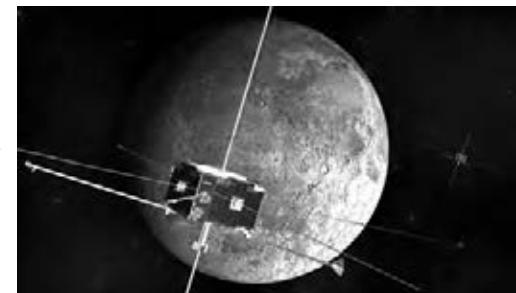
The Jules Stein Eye Institute (JSEI) is one of the best equipped centers for research and treatment of eye diseases in the world. This comprehensive facility is dedicated to the preservation of vision and prevention of blindness, the care of patients with eye disease, and education in the broad field of ophthalmology. Outpatient, inpatient, and surgical facilities are provided. See <http://www.jsei.org> or call 310-825-5053.

The Doris Stein Eye Research Center houses clinical facilities as well as new research and training programs concentrating on major eye diseases worldwide.

The Edie and Lew Wasserman Eye Research Center houses outpatient surgery clinics, faculty offices, and refractive, oculoplastic, and cataract services.

LATIN AMERICAN INSTITUTE

The Latin American Institute (LAI) is a major regional, national, and international resource on Latin America and hemispheric issues. The institute sponsors and coordinates research, academic and public programs, and publications on Latin America in the humanities, social sciences, and professional schools and links its programs and activities with developments in the field and in other institutional settings. By combining instruction, research, and service and by encouraging multidisciplinary and interdisciplinary approaches, the institute promotes the use of UCLA Latin American resources for the benefit of the campus, the broader community, and the public at large. See <http://web.international.ucla.edu/lai/> or call 310-825-4571.



The ARTEMIS mission, a joint effort of the Institute of Geophysics and Planetary Physics, UC Berkeley, and NASA, studies the lunar space environment.

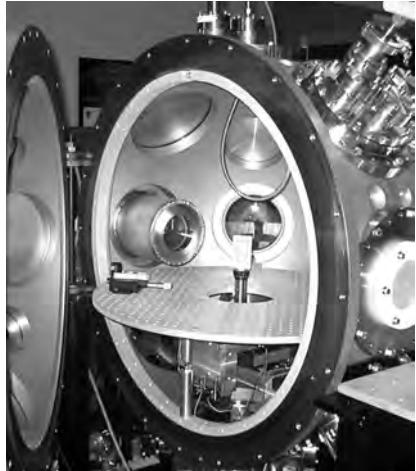
MOLECULAR BIOLOGY INSTITUTE

The Molecular Biology Institute (MBI) promotes molecular biology research and teaching at UCLA, with emphasis on genomics, proteomics, and chemical biology. The institute houses the laboratories of 200 faculty members from 30 UCLA departments and the Institute for Genomics and Proteomics, as well as the administration of the Molecular Biology Interdepartmental PhD Program and the Graduate Programs in Bioscience consortium. See <http://www.mbi.ucla.edu> or call 310-825-1018.

PLASMA SCIENCE AND TECHNOLOGY INSTITUTE

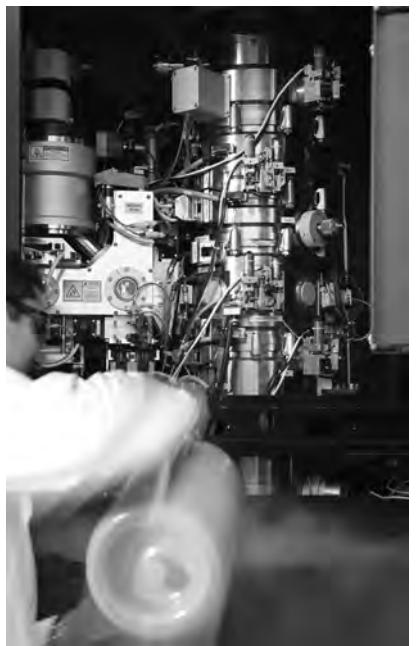
The Plasma Science and Technology Institute (PSTI) is dedicated to research of plasma physics, fusion energy, and the application of plasmas in other disciplines. Students, professional research staff, and faculty members study basic laboratory plasmas, plasma-fusion confinement experiments, fusion engineering and nuclear technology, computer simulations and the theory of

plasmas, space plasma physics and experimental simulation of space plasma phenomena, advanced plasma diagnostic development, laser-plasma interactions, and the use of plasma in applications ranging from particle accelerators to the processing of materials and surfaces used in microelectronics or coatings. See <http://psti.ucla.edu> or call 310-825-4683.



UCLA-DOE INSTITUTE FOR GENOMICS AND PROTEOMICS

The UCLA-DOE Institute for Genomics and Proteomics, funded through a Department of Energy (DOE) contract, conducts research in bioenergy, carbon capture, microbial genomics, and structural and functional studies of organisms and their constituents. Institute faculty members have joint appointments in academic departments and teach at both undergraduate and graduate levels. Major facilities include a biomedical cyclotron, advanced scanning equipment, and macromolecular crystallization, nuclear magnetic resonance, protein expression, and X-ray crystallography facilities. See <http://www.doe-mbi.ucla.edu> or call 310-825-3754.



At any given time, over 5,000 funded research programs are in progress at UCLA.

Additional research centers, laboratories, and institutes advance scholarship in all fields. The breadth of research conducted on campus is reflected in undertakings as diverse as the California Center for Population Research (<https://ccpr.ucla.edu>)—which carries out basic and applied research and training in demography—and the Jonsson Comprehensive Cancer Center (<http://www.cancer.mednet.ucla.edu>)—one of only 41 comprehensive centers in the nation. For a list of research centers, laboratories, and institutes, see <http://www.research.ucla.edu/labs/index.htm>.

Interdisciplinary activities in the social sciences include the nationally respected UCLA Anderson Forecast (<http://www.anderson.ucla.edu/centers/ucla-anderson-forecast>

forecast) in the Anderson Graduate School of Management and the Center for Study of Evaluation and the National Center for Research on Evaluation, Standards, and Student Testing (<http://www.cse.ucla.edu>) in the Graduate School of Education and Information Studies, which are at the forefront of efforts to improve the quality of education and learning in America.

In the health sciences, research ranges from improving the quality of life for patients and caregivers at the Mary S. Easton Center for Alzheimer's Disease Research at UCLA (<http://www.eastonad.ucla.edu>) to epidemiology, immunology, and the clinical management of AIDS at the UCLA AIDS Institute (<http://aidsinstitute.ucla.edu>) and the Center for Clinical AIDS Research and Education (<https://www.uclahealth.org/care-center/>). The Fernald Child Study Center (<https://www.psych.ucla.edu/centers-programs/fernaldfchildstudycenter>) focuses on the study and treatment of a variety of childhood behavioral problems and learning disorders.

In the physical sciences and engineering, the Institute for Pure and Applied Mathematics (<http://www.ipam.ucla.edu>) makes connections between a wide spectrum of mathematicians and scientists and broadens the range of applications in which mathematics is used. The UCLA Logic Center (<http://www.logic.ucla.edu>) fosters teaching and research in logic, broadly understood to include all areas of mathematical and philosophical logic, as well as the applications of logic to philosophy, linguistics, and computer science. On other frontiers, the Center for Embedded Networked Sensing (<http://www.cens.ucla.edu>) develops embedded networked sensing systems to monitor and collect information on plankton colonies, endangered species, soil and air contaminants, medical patients, and buildings, bridges, and other man-made structures.

The Center for Study of Urban Poverty (<http://www.csup.ucla.edu>) initiates new research on issues related to urban poverty and sponsors seminars in the field. The Center for Policy Research on Aging (<http://luskin.ucla.edu/content/center-policy-research-aging>) addresses the significant issues of an aging society through policy analysis, dissemination of information, and technical assistance to the public and private sectors.

SUPPORTING RESOURCES

As UCLA students and scholars advance knowledge, illuminate the past, shape the present, and uncover the future, they rely on resources that support their endeavors in all fields. From a top-rated library to outdoor nature reserves, the campus is well-equipped to meet diverse scholastic needs.

ART GALLERIES AND MUSEUMS

The leading arts and cultural center in the West, UCLA museums, galleries, and gardens provide eclectic resources ranging from the ancient to the avant-garde.

FOWLER MUSEUM AT UCLA

The Fowler Museum at UCLA is internationally known for the quality of its collections, which encompass the

arts and material culture of much of the world, with particular emphasis on West and Central Africa, Asia and the Pacific, and the Americas, past and present. It supports UCLA instruction and research and sponsors major exhibitions, lecture programs, and symposia. The museum is open to the public Wednesday through Sunday. For more information on hours and admission, see <http://www.fowler.ucla.edu> or call 310-825-4361.

GRUNWALD CENTER FOR THE GRAPHIC ARTS

Housed in the UCLA Hammer Museum, the Grunwald Center for the Graphic Arts holds a distinguished collection of over 45,000 prints, drawings, photographs, and artists' books, including nearly 10,000 works from the prestigious Armand Hammer Daumier and Contemporaries Collection. A study and research facility for the benefit of students and the community, the center's permanent holdings include significant European and American examples from the fifteenth century to the present. It is particularly noted for its collection of German Expressionist prints and works on paper by Matisse and Picasso, as well as the Richard Vogler Cruikshank Collection and the Frank Lloyd Wright Collection of Japanese prints. The center is open only by appointment. See <https://hammer.ucla.edu/collections/grunwald-center-collection/> or call 310-443-7078.

FRANKLIN D. MURPHY SCULPTURE GARDEN

Situated on a picturesque five-acre expanse that spans the heart of north campus, the Murphy Sculpture Garden contains a collection of over 70 major works by Arp, Butterfield, Calder, Falkenstein, Hepworth, Lachaise, Lipchitz, Matisse, Moore, Noguchi, Rodin, Smith, Zuniga, and many other late nineteenth- and early twentieth-century masters. All works in this distinguished collection are private gifts to the University. Tours may be arranged. See <https://hammer.ucla.edu/collections/franklin-d-murphy-sculpture-garden/> or call 310-443-7041.

NEW WIGHT GALLERY

The New Wight Gallery is an exhibit space for visual arts, including student and faculty exhibitions. The gallery is housed in 1100 Broad Art Center, 310-825-0557. See <http://www.art.ucla.edu/gallery/index.html>.

UCLA HAMMER MUSEUM

The UCLA Hammer Museum regularly presents its collection of Impressionist and Post-Impressionist paintings by such artists as Monet, Pissarro, Sargent, Cassatt, and Van Gogh. The museum organizes and presents major changing exhibitions devoted to examinations of historical and contemporary art in all periods. Cultural programming, including children's performance and storytelling series, music, poetry readings, and lunchtime art talks, are presented throughout the week. For information on programming, hours, and docent tours, see <https://hammer.ucla.edu> or call 310-443-7000.

UCLA METEORITE COLLECTION AND GALLERY

UCLA has the largest collection of meteorites on the West Coast and the fifth largest in the U.S. Many of the most important meteorites are displayed in the UCLA Meteorite Gallery located in 3697 Geology. The collection and gallery are a major resource for

cosmochemical research and the teaching of planetary science. For information on hours, see <http://meteorites.ucla.edu> or call 310-825-2015.

LIBRARIES

The UCLA Library, a campuswide network of libraries serving programs of study and research in many fields, is among the top 10 academic research libraries in North America. The total collections number more than 11 million volumes, and over 78,000 serial titles are received regularly.

Reference librarians are available in all library units to answer questions about using online systems and to provide assistance with reference and research topics.

Students locate and identify materials through the library's Web-based online information systems. The UCLA Library Catalog contains records for all UCLA Library holdings and other campus collections, including the Archive Research and Study Center of the Film and Television Archive, Chicano Studies Research Center Library, Ethnomusicology Archive, Social Science Data Archive, Instructional Media Collections and Services, and William Andrews Clark Memorial Library. It also provides library item location and circulation status.

Other available catalogs include the UC Libraries Catalog (Melvyl), WorldCat, Center for Research Libraries, Online Archive of California, numerous abstracting and indexing databases, and gateways to other systems. The Melvyl Catalog contains information on library holdings at all 10 UC campuses.

While continuing to develop and manage collections of traditional printed materials, the UCLA Library also makes a number of digital resources available for campus use through the library site. These include College Library electronic reserves and electronic journals, texts, reference resources, periodical indexes, and abstracts. See <http://www.library.ucla.edu>.



ARTS LIBRARY

Housed in 1400 Public Affairs Building, the Arts Library has more than 300,000 books on architecture, architectural history, art, art history, design, fashion and costume, film, television, photography as fine art, studio art, theater, urban design, and allied disciplines. It also contains the Elmer Belt Library of Vinciana, a special collection of rare books and incunabula about Leonardo da Vinci and related materials in Renaissance studies. Performing Arts Special Collections, housed in the Young Research Library, contain noncirculating materials including the Artists' File; archival records of major Southern California motion picture studios and television production companies; scripts from film, television, and radio; animation art; personal papers of writers, directors, and producers; pho-

The Fowler Museum collections focus on arts and culture focusing on West and Central Africa, Asia and the Pacific, and the Americas.

The Hammer Museum is known for its collection of impressionist and post-impressionist art, and exhibits by contemporary artists.

tographs and production stills; and posters, lobby cards, press kits, and West Coast theater playbills. See <http://www.library.ucla.edu/arts> or call 310-206-5425.

CHARLES E. YOUNG RESEARCH LIBRARY

The Young Research Library primarily serves graduate research in the humanities, social sciences, education, public affairs, government information, and maps. Most of its collections are arranged in open stacks. The building also houses reference, circulation, graduate reserve, and periodicals services and the Microform and Media Service, with microcopies of newspapers, periodicals, and other materials. UCLA Library Special Collections contains rare books and pamphlets, primarily in the humanities, social sciences, and visual arts, from the fifteenth to twentieth century; University Archives; early maps and atlases; early California newspapers; manuscript collections; transcripts of oral history; ephemera; microfilm; tape recordings; prints; paintings; and drawings, including original architectural drawings. See <http://www.library.ucla.edu/ylr> or call 310-825-4732 or 310-825-1323.

EUGENE AND MAXINE ROSENFELD MANAGEMENT LIBRARY

Located in the Anderson Graduate School of Management complex, the Rosenfeld Management Library houses materials on accounting information systems, arts management, business history, corporate history, entrepreneurship, finance, general management and management theory, industrial relations, international and comparative management, management information systems, management strategy and policy, marketing, operations, research, production and operations management, public/not-for-profit management, and real estate. See <http://www.anderson.ucla.edu/rosenfeld-library> or call 310-825-3138.

HUGH AND HAZEL DARLING LAW LIBRARY

The Darling Law Library collects published case decisions, statutes, and codes of the federal and state governments of the U.S. and other common law jurisdictions, legal treatises and periodicals in Anglo-American and international law, and appropriate international and comparative law holdings. The Law Library reports to the dean of the School of Law and contains over 600,000 print volumes and over 30,000 electronic titles. See <http://www.law.ucla.edu/library/> or call 310-825-4743 or 310-825-6414.



The UCLA Library is among the top research libraries in the U.S.

LOUISE M. DARLING BIOMEDICAL LIBRARY

The Darling Biomedical Library, located in the Center for the Health Sciences, serves all the UCLA health and sciences departments and schools and the Ronald Reagan UCLA Medical Center. Its collections focus on materials related to medicine, nursing, dentistry, public health, physiological sciences, biology, molecular biology, chemistry, biochemistry, zoology, plant sciences, psychology, and life sciences, as well as rare works in the history of health and life sciences, botanical illustration, and Arabic and Persian medical manuscripts. It contains over 683,775 print volumes and thousands of journal subscriptions. See <http://www.library.ucla.edu/biomed> or call 310-825-4904.

MUSIC LIBRARY

The collections of the Music Library in the Schoenberg Music Building include books, music scores, sheet music, video and sound recordings, microforms, and interactive media on Western music history and criticism; world music styles, cultures, and traditions; and music theory, aesthetics, philosophy, and organology. Performing Arts Special Collections, housed in the Young Research Library, include rare printed and manuscript books, scores, and opera librettos; personal papers of prominent Southern California composers, performers, and writers on music; and archives of film, television, and radio music. See <http://www.library.ucla.edu/music> or call 310-825-4882 or 310-825-1353.

POWELL LIBRARY

Powell (College) Library, located in the Powell Library Building, features collections and services in support of the undergraduate curriculum in the College of Letters and Science (humanities and social, life, and physical sciences). Course reserve materials, including books, articles, audiotapes, homework solutions, lecture notes, and Academic Publishing Service Readers, are available for loan. The Campus Library Instructional Computing Commons, located on the first floor of Powell Library, provides students with access to computers and multimedia equipment, and Night Powell provides study space in a late-night reading room. There are Inquiry Laboratories with research workshops and an office of the Undergraduate Writing Center. See <http://www.library.ucla.edu/powell> or call 310-825-1938.

RICHARD C. RUDOLPH EAST ASIAN LIBRARY

Located in the Young Research Library, the Rudolph East Asian Library collects Chinese, Japanese, and Korean language materials in the humanities and social sciences. The collection is particularly strong in Japanese Buddhism, religion, Chinese and Japanese fine arts, Chinese archaeology, premodern history and classical literature on both China and Japan, and Korean literature and religion. See <http://www.library.ucla.edu/eastasian> or call 310-825-4836.

SCIENCE AND ENGINEERING LIBRARY

The Science and Engineering Library (SEL) collections on engineering, mathematics, and the physical sciences are housed in two separate locations. SEL/Boelter in Boelter Hall houses materials on aeronautics, astronomy, and atmospheric sciences; bioengineering; chemical, civil, electrical, environmental, manufacturing, mechanical, and nuclear engineering; computer science and electronics; energy technology; mathematics;

metals and materials; pollution; and statistics. SEL/Geology in the Geology Building houses materials on geology, geophysics, geochemistry, space physics, planetary science, regional geology, paleobiology, micropaleontology, invertebrate paleontology, ore deposits, geomorphology, hydrology, chemical oceanography, and all U.S. Geological Survey publications of western U.S. state geological surveys. See <http://www.library.ucla.edu/sel> or call 310-825-4951, 310-825-1055, or 310-825-3982.

SPECIAL ARCHIVES AND COLLECTIONS

In addition to the extensive collections of the University Library, a rich array of other information resources is independently managed by individual UCLA departments and centers.

CULTURAL CENTER COLLECTIONS

The Bunche Center for African American Studies Library and Media Center (<http://www.bunchecenter.ucla.edu>) contains materials reflecting the African American experience in the social sciences, arts, and humanities. The American Indian Studies Center Library (<http://www.aisc.ucla.edu/library/>) houses a collection on American Indian life, culture, and state of affairs in historical and contemporary perspectives, while the Asian American Studies Center Library/Reading Room (<http://www.aasc.ucla.edu/library/>) features Asian American and Pacific Islander resources.

Materials related to Chicano and Latino cultures are housed in the Chicano Studies Research Center Library (<http://www.chicano.ucla.edu/library>), and the William Andrews Clark Memorial Library (<http://clark.library.ucla.edu>) contains rare books, manuscripts, and other noncirculating materials on English culture (1641 to 1800). The English Reading Room (<http://www.english.ucla.edu/resource/english-reading-room>) features a noncirculating collection of British and American literature, literary history, and criticism.

INSTRUCTIONAL MEDIA COLLECTIONS AND SERVICES AND LABORATORY

The Instructional Media Collections and Services, located in the Powell Library Building, is the UCLA central resource for the collection and maintenance of educational and instructional media. Materials from the collection are loaned to regularly scheduled UCLA classes and may be rented by organizations and individuals from the campus community and beyond. Staff members monitor compliance with University guidelines and federal copyright law governing the use of video recordings. Reference books from educational and feature film distributors are available. Staff members assist in researching media on any subject and obtaining materials from outside sources. See <http://www.oid.ucla.edu/units/imcs> or call 310-825-0755.

The Instructional Media Laboratory provides access to course- or textbook-related audio, interactive, and videotape programs. Students, assigned by faculty members to study specific supplementary materials, may learn at their own pace and time. See <http://www.oid.ucla.edu/edtech/medialab> or call 310-206-1211.

UCLA FILM AND TELEVISION ARCHIVE

The UCLA Film and Television Archive is the world's largest university-based collection of motion pictures and broadcast programming. The archive's holdings of over 300,000 original film and television materials serve both the UCLA community and national and international constituencies.

The Motion Picture Collection is the country's largest collection after the Library of Congress. Among its outstanding collections are 27 million feet of Hearst Metrotone News film dating back to 1919. Other noteworthy holdings include studio print libraries from Twentieth-Century Fox, Paramount Pictures, Warner Brothers, Sony/Columbia Pictures, Republic Pictures, RKO, New World Pictures, and Orion Pictures. Special collections document the careers of William Wyler, Hal Ashby, Tony Curtis, Rosalind Russell, Stanley Kramer, Cecil B. DeMille, Harold Lloyd, Charlton Heston, Rock Hudson, and other persons of prominence in the American film industry.

The Television Collection is the nation's largest university-based collection of television broadcast materials. Its titles include kinescopes, telefilms, and videotapes spanning television history from 1946 to the present, with emphasis on drama, comedy, and variety programming. A special collection of over 100,000 news and public affairs programs is also maintained.

The archive's exhibition program presents evening screenings and discussions that focus on archival materials, new work by independent filmmakers, and an array of international films. See <https://www.cinema.ucla.edu> or call 310-206-8013 or 310-206-5389.

The Archive Research and Study Center (ARSC) in the Powell Library Building (310-206-5388) provides on-site viewing of the Film and Television Archive's collections and research consultation to students, faculty, and researchers.

OTHER COLLECTIONS

The Ethnomusicology Archive (<http://www.ethnomusic.ucla.edu/archive>) houses over 100,000 sound and audiovisual recordings of folk, ethnic, and non-Western classical music, while the Social Science Data Archive (<http://www.library.ucla.edu/location/social-science-data-archive> or <http://dataarchives.ss.ucla.edu>) contains a collection of statistical databases for the social sciences. The UCLA Lab School Gonda Family Library (<http://www.labschool.ucla.edu/learning/library>) features contemporary materials for children from kindergarten through junior high school and adult works on children's literature.

The Film and Television Archive contains 220,000 original film and TV holdings, including millions of feet of Hearst Metrotone News film dating back to 1919.



Recordings and a vast collection of musical instruments from non-Western countries are held by the Ethnomusicology Archive.

PARKS, RESERVES, AND NATURAL SCIENCE RESOURCES

The geography of Southern California is conducive to research in the natural sciences. The diverse region is a natural laboratory supported by numerous UCLA resources for study.

BIOLOGICAL COLLECTIONS

The Biological Collections of the Ecology and Evolutionary Biology Department include marine fishes from the Eastern Pacific and Gulf of California, and birds and mammals primarily from the Western U.S., Canada, Mexico, and Central America. The department also maintains a more limited collection of amphibians, reptiles, and fossil vertebrates. See <https://www.eeb.ucla.edu/dickey/index.php> or call 310-825-1282.

DIVISION OF LABORATORY ANIMAL MEDICINE

The Division of Laboratory Animal Medicine is responsible for the procurement, husbandry, and general welfare of animals required for teaching and investigative services. It also administers the veterinary medical and husbandry programs throughout the campus. See <https://portal.dlam2.ucla.edu/Pages/Default.aspx> or call 310-794-2571.

MILDRED E. MATHIAS BOTANICAL GARDEN

The Mathias Botanical Garden is a living museum with one of the most important botanical collections in the U.S. With specimens from all over the world, the seven-acre expanse on south campus specializes in tropical and subtropical plants, including some 5,000 species in 225 families. The botanical garden also has a research herbarium containing 180,000 dried plant specimens. School and community group tours are available as are individual guided tours. See <http://www.botgard.ucla.edu> or call 310-825-1260 or 310-206-6707.



The Mathias Botanical Garden offers thousands of plants for study and enjoyment.

STUNT RANCH SANTA MONICA MOUNTAINS RESERVE

The University of California founded the UC Natural Reserve System (NRS) in 1965 to preserve undisturbed natural areas representing the state's vast ecological diversity for students, teachers, and researchers from public and private educational institutions to use as outdoor classrooms and living laboratories. The Stunt Ranch Santa Monica Mountains Reserve, administered by the Los Angeles campus, officially joined the UC NRS in November 1995. The 310-acre site is a 40-minute drive from UCLA and includes fine examples of chaparral and oak woodland ecosystems. The reserve lends itself to programs that focus on the natural ecosystems and issues of resource management in the urban/wildland interface. Undergraduate and graduate courses in the departments of Anthropology, Earth, Planetary, and Space Sciences, Ecology and

Evolutionary Biology, Geography, Physics and Astronomy, and the Institute of the Environment and Sustainability utilize Stunt Ranch and other NRS sites. See <http://stuntranch.ucnrs.org>. For more information, contact the Director of Research at garyb@ucla.edu or call 310-825-5063.

STUDENT SERVICES

Like a small city, UCLA has its own police department and fire marshal, an equivalent to the phone company, health center, corner restaurants, and shops. Hundreds of services for the campus community facilitate academic and personal endeavors.

SERVICES FOR STUDY

From academic advising to advanced computer support, UCLA services for study give students the tools they need to achieve academic success.

ACADEMIC COUNSELING

Many sources of academic counseling are available. Faculty advisers and counselors in the College and each school help students with major selection, program planning, academic difficulties, degree requirements, and petitions.

Advisers in each department counsel undergraduates concerning majors offered and their requirements, and possible career and graduate school options (see Advising and Academic Assistance in the Undergraduate Study section of this catalog). In addition, special graduate advisers are available in each department to assist prospective and currently enrolled graduate students.

BRUIN ONLINE

Bruin OnLine (BOL) is the campus Internet service provider for UCLA students, faculty, and staff and a vehicle for accessing campus network communication services. Bruin OnLine services include access to the campus backbone network and the Internet, e-mail accounts, Google Apps for UCLA, Box, and personal web hosting. Wireless Internet access is available in select campus locations for BOL account holders. Utility software can be downloaded from the BOL website. Help desk services are available online, by e-mail at consult@ucla.edu, by telephone at 310-267-4357, and at the BOL office in Kerckhoff Hall. See <https://www.bol.ucla.edu>.

COMPUTER LABORATORIES

Student computer laboratories are supported through the Campus Library Instructional Computing Commons (CLICC, <http://www.library.ucla.edu/clicc>), a collaborative effort of the Center for Digital Humanities (<http://www.cdh.ucla.edu>), Social Sciences Computing (<https://computing.sscnet.ucla.edu/labs/>), Office of Instructional Development, and Powell Library. Some 15 computer laboratories are available throughout the campus, each with computers, peripherals, software, and services that cater to specific areas of study. See the websites listed above or <https://www.it.ucla.edu/ucla-computer-labs> for further information.

COURSE READERS

Course Reader Solutions provides faculty custom course readers in both traditional print and ebook formats, obtaining 5,000 copyright authorizations each year. The office is located in the Textbooks Department on the A Level of Ackerman Union. See <http://shop.uclastore.com/c-323-custom-course-readers.aspx> or call 310-825-2831.

COURSE WEBSITES

The Instructional Enhancement Initiative (IEI) assures that all UCLA undergraduate nontutorial courses provide an individual online course website for faculty members, teaching assistants, and enrolled students. The sites facilitate the distribution of supplementary course materials, lecture notes, homework assignments, research links, and electronic communication, including virtual office hours and class bulletin boards for interactive question and answer sessions. Instructors decide which of these online capabilities are best suited to their course websites.

DISABILITIES AND COMPUTING PROGRAM

The Disabilities and Computing Program (DCP) provides adaptive technology and information access support and services to students, faculty, and staff with disabilities. Applications include voice input, Braille, large print, screen-reading software, and learning disability software. Consulting and training for individuals and departments are available. The program also offers Web accessibility evaluations and guidelines. See <https://dcp.ucla.edu> or call 310-206-7133 or 310-206-6004.

MyUCLA

MyUCLA provides the easiest way for students to gain real-time access to their academic, financial, and personal records. The site is designed with an intuitive visual interface that walks students through the different steps of the procedure they are trying to accomplish, whether it be to check their billing accounts, change address information, view and print Study Lists or Degree Progress Reports (DPRs) or Degree Audits, or see term grades. MyUCLA also provides a convenient way to enroll in classes, to verify enrollment appointment times, and to view real-time enrollment counts.

Other features include a notifications section for important announcements; a subscriptions section to access online information from newspapers, journals, or magazines or from University departments, clubs, and organizations; a personal calendar; and links to UCLA online resources, including the Schedule of Classes and *UCLA General Catalog*. WebMail provides students an intuitive way to access private e-mail accounts from any computer through MyUCLA.

Students access the site using their UCLA Logon ID and password. MyUCLA operates Sunday from noon through Tuesday at 1 a.m., and Tuesday through Saturday from 6 a.m. to 1 a.m., including holidays. See <http://my.ucla.edu> or call 310-206-4525.

VETERANS AFFAIRS SERVICES

The veterans affairs benefits officer, 1113 Murphy Hall, 310-825-5391, provides information for veterans and eligible dependents about veterans' educational

benefits, tutorial assistance, and the work-study program; issues fee waivers to dependents of California veterans who are deceased or disabled because of service-connected injuries and who meet the income restrictions in Education Code Section 10652; and certifies student status for recipients of educational benefits.

SERVICES FOR HEALTH AND SAFETY

ARTHUR ASHE STUDENT HEALTH AND WELLNESS CENTER

The Ashe Student Health and Wellness Center in Westwood Plaza (310-825-4073) is a full-service medical clinic available to all registered UCLA students. Most services are subsidized by registration fees, and a current BruinCard is required for service. Its clinical staff of physicians, nurse practitioners, and nurses is board certified. It offers primary care, specialty clinics, and physical therapy. The center has its own pharmacy, laboratory, and optometry and radiology sections. Visits, core laboratory tests, X-rays, and preventive immunizations are all prepaid for students with the University of California Student Health Insurance Plan (UCSHIP).

The cost of services received outside the Ashe Center, such as emergency room services, is each student's financial responsibility. Students are required to purchase medical insurance either through the UCLA-sponsored UCHIP or other plans that provide adequate coverage. Adequate medical insurance is a condition of registration. See Registration in the Undergraduate Study and Graduate Study sections of this catalog.

Consult the Ashe Center website for specific information on its primary care, women's health, immunization, health clearance, optometry, travel medicine, and mind-body clinics, as well as on dental care available to students at discounted rates. See <http://www.studenthealth.ucla.edu>.

For emergency care when the Ashe Center is closed, students may obtain treatment at the Ronald Reagan UCLA Medical Center Emergency Room on a fee-for-service basis.

If students withdraw during a school term, all Ashe Center services continue to be available on a fee basis for the remainder of that term, effective from the date of withdrawal.

MENTAL HEALTH SERVICES

Services for mental health range from routine counseling and psychotherapy to crisis counseling.

Counseling and Psychological Services

Counseling and Psychological Services (CAPS) offers short-term personal counseling and psychotherapy in 221 Wooden Center West, 310-825-0768.



Psychologists, clinical social workers, and psychiatrists assist with situational stresses and emotional problems from the most mild to severe. These may include problems with interpersonal relationships, academic stress, loneliness, difficult decisions, sexual issues, anxiety, depression, or other concerns affecting the personal growth of students.

In addition, Campus Assault Resources and Education (CARE) counselors—individuals who provide information, support, and resources for members of the UCLA community who have been raped, sexually assaulted, stalked, or involved in a dating or domestic violence incident—can discuss options and alternatives, help identify and assist in contacting the most appropriate support services, and answer any questions that may arise. See <http://www.counseling.ucla.edu/CARE>.

Service is confidential and available to regularly enrolled students. Students are seen individually by appointment or may choose from a number of groups offered each term. Emergency and walk-in counseling is also available. See <http://www.counseling.ucla.edu>.

CAPS is also a designated Sexual Harassment Information Center, as well as a campus Harassment Information Center, available to all UCLA students (see Harassment in the Appendix for more information).

STUDENT SAFETY AND SECURITY

Dial 911 from any campus phone for police, fire, or medical emergencies. For nonemergency information, contact the UCLA Police Department. See <https://www.ucpd.ucla.edu> or call 310-825-1491.

The police department provides a free Campus Escort Service every day of the year from dusk to 1 a.m. Uniformed community service officers (CSOs)—specially trained UCLA students—walk students, staff, faculty, and visitors between campus buildings, local living areas, or Westwood Village. See <https://www.ucpd.ucla.edu/services/community-service-officers-csos/evening-escorts> or call 310-794-WALK.

The free Evening Van Service provides a safe, accessible, and convenient mode of transportation around campus at night. Vans provide transportation between Ackerman Union, westside apartments, Lot 36, campus buildings, and residence halls Monday through Thursday from 6 to 11 p.m. See <https://www.ucpd.ucla.edu/services/community-service-officers-csos/evening-van-service-walking-escorts> or call 310-825-1493 to request pick up from most of the drop-off locations.



UCLA Campus Assault Resources and Education (CARE) Prevention and Education Services—including workshops, self-defense classes, counseling, and referrals—increase physical and psychological preparedness and heighten awareness of the complex issues of rape, sexual assault, and relationship violence. See <http://www.counseling.ucla.edu/CARE> or call 310-825-0768.

Cardiopulmonary resuscitation (CPR) and basic emergency care courses are offered by the Center for

UCLA EMERGENCY NUMBERS

Police, Fire, or Medical Emergency	911
UCLA Police (24 hours)	310-825-1491
UCLA Medical Center Emergency Room (24 hours)	310-825-2111
Campus Escort Service (dusk to 1 a.m.)	310-794-WALK

Prehospital Care and can be organized most days and times. See <https://www.cpc.mednet.ucla.edu> or call 310-267-5959.

The Office of Environment, Health, and Safety (EH&S) works to reduce workplace hazards on campus and to promote safety at all levels of the University community. EH&S is a consulting resource for UCLA departments and personnel who want to learn how to make the workplace safe. It handles requests for safety information and training, regulatory interpretation and applicability, approval for potentially hazardous procedures, resolution of safety problems, and surveillance and monitoring of persons and workplaces. See <https://www.ehs.ucla.edu> or call 310-825-5689.

ASSOCIATED STUDENT SERVICES

Founded when UCLA opened in 1919, the Associated Students UCLA (ASUCLA) provides services to the campus community through student government, student media, and services and enterprises. Every registered UCLA student is a member of ASUCLA. See <http://asucla.ucla.edu>.

STUDENT GOVERNMENT

Many facets of student life at UCLA are sponsored or organized by student government. Getting involved in the decision-making process is rewarding and offers avenues of expression students may not find in other aspects of their university experience.

Graduate Students Association

The Graduate Students Association (GSA) is the official organization representing UCLA graduate and professional students in academic, administrative, campus, and statewide areas. GSA appoints or elects graduate student members to important campus organizations and committees from the Student Fee Advisory Committee to the committees of the Academic Senate. It sponsors graduate student orientation, the Graduate Student Resource Center, the Graduate Writing Center, and various graduate student journals, programs, and social events, including the Melnitz Movies film program. See <http://gsa.asucla.ucla.edu> or call 310-206-8512.

Undergraduate Students Association

Undergraduate student government is embodied in the Undergraduate Students Association (USA). Its governing body, the Undergraduate Students Association Council (USAC), is comprised of elected officers as well as appointed administrative, alumni, and faculty representatives. Every UCLA undergraduate student is a member of USA. See <https://www.usac.ucla.edu>.

The breadth of USA activities offers an invaluable service to the campus and surrounding communities and provides students the opportunity to participate in and

benefit from these endeavors. For example, USA programs benefit both campus and community through programs to tutor youths and adults, address health needs of ethnic communities, combat poverty and homelessness, and better the environment.

Student government also supports approximately 20 student advocacy groups on campus from the African Student Union to the Vietnamese Student Union.

CAMPUS EVENTS

Each year approximately 40,000 students, faculty, and staff attend programs of the Campus Events Commission (CEC), including a low-cost film program, a speakers program, and performances by dozens of outstanding entertainers. See <http://www.uclacec.com> or call 310-825-1958.

The Speakers Program brings entertainers, politicians, and literary figures to campus and presents two annual awards programs—the Jack Benny Award for comedic excellence and the Spencer Tracy Award for outstanding screen performance. Speakers and awardees have included notables as varied as Bill Gates, Whoopi Goldberg, and Tom Hanks.

The Concert Program brings new and name performing artists like Rage Against the Machine or A Tribe Called Quest to UCLA for free and affordably priced concerts.

The Cultural Affairs Commission sponsors art exhibits in the Kerckhoff Hall Art Gallery, the JazzReggae Festival, Bruin Bash, Hip Hop Congress, and Worldfest. See <http://www.culturalaffairsla.com> or call 310-825-6564.

PUBLICATIONS, WEB, AND BROADCAST MEDIA

Publications and media provide a training ground for aspiring writers, journalists, photographers, and media managers while serving the communication needs of the campus community. Most publications offices are in Kerckhoff Hall. See <http://apply.uclastudentmedia.com> or call 310-825-2787.

Daily Bruin

The *Daily Bruin*, with a circulation of 9,000, is one of the largest daily newspapers in Los Angeles. As the principal outlet for campus news, the *Bruin* is published each weekday of the academic year (once a week during the summer) and is distributed free from kiosks around campus and local areas. Students work as reporters, editors, designers, photographers, videographers, and radio reporters, as well as advertising sales representatives and marketing account executives. New staff members are welcome every quarter. See <http://dailybruin.com> or call 310-825-9898.

Newsmagazines

Seven print newsmagazines reflecting the diversity of the campus community are published each term. *Al-Talib* (<http://al-talib.org>), *Fem* (<http://femmagazine.com>), *Ha'Am* (<http://haam.org>), *La Gente* (<http://lagente.org>), *Nommo* (<http://nommomagazine.com>), *OutWrite* (<http://outwritenewsmag.org>), and *Pacific Ties* (<http://pacificties.org>) deal respectively with issues relevant to the Muslim; feminist; Jewish; Chicano, Latino, and Native American; African American; lesbian, gay, bisexual, and transgender; and Asian communities. Each includes news and features on political

and cultural affairs both on and off campus. Prospective staffers are welcome.

Online Media

Student Media supports the Bruinwalk.com community portal website at <http://www.bruinwalk.com>. Features include UCLA professor reviews, used book trading, reviews of apartments near UCLA, and a campus calendar.

UCLAradio

UCLAradio broadcasts live over the Internet from <http://uclaradio.com> and features college alternative, hip-hop, jazz, and world music. It also covers select Bruin football, basketball, and baseball games and a lineup of sports talk shows. Studios are in Ackerman Union, 310-825-9999 (request line) or 310-825-6955; all positions, including on-air, news staff, and advertising representatives, are open to students.

UCLA Yearbook

The UCLA yearbook, *BruinLife*, is one of the largest student publication efforts on campus. It contains photographs and information on undergraduate students, graduating seniors, athletic teams, fraternities and sororities, and campus activities. Students who would like to participate may contact the yearbook staff. See <http://bruinlife.com> or call 310-825-2640.

UCLA RESTAURANTS

ASUCLA operates more than a dozen restaurants and two coffee houses on campus, assuring a range of eating options from Italian to sushi. From the residence halls to the student union, a restaurant is never far. Hours vary, especially during summer and holidays. For hours and locations of all the restaurants, see <http://asucla.ucla.edu/ucla-restaurant-hours/>.

UCLA STORE

In terms of sales, the UCLA Store is the biggest college store in the nation. There are five locations on campus. Author signings, sales, and other special events are announced in the *Daily Bruin* or on the UCLA Store site. See <http://shop.ucla.edu>.

The UCLA Store—Ackerman Union, (310) 825-7711, has eight departments. The Textbooks department carries required and recommended texts for most undergraduate and many graduate courses and operates a buyback service so students can sell used texts.

BookZone offers reference books and a wide selection of titles in literature, science, history, and technical disciplines, including the UCLA Faculty Authors section. The Computer Store carries personal computers, peripherals, accessories, and software at low academic prices. Essentials offers school and office supplies, including consumables for computer printers. BearWear specializes in UCLA emblematic merchandise. Fast Track carries active sportswear for men and women, plus an extensive Clinique counter. Market is a convenience store,



The UCLA Store has five campus locations. Along with textbooks, the store offers computers, clothing, supplies, cosmetics, and a mini-market in the Ackerman Union main store.



New freshman and transfer students who are admitted for fall quarter and apply on time are guaranteed housing. Graduate student housing is also available.

with snacks, health and beauty aids, gifts, and greeting cards. U See LA Optometry, 310-267-4772, offers comprehensive eye examinations, as well as over 700 eyeglasses, sunglasses, and contact lenses. See <http://www.studenthealth.ucla.edu/CustPages/Services.aspx> for more information.

UCLA Store—Health Sciences, <https://shop.uclastore.com/c-321-health-sciences.aspx>, 310-825-7721, specializes in books and supplies for students in dentistry, medicine, nursing, public health, and related areas. UCLA Store—Lu Valle Commons, 310-825-7238, carries art supplies and books, as well as textbooks and supplies for all on-campus Extension courses and selected academic programs (architecture and urban design, art, design, film, information studies, law, management, public policy, social welfare, theater, urban planning). North Campus Shop, South Campus Shop (Court of Sciences), and Hill Top Shop in Sunset Village, are convenience store locations.

OTHER SERVICES AND ENTERPRISES

ASUCLA oversees a variety of other services ranging from a post office to a hair salon. Most are located in Ackerman Union.

Students preparing to graduate can use the Campus Photo Studio, <http://shop.uclastore.com/c-522-grad-portraits.aspx>, 310-206-8433, for their senior yearbook portraits. Graduation Etc., <http://shop.uclastore.com/c-320-graduation-etc.aspx>, 310-825-2587, sells and rents caps, gowns, and hoods for degree ceremonies and provides announcements, diploma mounting, and other graduation-related products and services.

On the lighter side, ASUCLA operates Game On, <http://asucla.ucla.edu/student-union/game-on/>, 310-794-2122, with PC, Xbox 360, PS3, and Wii electronic games.

SERVICES FOR STUDENT LIFE

From housing to transportation, basic student needs are facilitated by services designed to enhance all aspects of student living.

ACCOMMODATIONS

The UCLA Housing website is the best guide for finding the right kind of accommodation for different lifestyles and budgets. It includes detailed information about the different residence options, dining plans, support and extracurricular programs, and an online housing application. See <https://housing.ucla.edu> or call 310-206-7011.

On-Campus Housing

Many students, especially those in their first year, choose to live on campus. Besides the convenience, it's

a good way to meet other people and to find out about social and academic activities. Four residence halls, four deluxe residence halls, two residential suites, and five residential plazas accommodate over 11,000 undergraduate students. All on-campus housing is coed and within walking distance to classrooms.

Rooms in undergraduate residences are furnished and usually shared between two to three students. Meals are served daily at residential restaurants, and students may choose from a variety of meal plans.

To apply for on-campus housing, the application must be completed online by the deadlines set by the housing office. See <https://housing.ucla.edu/my-housing>. Students applying for winter or spring quarter are assigned on a space-available basis in the order applications are received.

Per-person costs for the academic year start at \$11,516. Consult the housing office for the range of price options. See <https://housing.ucla.edu/my-housing/rates-contracts-rules/housing-contract-rates-rental-rates>.

The Office of Residential Life is responsible for student conduct in residence halls and suites and provides professional and student staff members to counsel residents on programming and other problems. See <https://reslife.ucla.edu> or call 310-825-3401.

The office is also a designated Sexual Harassment Information Center and Harassment Information Center available to all UCLA students (see Harassment in the Appendix for more information).

Off-Campus Housing

Within walking distance of campus, the University maintains nine undergraduate off-campus apartment buildings for full-time single transfer and upper division students. Apartments vary from singles to three-bedroom units, with bedrooms usually shared by two or three students. Not all types of apartment spaces are available to entering students. See <https://housing.ucla.edu/my-housing/maps-and-tours/virtual-tours-contract-university-apartments> or call 310-206-7011.

Off-campus apartments for married, single-parent, and single graduate students include furnished and unfurnished studio, one-, two-, and three-bedroom units, some located within walking distance of campus and others about five miles from campus. Assignment to several of the apartment units is by wait list; students must be accepted to UCLA to apply. See <https://housing.ucla.edu/student-housing/graduate-students-and-students-with-families/living-in-university-apartments> or call 310-206-7011.

The UCLA Community Housing Office provides information and listings for non-University-owned apartments, cooperatives, private apartments, roommates, rooms in private homes, and short-term housing. Rental listings are updated daily. The office also has bus schedules, area maps, and neighborhood profiles. A current BruinCard or letter of acceptance is required for service. See <https://housing.ucla.edu/community-housing> or call 310-825-4491.

Many of the fraternities and sororities at UCLA own chapter houses. Complete information and membership requirements are provided by Fraternity and Sorority Relations. See <http://www.greeklife.ucla.edu/Greek-Housing/Summer-Housing> or call 310-825-6322.

BANKING

Automated teller machines representing several major banks are located in Ackerman Union and near restaurants and shops around campus.

The University Credit Union has an office in West Los Angeles and a branch office in Ackerman Union. See <https://www.ucu.org> or call 310-477-6628.

BRUINCARD

The UCLA BruinCard is a mandatory campuswide identification card that can electronically confirm student status and eligibility for services. Supportive photo identification, such as a driver's license or state ID, passport, or military ID, is required when the card is issued.

The primary benefit of the BruinCard is convenience. It is a versatile card that serves the following functions: confirmation of student status; ID card for faculty, staff, and students; residence hall access and meal card; laundry card; library card; recreation card; debit card (if activated) for purchases at campus stores and restaurants on and off campus; and access to the Santa Monica and Culver City bus lines.

Students with a hold from an office with which they have an outstanding obligation (financial, academic, or administrative) may not receive services until the hold is released by the initiating office. For details on outstanding holds and initiating offices, check MyUCLA at <http://my.ucla.edu>.

The BruinCard center is located in 123 Kerckhoff Hall. See <https://secure.bruincard.ucla.edu/bcw/web/home.aspx> to check account balance, make deposits, view recent transactions, and report lost or stolen cards or call 310-825-2336.

BRUIN RESOURCE CENTER

The Bruin Resource Center (BRC) in the Student Activities Center can help students navigate the campus and its many services by directing them to the correct office or personnel to meet their specific needs.

The center provides services to all UCLA students, including specialized services for transfer and reentry students, students who are transitioning out of foster care, student parents, and veterans. Additional offerings include workshops and academic courses to help students develop practical skills and knowledge to succeed at UCLA. See <http://www.brc.ucla.edu> or call 310-825-3945.

The BRC also houses the Veterans Resource Office, which offers services specifically designed to assist students who are U.S. armed forces veterans or current military members. See <http://www.veterans.ucla.edu> or call 310-206-6915 or 310-206-3819.

CAREER CENTER

The UCLA Career Center, located in the Strathmore Building, offers career planning and employment assistance free to all UCLA students. See <http://career.ucla.edu> or call 310-206-1915.

Career Planning and Exploration

Career counselors provide assistance in selecting a major, setting realistic career goals, investigating career options, evaluating graduate and professional school programs, and developing skills to conduct a successful

job search. Information on local, national, and international internship opportunities can assist students in exploring different career possibilities, making important professional contacts, and obtaining valuable on-the-job experience. The Career Center library offers a collection of over 3,000 resources, including career-related books and directories, videos, periodicals, and other materials. In addition, the Career Center offers workshops on a variety of career-related topics; many are repeated several times each term.

Employment Assistance

Students who need extra money to finance their college degree can find a large volume of part-time, temporary, and seasonal employment leads advertised through the Career Center's 24-hour BruinView™ online listings. Students and recent graduates looking for full-time, entry-level career positions may access hundreds of current professional, managerial, and technical openings in numerous career fields. Seniors and graduate students may participate in campus interviews for positions in corporations, government, not-for-profit organizations, elementary and secondary schools, community colleges, and four-year academic institutions. Annual career fairs and special events offer additional opportunities to meet potential employers.

CENTRAL TICKET OFFICE

Tickets for UCLA events are available at the Central Ticket Office (CTO) in the James West Alumni Center. As part of its service, CTO offers students with current BruinCards discount tickets to campus athletic and cultural events and local movies. Students may also purchase tickets to off-campus events through Ticketmaster, as well as student discount tickets for Los Angeles area buses. See <http://tickets.ucla.edu> or call 310-825-2101.



CHILD CARE

UCLA Early Care and Education (ECE) operates three accredited child care centers near the University and student housing. Care is provided for children two months to six years old at most centers. Fees depend on the age of the child. A limited number of state grants and partial scholarship subsidies is available for eligible student families. See <https://www.ece.ucla.edu> or call 310-825-5086.

The ECE Child Care Resource Program helps parents make off-campus child care arrangements and coordinates a Choosing Child Care Forum each month. See <https://www.ece.ucla.edu/programs/ece-resource-and-information-program> or send e-mail to childcareinfo@ece.ucla.edu.

University Parents Nursery School is a UCLA-affiliated, parent-participation, multicultural cooperative school for two- through five-year-old children of UCLA students, faculty, and staff. It is located in the Univer-

The campus offers multiple services to support students who are veterans and members of the military.

BruinCard is a student ID that also grants access to residence halls and recreation, and offers retail and transportation discounts.

sity Village Child Care Complex. See <http://www.upns.info> or call 310-397-2735.

DEAN OF STUDENTS/STUDENT CONDUCT

The Office of the Dean of Students in Murphy Hall helps students, either directly or by referral, with whatever needs they might have. Direct services include general counseling; sending emergency messages to students; and assisting in understanding University policies and procedures, including grievance procedures regarding student records, discrimination, and student debts.

In addition, the office publishes Official Notices in the *Daily Bruin* at various times during the year. Such notices are important, and all students are held responsible for the information in them.

The Office of Student Conduct administers campus discipline and enforces the standards of citizenship that students are expected to follow at UCLA. Standards involve complying with the policies and regulations governing this campus and being aware that violation of those policies or regulations can result in disciplinary action. Refer to Student Conduct Policies in the Appendix for more information. For both offices, see <http://www.deanofstudents.ucla.edu> or call 310-825-3871.

INTERNATIONAL STUDENT SERVICES

International students can take advantage of services through the Dashew Center in Bradley International Hall, including questions about immigration, cultural adjustment, and academics.



International student services in Bradley International Hall provide support for UCLA's international community, particularly for nonimmigrant students. An online orientation program helps international students become familiar with visa regulations and campus life at UCLA and in the U.S. Programs throughout the year allow them to share viewpoints with American students and the community.

Dashew Center for International Students and Scholars

The Dashew Center for International Students and Scholars assists students with questions about immigration, employment, government regulations, financial aid, academic and administrative procedures, cultural adjustment, and personal matters. The center seeks to improve student and community relationships, helps international students with language, housing, and personal concerns, and sponsors cultural, educational, and social programs. The center is a designated Sexual Harassment Information Center for international students and a Harassment Information Center available to all UCLA students (see Harassment in the Appendix for more information). In addition, the center provides visa assistance for faculty members, researchers, and postdoctoral scholars. See <http://www.internationalcenter.ucla.edu> or call 310-825-1681.

LESBIAN GAY BISEXUAL TRANSGENDER CAMPUS RESOURCE CENTER

The Lesbian Gay Bisexual Transgender (LGBT) Campus Resource Center in the Student Activities Center provides education, information, and advocacy services

for the UCLA community. The center offers support groups, educational workshops, training seminars, and social activities and maintains a library of 4,000 books, periodicals, and films. The staff provides confidential assistance and support to students, faculty, and staff who feel they have experienced harassment or discrimination or who wish to connect to the campus LGBT community. See <http://www.lgbt.ucla.edu> or call 310-206-3628.

OFFICE FOR STUDENTS WITH DISABILITIES

The Office for Students with Disabilities (OSD) in Murphy Hall provides academic support services to regularly enrolled students with documented permanent or temporary disabilities in compliance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA) of 1990, and University policies. Services include campus orientation and accessibility, notetakers, reader service, sign language interpreters, Learning Disabilities Program, registration assistance, test-taking facilitation, special parking assistance, real-time captioning, assistive listening devices, on-campus transportation, adaptive equipment, support groups and workshops, tutorial referral, special materials, housing appeals, referral to the Disabilities and Computing Program, and processing of California Department of Rehabilitation authorizations. There is no fee for any of these services. All contacts and assistance are handled confidentially. See <http://www.osd.ucla.edu> or call 310-825-1501, TDD 310-206-6083, fax 310-825-9656.

For information on the Disabilities and Computing Program, see Services for Study under Student Services earlier in this section.

OFFICE OF OMBUDS SERVICES

The Office of Ombuds Services responds to issues and concerns from students, staff, faculty, and administrators. Acting impartially, ombuds persons may investigate unresolved conflicts or facilitate the resolution of problems for which there are no established guidelines and may also, where possible and when requested by the visitor, assist in resolving an issue through mediation (including sexual harassment cases). The office is in the Strathmore Building. See <http://www.ombuds.ucla.edu> or call 310-825-7627.

The office is also a designated Sexual Harassment Information Center for students, faculty, and staff, as well as a campus Harassment Information Center available to all UCLA students (see Harassment in the Appendix for more information).

PARKING AND COMMUTER SERVICES

Parking, ridesharing, and other transportation options and services are offered through UCLA Transportation Services. There are several commuting alternatives for students to get to and from campus without driving their cars. Both full-time and part-time riding opportunities are available.

Commuter Services

The Bruin Commuter Services (BCS) Office is the best place for information on transportation options. Many students form or join existing UCLA carpools or vanpools. Students can use Zimride (<http://www.zimride.com/ucla>), a Facebook application, to find one-time rides or create a carpool with fellow Facebook

users. More than 160 vanpools (<https://main.transportation.ucla.edu/getting-to-ucla/vanpool>) commute to UCLA from 85 Southern California communities, and full- and part-time riding opportunities are available. The Bruin Commuter Club (<https://main.transportation.ucla.edu/getting-to-ucla/bruin-commuter-club>) offers special benefits and incentives to eligible UCLA students who ride public transit, a UCLA vanpool, or carpool with two other persons. Students may also rent a car through Zipcar (<http://www.zipcar.com/ucla> or <https://main.transportation.ucla.edu/getting-around-campus/zipcar>).

Information on these and other commuting options, including an extensive network of public transit, are available online or at the BCS Office in the Strathmore Building at Strathmore Drive and Westwood Plaza. See <https://main.transportation.ucla.edu/getting-to-ucla/commute-options> or call 310-794-7433.

Parking Permits

Students interested in purchasing parking should access the student parking application at <https://www.transportation.ucla.edu/appmain.htm> using their UCLA logon ID to see personalized parking options based on campus data (class standing, housing status, graduate student major, etc.). Parking offers are prioritized according to class standing listed in the student database as follows: graduate students, followed by seniors and juniors, followed by sophomores and first-year students. Within each category, priority is given to students who carpool. Students must be registered for the current term to apply for parking.

All commuter students qualify for parking. Students living within ZIP code 90024 must pay the residence hall parking rate. Students living on campus (excluding Regents' Scholars) must have local, verifiable, current, continuous paid employment, paid internship, or an academic apprenticeship to qualify for parking.

Carpool groups that apply on time are given priority for carpool permits at a discounted rate. All members of the carpool must qualify under the carpool parking requirements at <https://main.transportation.ucla.edu/campus-parking/students/student-carpool-permit-requirements>.

Students are encouraged to apply on time and follow all application and payment guidelines to increase their chances of receiving a permit. Permits are not guaranteed. Students who are not offered a parking assignment during a given term must reapply for parking in a subsequent term. Student parking applications, payment deadlines, and related information are available on the student parking permits web page at <https://main.transportation.ucla.edu/campus-parking/students>.

Students with permanent disabilities who have disabled persons' placards or DMV-issued disabled persons' license plates, and students with short-term disabilities, may apply to the Office for Students with Disabilities for parking assignments and on-campus transportation assistance. See <http://www.osd.ucla.edu/Disability-Parking> or call 310-825-1501.

Parking permits and access cards to campus lots and structures are not transferable and may be purchased only from UCLA Parking Services. Resale is prohibited and subjects both buyer and seller to disciplinary action.

POST OFFICES

Campus mail is handled by UCLA Mail, Document, and Distribution Services, which offers full-service document processing and delivery for the campus community. See <https://www.mdds.ucla.edu> or call 310-825-0374.

ASUCLA operates a U.S. Postal Service express post office on A Level in Ackerman Union. Call 310-206-5596 for more information.

STUDENT LEGAL SERVICES

Through Student Legal Services in Murphy Hall, currently registered and enrolled students with legal problems or questions about their legal rights can get assistance from attorneys or law students under direct supervision of attorneys. They help students resolve legal problems, including those related to landlord/tenant relations; accident and injury problems; criminal matters; domestic violence and harassment; divorces and other family law matters; automobile purchase, repair, and insurance problems; healthcare, credit, and financial aid issues; consumer problems; and University-related issues. Assistance is available only by appointment. See <http://www.studentlegal.ucla.edu> or call 310-825-9894.



STUDENT ACTIVITIES

The opportunities to participate in extracurricular activities at UCLA are virtually unlimited and provide a good way for students to expand their horizons beyond classroom learning.

CLUBS AND ORGANIZATIONS

Joining a club or organization is a great way to meet other students with shared interests and to get involved in campus life.

COMMUNITY PROGRAMS OFFICE

The UCLA Community Programs Office (CPO) was established in 1970 by concerned students, staff, and faculty who felt that students' educational experiences at UCLA should expand outside the classroom and into Los Angeles.

Currently, the CPO houses 24 student-initiated community service projects that provide educational, legal, social, medical, and academic services to underserved communities in Southern California, seven student-initiated outreach projects that seek to improve the number of students from underserved areas of Southern California who attend colleges and universities, and five student-initiated retention projects that seek to ensure that all students who enter UCLA actually graduate. CPO is unique because it provides a multicultural and ethnically diverse environment to the UCLA campus. See <http://www.cpo.ucla.edu> or call 310-825-5969.

FRATERNITY AND SORORITY RELATIONS

Fraternities and sororities have been at UCLA since the early 1920s. Today UCLA is home to more than 70 national and local Greek-letter organizations that make up one of the largest Greek systems on the West Coast.



Fraternity and Sorority Relations (FSR) interprets University policies, procedures, and regulations and acts as a liaison between established Greek organizations and the University. It coordinates Greek-letter social organizations that participate in programs such as the Greek Leadership Conference, Greeks against Sexual Assault (GASA), Greek Week, New Member Forums, Dating Expectations Programs, intramural tournaments, and University-sponsored programs. See <http://www.greeklife.ucla.edu> or call 310-825-6322.

FSR is a designated campus Harassment Information Center available to all UCLA students (see Harassment in the Appendix for more information).

STUDENT ORGANIZATIONS, LEADERSHIP, AND ENGAGEMENT

UCLA has over 1,000 different organizations recognized by Student Organizations, Leadership, and Engagement (SOLE)—formerly the Center for Student Programming)—more than are found on almost any other university campus in the country.

Organizations registered with SOLE include political, recreational, community service, cultural, academic, religious, and residential clubs. It only takes three people to start a new club if their interests are not already represented. SOLE also handles complaints of misconduct against officially recognized student organizations. See <http://www.sole.ucla.edu> or call 310-825-7041.



PERFORMING ARTS

Concerts, dance recitals, and theater productions are all part of exceptional programs offered by the Ethnomusicology; Film, Television, and Digital Media; Music; Theater; and World Arts and Cultures/Dance departments, and by the Center for the Art of Performance at UCLA.

CENTER FOR THE ART OF PERFORMANCE AT UCLA

Since 1937, the Center for the Art of Performance at UCLA has served as the premier West Coast showcase

for world-class performing artists and ensembles as well as innovative new work in dance, music, theater, and performance art. The center presents more than 200 public concerts and events each year, often sponsoring debut performances of new works by major artists. Through the center, the campus hosts a varied and active performance program, ranging from regular concerts by the Los Angeles Chamber Orchestra to events with The Symphonic Body UCLA, Contra-Tiempo, Peter Sellars, Cassandra Wilson, Anoushka Shankar, Afro Latin Jazz Orchestra, Randy Newman, Bojofondo, Buddy Guy, and Young Jean Lee's Theater Company. Subject to availability, discount tickets are offered to students, faculty, and staff. See <http://cap.ucla.edu> or call 310-825-4401.

DEPARTMENT EVENTS

The Ethnomusicology Department provides students with the opportunity to perform in various world music and jazz ensembles that provide concerts listed in the department's schedule of events. See <http://www.ethnomusic.ucla.edu>.

The Film, Television, and Digital Media Department features student-directed films and television programs throughout the year, and the Theater Department presents a series of major productions to the general public. The School of Theater, Film, and Television's annual Design Showcase West and Film Festival is a week-long celebration of film, digital media, animation, screenwriting, and acting that features everything from performance art to the classics. See <http://www.tft.ucla.edu>.

The Music Department features performances by ensembles ranging from music theater to opera. In addition, the Gluck Outreach Program and Music Partnership Program provide community outreach through free performances throughout the Los Angeles and Southern California region. See <http://www.music.ucla.edu>.

The World Arts and Cultures/Dance Department presents events and concerts involving departmental faculty members, guest artists, and students. Student performances include M.F.A. concerts, an undergraduate and graduate student-produced concert, and the Senior Concert/Colloquium. Students also perform in more informal programs, such as the end-of-term student works festival or *Pau Hana*, that feature many world dance forms. See <http://www.wacd.ucla.edu>.

SPORTS AND ATHLETICS

Athletics play a major role in the University's mission to provide a well-rounded education both in and out of the classroom. UCLA continues to live up to its reputation as a national leader in intercollegiate sports and ranks first in the U.S. in the number of National Collegiate Athletic Association (NCAA) championships won (113). In 2014-15 the UCLA athletic programs (men and women) placed second in the Directors Cup national all-around excellence survey, and the men placed ninth and the women placed tenth in the Capital One Cup. In the 23-year history of the former *USA Today* survey, the men's program placed first 11 times, while the women's program placed first five times in the final nine years. UCLA was the first university in the country to win five NCAA men's and women's

championships in a single year (1981-82). See <http://www.uclabruins.com>.

UCLA also has produced a record number of professional athletes such as Troy Aikman, Eric Karros, Kevin Love, Reggie Miller, Natalie Williams, and Corey Pavin and Olympians such as gold medalists Lisa Fernandez, Karch Kiraly, Gail Devers, Peter Vidmar, Dot Richardson, and Jackie Joyner-Kersee.

ATHLETIC FACILITIES

The major indoor arena at UCLA is the famed Pauley Pavilion, which seats approximately 13,800 for UCLA basketball, volleyball, and gymnastics events. It was the site of the 1984 Summer Olympics gymnastics competition. Immediately adjacent, Drake Stadium is the home of UCLA track and field and soccer competitions and site of many outdoor events, including the U.S. Olympic Festival 1991. The Spieker Aquatics Center is home to the UCLA water polo, swimming, and diving teams. The Los Angeles Tennis Center, a 5,800-seat outdoor tennis stadium and clubhouse, was the site of the 1984 Olympic tennis competition. Easton Softball Stadium, which seats 1,300, is the home of the championship women's softball team. The Morgan Intercollegiate Athletics Center houses the UCLA Athletic Hall of Fame and the actual personal den of Coach John Wooden. Off-campus facilities include Jackie Robinson Stadium for varsity baseball and the renowned Rose Bowl in Pasadena, home of the UCLA football team.

MEN'S INTERCOLLEGIATE SPORTS

UCLA is a member of the Pacific-12 Conference, which includes Arizona State University; University of Arizona; University of California, Berkeley; University of Colorado; Oregon State University; University of Oregon; Stanford University; University of Southern California; University of Utah; Washington State University; and the University of Washington. UCLA teams have won an overall total of 74 NCAA men's championships—second highest in the nation—including 19 in volleyball, 16 in tennis, 11 in basketball, 10 in water polo, eight in track and field, four in soccer, two each in golf and gymnastics, and one each in baseball and swimming. Students can participate on the varsity level in football, basketball, track, baseball, tennis, volleyball, water polo, golf, soccer, and cross-country. Call 310-825-8699 for further information.

WOMEN'S INTERCOLLEGIATE SPORTS

With 11 different varsity sports, the UCLA women's program is one of the most extensive in the country, and UCLA has played an important role in establishing women's sports as part of the NCAA. Women's teams have won an overall total of 39 NCAA titles—second highest in the nation—including 11 in softball, seven in water polo, six in gymnastics, five in track and field, four in volleyball, three in golf, two in tennis, and one in soccer. Other nationally ranked teams are those in basketball, swimming, and cross-country. Call 310-825-8699 for further information.

UCLA RECREATION

To help students learn new skills, meet people with similar interests, relieve stress, and increase fitness, the Department of Cultural and Recreational Affairs (CRA)

oversees programs from intramural sports to outdoor adventures. See <http://www.recreation.ucla.edu> or call 310-825-3701.

INTRAMURAL AND CLUB SPORTS

The UCLA Intramural Sports Program, 310-267-5416, consists of team, dual, and individual sports competition in tournament or league play. Over 1,800 teams and 8,000 participants compete throughout the year in various sports activities ranging from basketball to water polo. UCLA students and recreation membership holders are eligible. Varying skill levels are offered in almost all activities, and the emphasis is on friendly competition.

The Club Sports Program, 310-267-5416, <http://uclaclubsports.com>, offers students the chance to organize, coach, or participate in sports that fall beyond the



OUTDOOR ADVENTURES

Outdoor Adventures, 310-206-1252, offer students the chance to get away and enjoy the wonders of local and distant mountains and waterways. Activities designed for beginning to experienced outdoors people include bike rides, UCLA Challenge Course, camping, rock climbing, scuba diving, windsurfing, canoeing, kayaking, and hiking.

CLASS PROGRAMS

Noncredit recreation classes, 310-206-5612, in arts, dance, fitness sports, golf, kayaking, martial arts, outdoor adventures, rock wall, rowing, sailing, standup paddling, surfing, swimming, tennis, water aerobics, windsurfing, yoga, and a variety of group fitness programs are offered for beginning and intermediate levels. Private lessons in tennis, fitness activities, swimming, racquetball, martial arts, golf, and other activities are also available. Fitness is offered either as a recreation class or on a drop-in basis.



FACILITIES

For registered students who prefer independent recreation and exercise, CRA offers access to many facilities. The John R. Wooden Recreation and Sports Center has multiple gymnasias, basketball, volleyball, and badminton courts, handball/racquetball/squash courts, a weight training facility, rock climbing wall, exercise/dance and martial arts studios, and a games lounge. The Sunset Canyon Recreation Center offers activities in an outdoor park setting that features a 50-meter swimming pool, 25-yard family pool, picnic/barbecue areas, play fields, outdoor amphitheater, six lighted tennis courts, sand volleyball court, two multipurpose sports courts, and various meeting rooms and lounges, as well as a Challenge Course. The UCLA Marina Aquatic Center offers sailing, windsurfing, kayaking, rowing, surfing, and other activities. Students also have the use of Pauley Pavilion, Drake Stadium, Sycamore Tennis Courts, Los Angeles Tennis Center, Intramural Fields, Student Activities Center, and Kaufman Hall for recreational sports and activities.

YOUTH AND FAMILY PROGRAMS

Youth and Family Programs, 310-825-3701, offer exciting activities for children 5 to 17 years old. Summer programs include Bruins on Broadway for ages 5 to 14, Bruin Theatrix for ages 5 to 10, Bruins on Water for ages 8 to 10, Camp Bruin Kids for ages 5 to 10, Camp Explore for ages 7 to 10, Camp Voyager for ages 11 to 15, Counselors in Training for ages 14 to 17, Junior Rowing Camp for ages 13 to 17, Late Night Date Night for ages 5 to 12, Waterfront Camps for ages 11 to 15, group and private lessons, and the Sum-

mer Family Entertainment Series. Activities combine play with skill development and deepen the fun in learning.

UCLA ALUMNI ASSOCIATION

Celebrating 82 years of serving the UCLA community, the UCLA Alumni Association has more than 92,000 members, making it one of the largest alumni groups in the nation. Whether a person is a recent graduate, a pioneer Bruin, or somewhere in between, membership in the Alumni Association is the best way to stay connected to UCLA and its growing excellence.

Membership dues enable the Alumni Association to serve as an advocate on campus and to play the vital role of guardian of the value of every UCLA degree. Dues also support programs such as Beat SC Bonfire and Rally, I Love UCLA Week, Locks of Love, Dinners for 12 Strangers, Spring Sing, UCLA Alumni Day, senior events, class reunions, career events, and the scholarship program.

The association offers many benefits and services, including alumni career and travel services. Members make friends, pursue lifelong learning, save money, and make a difference. UCLA graduates, Bruin parents, and friends of the University are invited to take advantage of all the association has to offer. Offices are in the James West Alumni Center. See <https://alumni.ucla.edu>. Call 310-825-2586 or, outside Los Angeles County, 800-825-2586 for further information.



Undergraduate Study

UCLA Undergraduate Admission (UA) invites prospective students to visit UCLA for individual or group tours of the campus. Reservations are required. See <http://www.admission.ucla.edu/tours.htm> or call 310-825-8764 or 310-206-3719.

UNDERGRADUATE ADMISSION

Undergraduate Admission
1147 Murphy Hall
310-825-3101

<http://www.admission.ucla.edu>

Prospective UCLA undergraduate students should give careful thought to adequate preparation in reading, writing, mathematics, laboratory sciences, languages, visual and performing arts, and other subject areas related to a degree objective or major. To be competitive, UCLA applicants need to present an academic profile much stronger than that represented by the minimum UC admission requirements.

APPLYING FOR ADMISSION

To apply for admission to UCLA, complete the UC Application for Admission and Scholarships. Applicants may apply for the fall quarter at <http://admission.universityofcalifornia.edu/>.

One application is used for the nine UC campuses with undergraduate programs. Students apply to one UC campus for a nonrefundable application fee; an additional fee is charged for each additional campus.

WHEN TO APPLY

All majors and programs in the College of Letters and Science; Henry Samueli School of Engineering and Applied Science; Herb Alpert School of Music; School of the Arts and Architecture; School of Nursing; and School of Theater, Film, and Television are open for fall quarter. The application filing period is November 1 through 30 of the prior year. See <http://www.admission.ucla.edu/prospect/applying.htm> for up-to-date information on application procedures.

NOTIFICATION OF ADMISSION

The UC Application Center e-mails notices to acknowledge receipt of applications. Subsequently, UCLA Undergraduate Admission notifies students of the admission decision. Fall quarter freshman applicants are notified beginning in late March and transfers in late April.

Students who are offered admission are asked to submit a Statement of Intent to Register and a Statement of Legal Residence. A nonrefundable deposit, also required at this time, is applied to the Student Services

Fee as long as students register in the term to which they are admitted.

ENTRANCE REQUIREMENTS

Entrance requirements established by the University follow the guidelines set forth in the California Master Plan for Higher Education, which requires that the top 12.5 percent of the state's high school graduates be eligible for admission to the University of California. Requirements are designed to ensure that all eligible students are adequately prepared for University-level work.

Fulfilling the minimum admission requirements does not assure admission to UCLA. Admission is based on demonstrated high scholarship in preparatory work going well beyond the minimum eligibility requirements. High school honors level and Advanced Placement courses are good preparation regardless of the desired major. UCLA offers admission to those students with the best overall academic preparation, viewed in the context of the applicants' academic and personal circumstances, extracurricular and volunteer experiences, and the overall strength of the UCLA applicant pool. For details, see <http://www.admission.ucla.edu>.

ADMISSION AS A FRESHMAN

Students are considered freshman applicants if they have not enrolled in a regular session of any college-level institution since graduation from high school. Students who attend summer session immediately following high school graduation are still considered freshman applicants.



MINIMUM ADMISSION REQUIREMENTS

To be considered for admission as a freshman, students must meet the subject, grade-point average (GPA), and examination requirements.

Subject Requirement

The subject requirement, sometimes called A to G requirements, is a sequence of high school academic courses required for admission to the University. Each course must be completed with a grade of C or better. The requirement consists of 15 year-long courses, with 11 completed by the end of the junior (eleventh grade) year. These are the minimum requirements; students should exceed these requirements whenever possible.

A. History/Social Science. Two years of history/social science, including one year of world history, cultures, and geography, and one year of U.S. history or one-half year of U.S. history and one-half year of civics or American government

B. English. Four years of college preparatory English that include frequent and regular writing, and reading of classic and modern literature, poetry, and drama. No more than one year of ESL-type courses can be used to meet this requirement

C. Mathematics. Three years of college preparatory mathematics that include the topics covered in elementary and advanced algebra and two- and three-dimensional geometry (four years are recommended, including trigonometry and calculus). Approved integrated mathematics courses may be used to fulfill part or all of this requirement, as may mathematics courses taken in the seventh and eighth grades if the high school accepts them as equivalent to its own mathematics courses

D. Laboratory Science. Two years of laboratory science (three years are recommended) that provide fundamental knowledge in at least two of the three foundational subjects: biology, chemistry, and physics. Advanced laboratory science courses that have biology, chemistry, or physics as requisites and offer substantial new material may be used to fulfill this requirement. The last two years of an approved three-year integrated science program that provides rigorous coverage of at least two of the three foundational subjects may also be used to fulfill this requirement

E. Language Other than English. Two years (or the equivalent of the second level of high school instruction) of the same language other than English (three to four years are recommended). Courses should emphasize speaking and understanding and include instruction in grammar, vocabulary, reading, composition, and culture. American Sign Language and classical languages such as Greek and Latin are acceptable. Courses in languages other than English taken in the seventh and eighth grades may be used to fulfill part or all of this requirement if the high school accepts them as equivalent to its own courses

F. Visual and Performing Arts. One year-long visual and performing arts course selected from dance, drama/theater, music, or visual art

G. College Preparatory Electives. One year (two semesters), in addition to those required in A to F above, selected from the following areas: history, English, advanced mathematics, laboratory science, language other than English (a third year in the language used for the e requirement or two years of

another language), social science, and visual and performing arts (nonintroductory-level courses)

Subject Requirement	
a. History/Social Science	2 years
b. English	4 years
c. Mathematics	3 years
d. Laboratory Science	2 years
e. Language Other than English	2 years
f. Visual and Performing Arts	1 year
g. College Preparatory Electives	1 year

Grade-Point Average Requirement

California residents are eligible for admission to the University of California with a 3.0 grade-point average; nonresidents are eligible with a 3.4 GPA. Minimum eligibility does not guarantee admission to UCLA.

Examination Requirement

All freshman applicants must submit scores from either the ACT with Writing test, the SAT Reasoning Test (last administered in January 2016), or the SAT with Essay test.

The tests should be taken by December of the senior year, as they are part of the review process. Students should request that test results be sent directly to UCLA when they take the test.

ADMISSION SELECTION

UCLA selects students using a carefully designed holistic evaluation process that takes into account an applicant's achievements, both academic and nonacademic, in the context of the opportunities available to the student. Among other factors, holistic evaluation specifically considers academic grade-point average; performance on standardized tests; the quality, quantity, and level of coursework taken; sustained participation in activities that develop academic and intellectual abilities; leadership and initiative; employment and personal responsibilities; and overcoming life challenges related to personal or family situations.

Because admission requirements and selection criteria may change, freshman applicants should see http://www.admission.ucla.edu/Prospect/Adm_ft.htm for the most complete and up-to-date information.

ADMISSION AS A TRANSFER STUDENT

Students are considered transfer applicants if they have enrolled in a regular fall, winter, or spring session (1) at another college or university or (2) in college-level extension courses. (This does not include attending a summer session immediately following high school graduation.) Students may not disregard their college record and apply for admission as a freshman.

In accordance with the California Master Plan for Higher Education, first preference is given to California community college applicants. Applicants transferring from other UC campuses are next in priority, followed by applicants transferring from other colleges and universities. Each application receives a holistic evaluation, integrating all available information. Students attaining senior standing are generally not admitted.

To be considered for admission as a freshman, students must meet three main requirements: the subject requirement, the scholastic requirement, and the examination requirement. To be competitive, applicants need to present an academic profile much stronger than that represented by the minimum admission requirements.

Academic criteria are as follows: junior-level standing (60 semester/90 quarter transferable units completed) by the end of the spring term before transfer, grade-point average in transferable courses, significant preparation for the major, completion of the English composition and mathematics requirements, and progress toward completion of the Intersegmental General Education Transfer Curriculum (IGETC), another UC campus general education requirements, or UCLA general education requirements.

For details on transfer admission requirements, refer to the guidelines in the application. See http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm.

INTERCAMPUS TRANSFERS

Undergraduate students registered in a regular session at any University of California campus (or those previously registered who have not since registered at any other school) may apply for transfer to another campus of the University. Submit the UC Application for Transfer Admission and Scholarships with the required application fees. The filing periods and admission requirements are the same as those for new applicants. Students who have attended another UC campus and wish to be considered for admission to UCLA must have been in good standing when they left that campus. Intercampus transfers are not automatic; students must compete with all other applicants.

TRANSFER CREDIT AND CREDIT BY EXAMINATION

The University awards unit credit to transfer students for certain courses completed at other accredited colleges and universities. To be accepted for credit, the courses must be comparable to those offered at the University, as determined by Undergraduate Admission. All courses that meet the criteria are used in determining eligibility for admission.

To convert semester units into quarter units, multiply the semester units by 1.5. For example, 12 semester units \times 1.5 = 18 quarter units.

College credit for examinations given by national testing services is generally not allowed, except for the AP Examinations given by the College Board and the International Baccalaureate higher-level examinations. See <http://www.admission.ucla.edu/trcredit.htm>.

INTERNATIONAL APPLICANTS

To be considered for admission to the University of California, international students must have completed secondary school with a superior average in academic subjects and have earned a certificate of completion that would enable them to be admitted to a university in the home country.

The application for admission, copies of official certificates, and detailed records of all secondary schools attended should be submitted as early as possible after the filing period opens. This allows time for the necessary correspondence and, if students are admitted, to obtain passport visas.

Proficiency in English. Students whose native language is not English must have sufficient command of English to benefit from instruction at UCLA. First-year undergraduate students who have not otherwise satisfied the Entry-Level Writing requirement and who have not taken the Analytical Writing Placement Ex-

amination (AWPE) by the time they enter UCLA must take the AWPE in their first term at UCLA. Results of the AWPE are reviewed to determine whether students should complete the English as a Second Language (ESL) requirement, prior to satisfying the Entry-Level Writing requirement. If held for the ESL requirement, students must complete the requirement by taking the designated credit-bearing courses.

In addition, they are advised to take the Test of English as a Foreign Language (TOEFL) as a preliminary means of testing their ability. Make arrangements for this test by contacting TOEFL/TSE Publications, P.O. Box 6151, Princeton, NJ 08541-6151, 609-771-7100 or at <http://www.ets.org>. Have the test results sent directly to UCLA Undergraduate Admission.

SECOND BACHELOR'S DEGREE

By policy, second bachelor's degrees are not generally granted.

REGISTRATION

Registrar's Office
1113 Murphy Hall
310-825-1091, option 6
<http://www.registrar.ucla.edu>

Registration consists of paying fees and enrolling in classes.

1. Registration fees and other University charges are due the 20th of each month. BruinBill accounts can be viewed through MyUCLA.
2. Enrollment in classes is completed through MyUCLA at <http://my.ucla.edu>.

Students must complete both processes by the established deadlines to be officially registered and enrolled for the term.

PAYING FEES

Details on fee payment, enrollment procedures, and deadlines are in the Schedule of Classes at <https://sa.ucla.edu/ro/public/soc>.

E-BILL

BruinBill accounts are administered electronically (e-bill) through MyUCLA. Financial activity is displayed for the current term, as well as account activity for the last 24 months. MyUCLA also provides a link to important communications from the University regarding registration and University policies. Students can pay their BruinBill account electronically using electronic checks with no fee, or American Express, Discover, MasterCard, and VISA credit cards with a fee.

ANNUAL UNDERGRADUATE FEES

Although the exact cost of attending UCLA varies, there are some fees that



all UCLA students must pay. UCLA does not charge on a per-unit basis. Each entering and readmitted student is required to submit a Statement of Legal Residence. Students classified as nonresidents of California must pay annual nonresident supplemental tuition in addition to registration fees. Legal residents of California are not required to pay nonresident supplemental tuition. For a definition of residence and nonresidence, see the Appendix.

The Student Services Fee covers student expenses such as counseling, facilities, registration, graduation, and health services. The fee is charged whether or not students make use of these services.

All fees are subject to change without notice by the Regents. Current academic year fees and update information is available at <http://www.registrar.ucla.edu/Fees-Residence/Annual-Fees>.

INSTRUCTIONAL ENHANCEMENT INITIATIVE FEE

The Instructional Enhancement Initiative (IEI) Fee supports technology in undergraduate education. The fee helps support course websites and online tools, computer laboratories, and software. For more information, see <http://www.iei.ucla.edu>.

COURSE MATERIALS AND SERVICES FEES

The College of Letters and Science and each school are authorized to assess course materials and services fees. Some course materials and services fees are assessed based on actual enrollment at the end of the fourth week of classes. Students are responsible for ensuring that all study list errors and omissions are corrected prior to the end of the second week. All students in a course with an approved course materials and services fee are assessed the fee, regardless of major. The fee is nonrefundable. Students who are approved for a Late Add enrollment in a course after the third week are required to pay the course materials and services fee, which is billed through BruinBill, for the entire term.

For fee amounts and updates, see <http://www.registrar.ucla.edu/Fees-Residence/Course-and-Study-List-Fees>.

MISCELLANEOUS FEES

Miscellaneous fees include charges for late registration fees payment. Late fees also apply if students file their study list late or do not pay off BruinBill balances on time. Fees are charged if any check is returned by a bank for any reason. Charges are assessed for most petitions and other special requests. A full list of miscellaneous fees is posted at <http://www.registrar.ucla.edu/Fees-Residence/Overview>.

STUDENT HEALTH INSURANCE

All UCLA undergraduate students are automatically assessed for and enrolled in the University of California Student Health Insurance Plan (UCSHIP) as a condition of registration at UCLA. Continued enrollment in a qualified medical/health insurance plan must be maintained during all registered terms. UCHSP components are medical, vision, dental, and behavioral health services.

The UCHSP fee is billed each term along with other UCLA fees. UCHSP fulfills all of the requirements mandated for a qualified medical/health insurance plan as defined by the University. The Ashe Student

Health and Wellness Center is the primary healthcare provider for UCHSP and is where all nonemergency medical care must be initiated for UCHSP claim payment consideration. See <http://www.studenthealth.ucla.edu>.

Waiving UCHSP

Students may waive UCHSP if they (1) maintain active enrollment in a qualified medical/health insurance plan that meets all established requirements, (2) apply for a UCHSP waiver within established deadlines each term, and (3) correctly complete the online UCHSP waiver form.

Students must apply for a UCHSP waiver online. Third-party individuals may not waive UCHSP for a student. A pre-waiver worksheet is available to assist students before they complete an actual waiver. See the Ashe Center website for details, including a definition of qualified private medical/health insurance. Click the Insurance tab on <http://www.studenthealth.ucla.edu> and select the appropriate waiver link.

Deadlines for Waiving UCHSP

Third-party individuals may not waive UCHSP for a student. Waivers must be submitted by the stated deadlines whether or not fees have been paid by that date. The fall UCHSP waiver is available between July 1 and the student fee payment deadline. Deadlines are strictly enforced. There are no refunds after the deadline.

The schedule for waiving UCHSP is as follows:

Fall quarter	September 1–20
Winter quarter	December 1–20
Spring quarter	March 1–20

The above information serves as official notice of the UCLA mandatory medical/health insurance requirement. All students are responsible for providing complete and accurate information that must be submitted by the stated deadlines.

Immunization Requirements

UCLA requires that all incoming students be vaccinated against or show immunity to multiple infectious diseases consistent with guidelines of the American College Health Association, California Department of Public Health, and U.S. Centers for Disease Control and Prevention (CDC). These requirements help protect the health of students and the entire campus community. The need is more pressing than ever, given recent multistate measles outbreaks and re-emergence of other vaccine-preventable diseases among those not completely immunized. Students are required to submit their immunization history to the Ashe Center secure patient portal. See <http://www.studenthealth.ucla.edu> for more information.

Fee Refunds

Students who formally withdraw from the University may receive partial refunds of fees. For information on withdrawal, see the Academic Policies section of this catalog or consult the Registrar's Office website at <http://migration.registrar.ucla.edu/Registration-Classes/Registration-and-Payment/Refunds-and-Reductions/Refunds> for policy details and specific refund deadlines for each term.

FEES WAIVER REQUESTS

Late registration, processing, and penalty fees are waivable on request in writing to the office assessing the fees only if they were incurred through the fault of the University or because a student suffered sudden and debilitating injury or accident.

REDUCED FEES PROGRAMS

UCLA recognizes the need for part-time study in special circumstances. Undergraduate resident students—when properly approved by the dean of their College/school for enrollment in 10 units or less—may be eligible for a one-half reduction in tuition. The reduction is based on total units enrolled as of Friday of the third week of classes. Students should contact their College or school for eligibility requirements.

File a Fee Reduction Request with the academic dean's office by Friday of the second week. Except for these qualified and approved part-time students, there is no reduction in tuition, or in the student services, student union, Wooden Center, student programs, activities, and resources complex (SPARC), or Undergraduate Students Association fee.

Undergraduate nonresident students with College or school approval for enrollment in 10 units or less pay only half the nonresident supplemental tuition fee. File a Fee Reduction Request with the College or school office by Friday of the second week of classes for the applicable term.

Full-time University employees may apply for a reduction of tuition and the student services fee at their Campus Human Resources office. Students who use the part-time fee reduction may not also use the UC employee reduction.

ENROLLING IN CLASSES

New students should see an academic counselor before enrolling in classes (counseling is required in the Henry Samueli School of Engineering and Applied Science). Counselors help new students select courses and formulate a schedule tailored to their academic interests or degree objectives.

New Student Orientation takes new students through a step-by-step process designed to ensure that they enroll in an effective program.

The Schedule of Classes (<https://sa.ucla.edu/ro/public/soc>) contains listings of class times, meeting rooms, instructors, and all information necessary for enrolling in classes. Use the Schedule and academic counseling to assemble a program of courses.

MYUCLA ENROLLMENT

Students enroll in classes through MyUCLA, which is accessed at <http://my.ucla.edu>. The site walks students through the enrollment procedure.

Students are assigned specific times—called enrollment appointments—when they are allowed to enroll. Use MyUCLA to determine enrollment appointments.

Also use MyUCLA for other enrollment-related tasks, such as adding, dropping, or exchanging classes, joining the wait list for a class and checking wait list status, or changing the grading basis for a class. For more information, see <http://www.registrar.ucla.edu/Registration-Classes/Study-List>.

IN-PERSON ENROLLMENT

For classes that require written approval or specialized processing, students may enroll in person Monday through Friday from 9 a.m. to 4 p.m. at 1113 Murphy Hall.

UNDERGRADUATE STUDY

STUDY LIST

A study list is the record of courses a student is enrolled in for the term. At 11:59 p.m. on Friday of the second week of instruction the study list of enrolled courses becomes official, and all wait lists are eliminated. Students should verify their study list through MyUCLA after each enrollment transaction. Students are responsible for all courses and the grading basis as listed on MyUCLA and cannot receive credit for courses not listed.

After Friday of the second week, most changes to the official study list can be made with a fee through MyUCLA. Some changes require an Enrollment Petition along with approval signatures.

See <http://www.registrar.ucla.edu/Registration-Classes/Study-List> for deadlines and complete instructions.

Errors or omissions should be corrected before the College or school deadlines for changes by petition. Unapproved withdrawal from or neglect of a course entered on the study list results in a failing grade.

CONCURRENT ENROLLMENT

Concurrent enrollment—defined as taking courses during regular sessions for credit at UCLA and, at the same time, at a non-UC institution, including UCLA Extension—is not permitted except in extraordinary circumstances, and no credit is given for such courses unless the approval of the UCLA College or school has been obtained by petition prior to enrollment.

INTERSEGMENTAL CROSS-ENROLLMENT

At the discretion of the appropriate campus authorities on both campuses, California Education Code sections 66755 and 66756 (amended by California Senate Bill 361 passed in 1999) allow undergraduate students enrolled in any campus of the California community colleges, the California State University, or the University of California to enroll without formal admission in a maximum of one course per academic term at a campus of either of the other systems on a space-available basis. Enrollment in precollege courses is excluded.



UCLA students qualify for intersegmental cross-enrollment if they meet all the following requirements:

1. Complete at least one term at UCLA as a matriculated student
2. Enroll for a minimum of 6 units for the current term
3. Earn a grade-point average of 2.0 (C) for work completed
4. Pay appropriate tuition and fees at UCLA for the current term
5. Complete appropriate academic preparation

as determined by the host campus

6. Have California resident status

Obtain a concurrent enrollment application from the College or school. An administration fee is charged for each academic term such enrollment is requested.



UC-Intercampus-Visitor-Program. Observe the deadlines on the application. Applications are reviewed by a student's College or school. Letters and Science students should consult College Academic Counseling in A316 Murphy Hall; Arts and Architecture students should contact the Student Services Office in 2200 Broad Art Center; Music students should consult the Student Services Office in 1642 Schoenberg Music Building; Theater, Film, and Television students should consult the Student Services Office in 103 East Melnitz Building; Engineering students should contact the Office of Academic and Student Affairs in 6426 Boelter Hall.

SIMULTANEOUS UC ENROLLMENT

Undergraduate students may enroll simultaneously in courses offered by another UC campus. Eligible students must be registered (fees paid), in good standing, and enrolled in at least 12 units at UCLA. Students may simultaneously enroll in no more than one UC host-campus course not to exceed 6 units. Before attending the host campus, both campuses must give approval. Approval to enroll simultaneously on another UC campus does not guarantee credit toward specific degree or general education requirements. Application of host-campus courses to UCLA graduation requirements is determined by the College or school. Details are on the application form. Obtain applications and directions for submitting forms from the following offices: honors students, A311 Murphy

Hall; student athletes, Morgan Center; AAP students, 1209 Campbell Hall; all other Letters and Science students, College Academic Counseling, A316 Murphy Hall; Arts and Architecture, Music, Theater, Film, and Television, Engineering, and Nursing students, their respective Student Affairs Office. The application is also available at <http://www.registrar.ucla.edu/Registration-Classes/Enrollment-Policies/Special-Program-Enrollment/Simultaneous-UC-Enrollment>.

FINANCIAL SUPPORT

Financial Aid and Scholarships

A129J Murphy Hall

310-206-0400

<http://www.financialaid.ucla.edu>

The deadline for filing all undergraduate financial aid applications for the regular academic year is March 2. Applications received after the deadline are considered late, and limited aid is offered.

The *Financial Aid Handbook* contains complete details on all aid. Obtain a free copy at <http://www.financialaid.ucla.edu/Forms-and-Publications>.

APPLYING FOR FINANCIAL AID

Students do not need to come from low-income families to qualify for financial aid. However, those who apply for need-based aid—including grants, loans, work study, and some scholarships—must demonstrate financial need, which is defined as the difference between the cost of attending UCLA and the amount that they and their families should be able to contribute.

No financial aid can be awarded to international students in their first year of attendance at UCLA.

Students attending UCLA Summer Sessions, Summer Travel Programs, Summer Institutes, or UC Cross-Campus Summer Programs and in need of financial aid must submit a summer financial aid application in addition to the Free Application for Federal Student Aid (FAFSA). Summer applications are available at <http://my.ucla.edu> (under the Finances and Jobs tab).

To qualify for aid, students must also comply with minimum progress standards, which set unit and grade-point average requirements as defined in the Appendix of this catalog.

FREE APPLICATION FOR FEDERAL STUDENT AID

To evaluate financial need, all citizen and permanent resident students who apply for aid must provide financial information on the Free Application for Federal Student Aid (FAFSA). If students are financially independent according to the federal financial aid guidelines, their own financial circumstances are analyzed rather than those of their parents. The University expects that students and their families bear as much of the cost of a student's education as their circumstances permit.

The FAFSA is used to apply for all federally funded programs, funds administered by UCLA, and Cal Grants administered by the California Student Aid Commission. Loans that are not need based are also

available to all students who complete the FAFSA. Students should complete the FAFSA at <https://fafsa.ed.gov> by March 2. Be sure to indicate that the data is to be sent to UCLA by using the UCLA Title IV code: 001315.

CALIFORNIA DREAM ACT APPLICATION

Students who are not citizens or permanent residents but who are eligible for Assembly Bill 540 nonresident fee waivers may be eligible to qualify for scholarships and University grant aid if they complete a California Dream Act Application at <https://dream.csac.ca.gov>. The priority filing deadline for University grant consideration is March 2.

PROSPECTIVE STUDENT SCHOLARSHIPS

In addition to using the FAFSA to apply for aid, prospective students who apply to UCLA with the UC Application for Admission and Scholarships may use the application to apply for undergraduate scholarships.

CONTINUING STUDENT SCHOLARSHIPS

Scholarship applications for continuing students can be submitted at <http://my.ucla.edu> (under the Finances and Jobs tab). Students should begin their search early and continue it throughout the year, as scholarships across campus have differing deadlines. The Scholarship Resource Center can also help with a thorough search for UCLA and outside scholarships.

TYPES OF FINANCIAL AID

The four basic types of aid are scholarships, grants, loans, and work-study employment. Financial Aid and Scholarships usually offers a combination of different award types to most applicants.

Aid can be merit based—awarded on the basis of standards such as academic achievement, or need based—awarded on the basis of financial need as determined by the financial aid application. Scholarships managed by Financial Aid and Scholarships are based on merit and need. Grants, loans, and work study are generally need based.

SCHOLARSHIPS

The Undergraduate Scholarship Program at UCLA rewards academic excellence and assists with the expenses of an undergraduate education.

Financial need is required for University and named (endowed) scholarships other than those listed below. Each year approximately \$300,000 is awarded from the many different scholarship funds. Awards range from \$100 to \$3,000 and are not automatically renewable. Entering students apply for scholarships on the UC Application for Admission and Scholarships. If admitted to UCLA, new students also have the opportunity to add additional information to their scholarship profile, so they can be considered for other scholarships that open throughout the academic year. Continuing students should begin their search early and continue it throughout the year, as scholarships across campus have differing deadlines.

In addition to applying for University scholarships, students are encouraged to apply for outside scholar-

ship funding via search engines such as FastWeb, GoCollege, and others.

Regents Scholarships

One of the highest honors conferred on an undergraduate student is the Regents Scholarship, which is awarded for four years to students entering from high school and for two years to entering juniors. A UCLA faculty committee selects Regents Scholars on the basis of exceptional academic achievement and promise. Scholars receive a yearly honorarium if they have no financial need. Scholars who establish financial need by filing the FAFSA or California Dream Act application receive a combination of grants and scholarships to cover the amount of their need. Regents Scholars also receive special privileges.

UCLA Alumni Scholarships

The Alumni Scholarships Program is one of UCLA's oldest and most prestigious scholarships programs on campus. Since 1936, a select group of distinguished Bruins have had the honor of being known as Alumni Scholars. Recipients are selected by alumni volunteers throughout the U.S. for the following programs.

Community College Transfer Alumni Scholarship (CCTS). For students transferring to UCLA from a California Community College with a 3.75 grade-point average. Financial awards are \$4,000 over a two-year tenure.

Freshman Alumni Scholarship. Awards prospective freshmen who have demonstrated academic excellence, powerful leadership, and a desire to effect positive change. Financial awards for freshmen range from \$4,000 to \$20,000 over a four-year tenure.

Lew and Edie Wasserman Grant. Sophomore and Junior Alumni Scholars may apply to receive additional financial assistance. Applicants are evaluated on a combination of academic merit and financial need.

National Finals Competition. Every April, top-scoring UCLA freshman scholarship applicants participate in the competition to potentially increase their base scholarship award up to \$20,000 paid over four years. This competition is a 30-year tradition of the Alumni Scholarships Program.

Need-Based Scholarship. First-year Alumni Scholars who complete a FAFSA and have demonstrated financial need may also receive up to \$5,000 for the first year in addition to their scholarship award.

Out-of-State Scholarship. Provides an outstanding opportunity for highly accomplished students from outside California to fund their UCLA education.

Ralph Bunche Freshman Alumni Scholarship. Continues the legacy of Dr. Ralph J. Bunche (class of 1927), first-generation college student who went on to become class valedictorian, a Nobel Peace Prize winner, and a founder of the United Nations. Bunche Scholars exemplify Dr. Bunche's experiences, come from all walks of life, and are invaluable to the UCLA community.

True Bruin Distinguished Senior Award. Awarded to highly meritorious students who exemplify the True



Bruin values of integrity, excellence, accountability, respect, and service. True Bruin Distinguished Seniors receive up to \$5,000 and are recognized and celebrated for the skills, knowledge, and leadership experiences they have demonstrated on campus and in their community.

UCLA Alumni Legacy Scholarship. For academically talented undergraduate students who have a parent or guardian who is a UCLA degree holder. The applicant must be admitted to UCLA under the standard admissions process.

Being an Alumni Scholar is more than just receiving a scholarship. Awardees are automatically enrolled in the esteemed Alumni Scholars Club where they are involved in campus events and organizations with like-minded students, increase their connections throughout the University, and attain skills that will benefit their professional career well after graduation.

For additional information, see <https://alumni.ucla.edu/scholarships>.

ROTC Scholarships

ROTC Scholarships are awarded on a competitive basis to U.S. citizens regardless of parents' income. Scholarships provide tuition, a book allowance, fees, and a tax-free monetary allowance during the academic year. Applications for scholarships may be obtained by calling Army, 310-825-7381; Air Force, 310-825-1742; or Navy/Marine Corps, 310-825-9075. Applications for Army scholarships can also be obtained at <http://www.goarmy.com/rotc/scholarships.html>; for Air Force scholarships at <https://www.afrotc.com/scholarships>; and for Navy/Marine Corps scholarships at <http://www.nrotc.navy.mil/scholarships.html> or by calling 800-628-7682. Completed applications for four-year scholarships should be submitted prior to August 15 (Navy/Marine Corps) for early consideration, but no later than December 1 (Air Force), January 31 (Navy/Marine Corps), or February 28 (Army) of the year preceding college matriculation. Two- (not available for Air Force) and three-year scholarship applications are also available and are considered when received.



Applications for scholarships may be obtained by calling Army, 310-825-7381; Air Force, 310-825-1742; or Navy/Marine Corps, 310-825-9075. Applications for Army scholarships can also be obtained at <http://www.goarmy.com/rotc/scholarships.html>; for Air Force scholarships at <https://www.afrotc.com/scholarships>; and for Navy/Marine Corps scholarships at <http://www.nrotc.navy.mil/scholarships.html> or by calling 800-628-7682. Completed applications for four-year scholarships should be submitted prior to August 15 (Navy/Marine Corps) for early consideration, but no later than December 1 (Air Force), January 31 (Navy/Marine Corps), or February 28 (Army) of the year preceding college matriculation. Two- (not available for Air Force) and three-year scholarship applications are also available and are considered when received.

GRANTS

Grants are based on need and do not have to be repaid. When awarding policies and funds permit, the financial aid package includes a grant.

Federal Pell Grants

Federal Pell Grants are based on exceptional need. They are awarded to undergraduate students who are U.S. citizens or eligible noncitizens and who have not earned a bachelor's degree. Amounts for 2016-17 range from \$598 to \$5,815 for students enrolled full time. Students who file the FAFSA are automatically considered for a Pell Grant. Eligibility is determined by the federal government. Award amounts depend on a student's Estimated Family Contribution (EFC) and whether

enrollment is full time or below. Awards are reduced for students enrolled less than full time.

Cal Grants A and B

California residents who attend at least half-time are eligible to apply for a California Student Aid Commission Cal Grant award. The FAFSA or California Dream Act Application and GPA Verification Form are the official applications for these programs. Cal Grant A awards assist low- and middle-income students with tuition and fee costs. They are based on need and grade-point average. Cal Grant B awards are intended to assist low-income and disadvantaged students with living expenses, books, supplies, and transportation costs. First-year awards may also cover registration fee costs. Renewal award recipients receive registration fee assistance. New awards are limited to students who have completed no more than one full-time semester or two full-time quarters or 16 semester units of part-time study or the equivalent. Award amounts are \$12,294 for Cal Grants A and B, with an additional \$1,656 books and supplies stipend for students receiving Cal Grant B. Students awarded Cal Grant B receive only the stipend portion in their first year. Amounts are subject to change based on the California budget process. Awards are reduced for students enrolled less than full time.

University Grants

University grants provide eligible on-time applicants with financial assistance from state funds. Awards range from \$100 to over \$20,000 and are based on student need. All undergraduate students who are U.S. citizens, eligible noncitizens, or noncitizens eligible for AB 540 waivers and who apply on time are considered. University grant eligibility is subject to availability of funding. Grants may be exhausted before the end of the academic year. Awards are reduced for students enrolled less than full time.

University Grants to Purchase UCSHIP

These grants are based on need and awarded to on-time FAFSA and California Dream Act applicants to cover the cost of the University of California Student Health Insurance Plan (UCSHIP). Students who waive UCSHIP are not eligible for these grants.

Federal Supplemental Educational Opportunity Grants

Federal Supplemental Educational Opportunity Grants (FSEOG) are awarded to undergraduate students with financial need. Awards range from \$100 to \$4,000. Recipients must be U.S. citizens or eligible noncitizens. Preference is given to Pell Grant and Cal Grant recipients. Only on-time, grant-eligible FAFSA and California Dream Act applicants are considered.

LOANS

Loans allow students to postpone paying some of the costs of their education until they have completed school. A financial aid offer includes a long-term, low-interest loan.

Borrowers must realize their commitment and responsibility to repay according to repayment schedules. Before accepting a loan, students should assess their total educational debt and ability to repay after graduation. The University makes every effort to assist students during the repayment of their obligation, but University services, including registration and the

release of official transcripts, are withheld if the loan becomes delinquent. Seriously delinquent accounts are referred to a professional collection agency for action.

All first-time borrowers must complete a debt management session at <http://www.loans.ucla.edu> before funds are released. Parent and graduate PLUS borrowers whose loans are approved on appeal or with an endorser are also required to complete a mandatory counseling session at <https://studentloans.gov> in addition to the debt management session.

All loan recipients must complete an exit interview with the Loan Services Office (A227 Murphy Hall, 310-825-9864, <http://www.loans.ucla.edu>) before leaving UCLA for any reason. This interview helps students understand their loan agreement and their rights and responsibilities. If students fail to participate in an exit interview, the University places a hold on their academic records and registration materials. Exit information is mailed to students by the Loan Services Office after receipt of notification of separation from the University.

Federal Perkins Loans

Low-interest Federal Perkins Loans are awarded to eligible, on-time applicants who are U.S. citizens or eligible noncitizens; eligibility is subject to availability of funding. The loan limit per academic year is \$5,500 for undergraduate students and \$8,000 for graduate and professional students. The actual award amount may be less, based on annual funding and UCLA's institutional awarding policy. The loan interest rate is 5 percent. Loan repayment and interest accrual begin either six or nine months after graduation or dropping below half-time enrollment.

William D. Ford Federal Direct Loan Program

Direct Loans

Direct Loans are low-interest Subsidized and Unsubsidized Loans financed by the U.S. Department of Education.

Subsidized Direct Loans are awarded to undergraduate students who have demonstrated financial need. Interest rates are fixed and adjusted by the U.S. Department of Education annually; contact Financial Aid and Scholarships for additional information. Interest accrues immediately after students graduate or drop below half-time enrollment. Repayment begins six months after students leave school or drop below half-time enrollment.

Unsubsidized Direct Loans are available to undergraduate, graduate, and professional students who are U.S. citizens or eligible noncitizens regardless of income. Interest accrues from the date of disbursement, but students can avoid the extra costs of accrual by making regular interest payments while in school.

Direct PLUS Loans

Direct PLUS Loans are designed to help graduate students and parents of undergraduate students meet the total cost of education. Graduate students and parents may be eligible to borrow up to the cost of education for the academic year less any other financial aid received. This loan is available only to borrowers who do not have adverse credit histories. The interest rate is fixed and annually adjusted by the U.S. Department of

Annual Limits	
Subsidized Loans	
Freshmen	\$ 3,500
Sophomores	4,500
Juniors/Seniors	5,500
Graduates (beyond bachelor's degree)	8,500
Unsubsidized Loans (includes any subsidized funds awarded)	
Freshmen	\$ 5,500
Sophomores	6,500
Juniors/Seniors	7,500
Graduates (beyond bachelor's degree)	20,500
Additional Unsubsidized Funding (for independent students and students whose parents are denied PLUS loans)	
Freshmen	\$ 4,000
Sophomores	4,000
Juniors/Seniors	5,000
Graduates (beyond bachelor's degree)	12,000

Education. Contact Financial Aid and Scholarships for information on current interest rates. Borrowers may want to consult a tax adviser to see if the interest is tax deductible.

Private Loans

Private loans are available to students who have received the maximum award amounts under the Direct Loan Program and require additional funding. These loans are sponsored by banks and private lending institutions. Interest rates and re-payment schedules vary. These loans must be certified by Financial Aid and Scholarships before funds can be disbursed. A list of private lenders that UCLA borrowers have used in the past is available at <http://www.financialaid.ucla.edu/Forms-and-Publications>.

Short-Term Loans

Students need not be receiving financial aid to apply for a short-term loan. They may borrow up to \$200 for immediate emergency needs; the amount is repayable on the 20th of the month following the month in which the loan was made. To qualify, applicants must be registered UCLA students with satisfactory loan repayment records. Applications are available from the Loan Services Office, A227 Murphy Hall. See <http://www.loans.ucla.edu/Short-Term-Loan>.

WORK-STUDY PROGRAM

The Federal Work-Study Program (FWS) is intended to stimulate and promote part-time student employment, particularly for students from low-income families who are in need of earnings to pursue their studies.

Under FWS, the federal government pays a portion of the students' wage and the employer pays the balance. Through this program, students may work up to 20 hours per week for the University, government agencies, or public and private nonprofit agencies. Students employed through FWS provide essential services to the University and community and have the opportunity to hold jobs that may relate to their educational objectives or enable them to gain valuable work experience.

MAJORS AND DEGREES

Students may choose from over 125 majors in a wide variety of disciplines offered through the undergraduate degree programs of the College of Letters and Science, School of the Arts and Architecture, Henry Samueli School of Engineering and Applied Science, Herb Alpert School of Music, School of Nursing, and School of Theater, Film, and Television. For a complete list of major programs and degrees, see the table in the front of this catalog.

PLANNING A MAJOR

New students should obtain academic counseling before enrolling in classes at UCLA. Counselors can help new students formulate degree objectives based

on interests, abilities, and career goals. As students begin to decide on a major, counselors can help them start fulfilling College or school requirements as well as the department requirements necessary for completion of the degree program.



DECLARING A MAJOR

Regulations and procedures for declaring a major vary for the College and each school. Students in the College of Letters and Science do not need to declare a major in their freshman year and can attend with an undeclared major until the

end of their sophomore year. Certain schools require students to choose a major when applying for admission, or require early declaration. Check specific policies for declaration with the school or department adviser.

All students must declare a major by the beginning of their junior year (90 quarter units). To declare a major, obtain a Petition to Declare a Major at the College or school office. There is no fee for the petition.

INDIVIDUAL MAJORS

Highly motivated students who find that no single major accommodates their specific interest in a given subject may propose designing their own major. Proposals are prepared with faculty guidance and sponsorship and are thoroughly examined for cogency, completeness, and academic merit. Requirements for individual majors vary among the College and schools.

CHANGING MAJORS

Changing majors requires the approval of the College or school and the department. To change majors, obtain a Program Change Petition at the department office or at <http://www.registrar.ucla.edu/Forms/Registration-and-Enrollment/Undergraduate-Program-Change-Petition>.

DEGREE REQUIREMENTS

As soon as they are accepted for admission to UCLA, new students should learn the requirements necessary to receive a bachelor's degree and begin planning an appropriate program of study. All undergraduate students must satisfy three types of requirements for a degree:

1. University requirements
2. College or school requirements
3. Department requirements

UNIVERSITY REQUIREMENTS

The University of California has established two requirements that all undergraduate students must satisfy in order to graduate: Entry-Level Writing or English as a Second Language (ESL), and American History and Institutions. It is each student's responsibility to see that these requirements are fulfilled.

ENTRY-LEVEL WRITING

Because proficiency in English composition is so important to successful performance in many courses, Entry-Level Writing is the only requirement for graduation that students must satisfy before entering UCLA or during their first year in residence. They may meet this requirement by

1. Scoring 3, 4, or 5 on one of the College Board Advanced Placement Examinations in English OR
2. Scoring 5, 6, or 7 on one of the International Baccalaureate Higher Level English A Examinations or scoring 6 or 7 on one of the International Baccalaureate Standard Level English A Examinations OR
3. Scoring 680 or better on the SAT Reasoning Test, Writing (last administered in January 2016) OR
4. Scoring 30 or better on the ACT English Language Arts test OR
5. Scoring 30 or better on the ACT Combined English/Writing test (last administered in June 2015) OR
6. Presenting transfer credit for an acceptable college-level course in English composition (passed with a grade of C or better) at another institution OR
7. Passing the University of California Analytical Writing Placement Examination (all freshmen from California high schools should have taken the examination during the month of May before they enrolled; others take an examination at UCLA early in their first term)

If students do not meet the requirement in one of the ways described above, Academic Senate regulations require them to enroll in a course determined by performance on the Analytical Writing Placement Examination as early as possible during their first year in residence. Each course must be taken for a letter grade and passed with a grade of C or better. Students receiving a final grade of C- or less must repeat the course during their next term in residence. Satisfaction of the Entry-Level Writing requirement is a requisite to

CAPSTONE MAJORS AND PROGRAMS

Capstones are designed to be the culmination of a UCLA undergraduate experience. Capstones range from yearlong sequences of courses or tutorials to a single seminar, and from honors theses to comprehensive seminar projects or internships. They may be based in tutorials, laboratories, advanced courses, or seminars and may include either individual or team-based projects.

Four levels of UCLA capstone options are illustrated. The four levels represent different expectations for

student engagement and independence, ranging from advanced senior seminars or project courses that require a comprehensive term paper, performance, or product design, to individually designed majors. The percentages listed indicate the expected participation of seniors at each of the four levels. It should be noted that some students might complete capstones at more than one level; for example, a student, having completed an advanced seminar, might decide to engage in an independent study or honors project.

Capstone majors and programs are identified in the Curricula and Courses section of this catalog. See <http://www.capstones.ucla.edu> for more detailed information.



MAJORS

Aerospace Engineering BS
American Indian Studies BA
Art BA
Asian American Studies BA
Bioengineering BS
Central and East European Languages and Cultures BA
Chemical Engineering BS
Civil Engineering BS
Classical Civilization BA
Cognitive Science BS
Computational and Systems Biology BS
Computer Science BS
Computer Science and Engineering BS
Design | Media Arts BA
Earth and Environmental Science BA
Ecology, Behavior, and Evolution BS
Electrical Engineering BS
Engineering Geology BS
Environmental Science BS

Ethnomusicology BA
European Studies BA
Film and Television BA
French BA
Gender Studies BA
Geology BS
Geophysics BS
German BA
Global Studies BA
Greek BA
Greek and Latin BA
History BA
Individual Field of Concentration BA
Individual Field of Concentration BS
International Development Studies BA
Italian BA
Italian and Special Fields BA
Latin BA
Marine Biology BS
Materials Engineering BS
Mathematics/Atmospheric and Oceanic Sciences BS

Mathematics for Teaching BS
Mechanical Engineering BS
Music BA
Music History BA
Neuroscience BS
Nursing (Prelicensure) BS
Russian Language and Literature BA
Russian Studies BA
Scandinavian Languages and Cultures BA
Spanish and Community and Culture BA
Spanish BA
Statistics BS
Study of Religion BA
Theater BA

PROGRAMS

American Literature and Culture BA
Art History BA
Chicana and Chicano Studies BA
English BA

English Composition 3 and all subsequent English courses.

For more information, see <http://www.ucop.edu/elwr/>.

ENGLISH AS A SECOND LANGUAGE

All entering UCLA undergraduate students whose native language is not English and who have not otherwise satisfied the English as a Second Language (ESL) requirement or who are directed to do so by UCLA Undergraduate Admission are required to take either the Analytical Writing Placement Examination (AWPE) for first-year undergraduate students or the English as a Second Language Placement Examination (ESLPE) for transfer students. Neither the Test of English as a Foreign Language (TOEFL) nor any other English proficiency test can be submitted or accepted in lieu of the AWPE or ESLPE. Students may take the AWPE or ESLPE once only. Unauthorized retakes of the examinations result in an invalid examination score.

First-year undergraduate students who have not otherwise satisfied the Entry-Level Writing requirement and

who have not taken the AWPE by the time they enter UCLA must take it in their first term at UCLA. Results of the AWPE are reviewed to determine whether students should complete the ESL requirement prior to satisfying the Entry-Level Writing requirement. If held for the ESL requirement, students must complete the requirement by taking the designated credit-bearing courses.

Transfer students who have completed the English Composition 3 and English 4W equivalent courses at their transfer institution may still be held for the UCLA ESL requirement at the discretion of UCLA Undergraduate Admission. This includes, but is not limited to, all students who received a grade below B in either of these equivalent courses. Transfer students held by UCLA Undergraduate Admission to the ESL requirement must take the ESLPE prior to or during the term in which they are to register. Failure to sit for the ESLPE results in a hold on student records.

Depending on the ESLPE results, students may be required to successfully complete one or more credit-bearing courses in the English Composition series.

Students must begin taking courses during their first term in residence at UCLA and must complete each course in sequence with a grade of C or better (C- or a Passed grade is not acceptable). All units are applied toward graduation but cannot be applied toward general education requirements.

AMERICAN HISTORY AND INSTITUTIONS

The American History and Institutions requirement is based on the principle that a U.S. citizen attending an American university should understand the history and public institutions of the U.S. under the federal and state constitutions. Candidates for a bachelor's



degree must satisfy the American History and Institutions requirement by one of the following methods:

1. Completing a year's course in American history or American government, or a one-year combination of both, in high school with an average grade of B or better OR
2. Completing any one of the following UCLA courses with a grade of C or better, or a grade of Passed:
 - African American Studies M150D, M158A, M158B, M158C, M158E
 - Asian American Studies M171D
 - Chicana and Chicano Studies M159A, M159B, CM182, M183
 - Economics 183
 - Gender Studies M147B, M147D
 - History 13A, 13B, 13C, 138A, 138B, 138C, 139A, 139B, 140A, 140B, 140C, 141A, 141B, 142A through 142D, 143A, 143B, 144, M144C, 145A, 145B, 146A through 146D, 147A through M147D, 149A, 149B, M150A through M150E, M151A, M151B, M151C, 152, 153, 154, M155, 179C
 - Political Science 40, 114, 140A, 140B, 140C, 142A, 143A, 145B, 145C
 - Study of Religion M142C
3. Equivalent courses completed in UCLA Extension or at another college institution, and accepted by the Board of Admissions, may be used to fulfill the requirement OR
4. Presenting a satisfactory result of the requirement, by examination, as administered at another college or university within the state OR
5. Scoring 500 or better on the SAT Subject Test in U.S. History OR
6. Scoring 3, 4, or 5 on the College Board Advanced Placement Test in American History.

Candidates for an instructional credential, but not for a degree, must take one of the following courses: History 143A, 143B, Political Science 145B, or 145C.

Students attending the University on an F-1 or J-1 visa may petition for exemption from this requirement by showing proof of temporary residence in the U.S.

For more information on this requirement, contact the undergraduate History Department counselor in 6284 Bunche Hall, 310-825-3720.

COLLEGE OR SCHOOL REQUIREMENTS

The College and each school with undergraduate programs establish their own degree requirements. These generally include a (1) unit requirement that defines the total number of units to be completed, (2) scholarship requirement that defines a minimum grade-point average, (3) residence requirement that defines the amount of study that must be undertaken in residence at the UCLA campus, and (4) course requirements that may include general education courses, reading and composition courses, foreign language courses, and core courses for the field of study. See the College and Schools section of this catalog for details on requirements set by the College and by each of the schools.

DEPARTMENT REQUIREMENTS

Each department or interdepartmental program sets its own degree requirements in addition to those established by the College or school. Department requirements generally include (1) preparation for the major, which are lower division courses designed to prepare students for advanced study and (2) the major, which are upper division course requirements. Requirements for each department are listed in the Curricula and Courses section of this catalog.

DEGREE POLICIES

Students are responsible for degree policies and regulations as described in the Academic Policies section of this catalog.

UNDERGRADUATE RESEARCH

UNDERGRADUATE RESEARCH CENTERS

The Undergraduate Research Centers (URC) assist students in the arts, humanities, social sciences, and behavioral sciences (URC Humanities, Arts, and Social Sciences, A334 Murphy Hall, 310-825-2935, <http://hass.ugresearch.ucla.edu>) and in science, engineering, and mathematics (URC Sciences, 2121 Life Sciences, 310-794-4227, <http://www.ugresearchsci.ucla.edu>) by supporting scholarly, critical, and creative research. The centers provide mentoring and tutorials, manage the Student Research Program (SRP), and administer summer research programs, academic year research programs, research stipends, and scholarships. They also sponsor two student-run publications—the *Undergraduate Science Journal* and the *Aleph* humanities and social sciences journal; organize campuswide conferences and events; and coordinate the Student Research Forum that promotes a broader and deeper understanding of university research and helps entry-level student researchers define their place in the larger research community. See <http://www.ugresearch.ucla.edu>.

STUDENT RESEARCH PROGRAM

Administered by each Undergraduate Research Center, the Student Research Program offers undergraduates, especially lower division and first-year transfer students, opportunities to become actively involved in the University research community. Working with faculty members on research projects, SRP students gain valuable research training and experience, as well as preparation for advanced undergraduate work and graduate school. Students enroll in course 99 in any department and receive 1 unit of course credit for each 30 hours of research completed during the term. Science, engineering, and mathematics students should see <http://www.ugresearchsci.ucla.edu/srpintro.htm>. Arts, humanities, social sciences, and behavioral sciences students should see <http://hass.ugresearch.ucla.edu/srp.htm>.

UNDERGRADUATE RESEARCH FELLOWS PROGRAM

The Undergraduate Research Fellows Program (URFP) is available on a competitive basis and by application for undergraduate students seeking entry-level research experience. Funded students typically participate in two terms of research (winter and spring quarters) through SRP. Science, engineering, and mathematics students should see <http://www.ugresearchsci.ucla.edu/urfp.htm>. Arts, humanities, social sciences, and behavioral sciences students should see <http://hass.ugresearch.ucla.edu/urfp.htm>.

UNDERGRADUATE STUDY
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UNDERGRADUATE RESEARCH SCHOLARS PROGRAM

The Undergraduate Research Scholars Program (URSP) offers scholarships from foundations, industry, and individual donors to continuing students (junior-level standing and higher). Applicants must have a strong commitment to research and must complete an honors thesis or a comprehensive independent studies project during the senior year. Applications are accepted during spring quarter for the following academic year. Science, engineering, and mathematics students should see <http://www.ugresearchsci.ucla.edu/ursp.htm>. Arts, humanities, social sciences, and behavioral sciences students should see <http://hass.ugresearch.ucla.edu/ursp.htm>.

ACADEMIC RESEARCH COURSES

All academic departments offer undergraduate research courses that allow students to obtain academic credit for their research experiences. Students enrolled in the courses are often upper division students with Student Research Program experience. Department requirements for credit vary, but all departments require a research proposal to enroll in upper division tutorial courses and a research report to receive credit when the research project is completed. Senior students working toward honors or highest honors in many majors must complete a two-term (or more) research project that culminates in an honors thesis. Arrangements must be made with a faculty mentor before students can register for the course. See the undergraduate adviser in the department of interest for more information.



INTERNSHIPS AND SERVICE PROGRAMS

Rewarding opportunities in the form of internships, community service work, industry and business positions, local, national, and international programs, and community-based teaching provide students with insights into a range of professional fields and the chance to apply academic theories firsthand.

CAREER CENTER

INTERNSHIP AND INTERNATIONAL OPPORTUNITIES

The UCLA Career Center, located in the Strathmore Building, offers advice and leads for internships, fellowships, and other experiential learning opportunities in the U.S. and abroad. Many helpful resources are featured in the second floor Career Laboratory and on BruinView™. Options for current students and alumni include teaching or volunteering abroad, research or fieldwork, and internships in almost every occupation or industry. The Internship Peer Advocates Team advises students on search techniques to identify relevant employers and programs. All career counselors and peer advisers also offer support for students eager to gain hands-on experience. See <http://career.ucla.edu/Student/Job-Search-Strategies/Internships-and-International-Opportunities>.

DC FELLOWS SUMMER INTERNSHIP PROGRAM

The DC Fellows internship program supports students seeking summer internships in Washington, DC. Assignments are available with elected officials, government agencies, public interest groups, international organizations, the media, and a wide range of public and private organizations. The program offers advice on searching and applying for internships, as well as housing support and the option to apply for alumni-sponsored scholarships. For further information, send e-mail to internships@career.ucla.edu or see <http://career.ucla.edu/Student/Job-Search-Strategies/Internships-and-International-Opportunities/Washington-DC-Internships-for-Summer>.



QUARTER IN WASHINGTON, DC

The Center for American Politics and Public Policy (CAPP) selects undergraduates each fall, winter, and spring to participate in its Quarter in Washington Program. The program offers an exciting opportunity to combine UC courses with research and field experience.

Students live at the UC Washington Center for up to 12 weeks, dividing their time between coursework and a part-time internship placement. They can earn credit

in multiple majors. The core course, a research development seminar, is multiple-listed in political science, sociology, communication studies, and history; meets the capstone requirement for the Public Affairs minor; and is eligible for College Honors consideration. The internship placement fulfills the internship requirement for the Civic Engagement minor. At least one course in a subject other than political science, such as economics or history, is usually offered each quarter. All courses take advantage of Washington's unique resources for study and research.

UC Washington Center administrators help students find a field placement that complements a substantial research project. Placements have included ABC News, the Brookings Institution, CNN, the Department of Justice, the Kennedy Center, Studio Theatre, the Center for Strategic and International Studies, and various members of Congress. For information, contact the CAPP office by e-mail at info@capp.ucla.edu or call 310-206-3109. See <http://capp.ucla.edu/quarterinwashington/>.

RESERVE OFFICERS' TRAINING CORPS

The University of California, in accordance with the National Defense Act of 1920 and with the concurrence of The Regents, offers courses and programs in military training. This voluntary training allows students to qualify for an officer's commission in the Army, Navy, Air Force, or Marine Corps while completing their college education. ROTC courses are offered by three departments within the College of Letters and Science: Aerospace Studies (Air Force), Military Science (Army), and Naval Science (Navy and Marine Corps). Equipment, uniforms, and textbooks are provided. The programs provide a monthly stipend to eligible students while on contract and additional financial benefits, including tuition and fee scholarships, to qualified students. Individual programs are described in the Curricula and Courses section of this catalog.

TEACHING OPPORTUNITIES

Exciting teaching programs prepare undergraduate students for careers in teaching or education and allow them to serve in classrooms in the Los Angeles area. Many teaching opportunities are offered in conjunction with the Graduate School of Education and Information Studies (GSE&IS), which helps coordinate programs leading to various instructional credentials or to graduate study.

EDUCATION STUDIES MINOR

The Education Studies minor provides a sequence of core and elective courses designed to introduce students to key issues, research, and policies in education. Students participate in a range of seminar and practicum courses to fulfill program requirements. The program office is in 1009 Moore Hall. See <https://gseis.ucla.edu/education/academic-programs/education-studies-minor/> and the program description in the Curricula and Courses section of this catalog.

JOINT MATHEMATICS/EDUCATION PROGRAM

The Joint Mathematics/Education Program (JMEP), offered jointly by GSE&IS and the Department of

Mathematics, leads to a teaching credential and master's degree in education for mathematics majors pursuing a career in secondary school teaching. The program offers courses in education for students completing courses required for a Bachelor of Science degree in a major within the Department of Mathematics. During their senior year, participants serve as teaching interns in an observational teaching program under the direction of a teaching coordinator. During the year following graduation, students take additional graduate courses and teach full-time in a secondary classroom with a full salary. For information, contact the Mathematics Student Services Office, 6356 Math Sciences. See <http://curtiscenter.math.ucla.edu/undergraduates>.

MATHEMATICS FOR TEACHING BS

The Mathematics for Teaching capstone major is designed primarily for students planning to teach mathematics at the high school level. It provides exposure to a broad range of mathematical topics, especially those appropriate for the prospective teacher. Students who complete the major and meet the conditions of the Mathematics Department's California-approved subject matter program are eligible for a waiver of the California Single Subject Teaching Credential in Mathematics (CSET). For information, contact the Mathematics Student Services Office, 6356 Math Sciences. See <http://curtiscenter.math.ucla.edu/node/105>. At the end of their senior year, students may request a letter from the Mathematics Student Services Office verifying their completion of these courses and thus their subject matter competence for the CSET. See the degree description in the Curricula and Courses section of this catalog.

SCIENCE EDUCATION MINOR

The Science Education minor is designed for students who wish to become middle school and high school science teachers and is also attractive to students who plan to teach as graduate students in their disciplines. The minor provides the broad general science background included in California state subject matter credential examinations, selected coursework required for entry into a variety of postbaccalaureate credential programs, and field experiences in the development, management, and teaching of science laboratory instruction in grades 7 through 12, including Advanced Placement Tests. See <http://cateach.ucla.edu/content/science-education-minor> and the program description in the Curricula and Courses section of this catalog or call 310-794-2191.

SCIENCE TEACHER EDUCATION PROGRAM

The Science Teacher Education Program (STEP), cosponsored by the College of Letters and Science and GSE&IS, allows science majors to observe and participate in classrooms in schools in the Los Angeles area and to begin teacher education courses in their senior year. Students earn a preliminary teaching credential the summer after the bachelor's degree is received and a master's in education the following academic year. For details, e-mail Dr. Arlene Russell at russell@chem.ucla.edu or contact any science department undergraduate counseling office. See <http://cateach.ucla.edu/content/science-teacher-education-program-step> or call 310-794-2191.

TEACHER EDUCATION PROGRAM

The Teacher Education Program allows students to obtain both a Master of Education degree and a preliminary multiple or single subject credential in a full-time, two-year program that provides clinical classroom experience and a full-year urban teaching residency. See <https://centerx.gseis.ucla.edu/teacher-education>.

TEACHING SECONDARY MATHEMATICS MINOR

The Teaching Secondary Mathematics minor is designed for students majoring in fields other than mathematics who plan to teach secondary mathematics after graduation. The minor provides recognition for completion of requisite coursework for the Joint Mathematics Education Program and also prepares students for the contents on the California Subject Examination for Teachers (CSET). Post-bachelor credentialing programs will see that students with this minor have taken coursework on secondary mathematics from an advanced standpoint that is recommended by the Conference Board of Mathematical Sciences and the California State Commission on Teacher Credentialing. This minor is not open to students in any Mathematics Department major. See the program description in the Curricula and Courses section of this catalog.

UCLA CALIFORNIA TEACH

The UCLA California Teach program encourages and supports undergraduate students who are interested in exploring K-12 mathematics and science teaching as a potential career. Courses include 24 hours of observation, participation, and assisting in K-12 schools, and seminars to support those field experiences. See <http://cateach.ucla.edu> or call 310-794-2191.



VISUAL AND PERFORMING ARTS EDUCATION MINOR

The Visual and Performing Arts Education (VAPAE) minor in the School of the Arts and Architecture is an interdisciplinary and interdepartmental series of courses designed to introduce students to key issues and methodologies in the field of arts education for multiple publics and to a broad range of careers in the arts, including K-12 teaching, museum education, community arts education, creative arts therapies, and arts advocacy.

The arts education teaching sequence, an important component of the minor, consists of three courses in which selected undergraduate students explore core issues in arts education, creativity, and social justice. Students are assigned to K-12 classrooms in the Los Angeles area where they first observe and then implement an eight-week sequential arts-based lesson plan under the supervision of the guiding teacher. The program office is in 2101 Broad Art Center. See <http://vapae.arts.ucla.edu/vapae-minor/> and the program description in the Curricula and Courses section of this catalog.

UCLA CENTER FOR COMMUNITY LEARNING

The UCLA Center for Community Learning serves faculty members, undergraduate students, and com-

munity partners through academic courses and programs, including credit-bearing internships, service learning courses, community-based research, AmeriCorps programs, and the Astin Scholars program. It is home to the undergraduate minor in Civic Engagement. The office is in A265 Murphy Hall, 310-825-7867. See <http://www.uei.ucla.edu/communitylearning.htm>.



UNIVERSITY OF CALIFORNIA CENTER SACRAMENTO

The University of California Center Sacramento (UCCS) is operated by UC Davis. The center's long-term goal is to bring together UC faculty members with undergraduate students to pursue research related to state government, politics, and public policy. UCCS places students in intensive one-term policy-related internships throughout the State Capitol Building and in the Sacramento policy community. UCCS is open to all juniors and seniors with a 3.0 grade-point average. For more information, send e-mail to jedwards@college.ucla.edu. See <http://uccs.ucdavis.edu>.

LOWER DIVISION SEMINAR PROGRAMS

COLLEGIUM OF UNIVERSITY TEACHING FELLOWS

The Collegium of University Teaching Fellows (CUTF) offers outstanding graduate students the opportunity to develop and teach lower division seminars in their area of expertise. These unique courses cover all areas, from the humanities to the life, physical, and social sciences. Undergraduate students take courses that are at the cutting edge of a discipline and benefit from a small-seminar environment. GE and honors credit is granted for most seminars, which are offered in Winter

and Spring quarters only. Enrollment is limited. For further information, contact the Office of Instructional Development, 70 Powell Library Building, 310-206-8998. See <http://www.oid.ucla.edu/training/cutf>.

HONORS COLLEGIUM

The Honors Collegium, a series of interdisciplinary honors courses, offers a unique educational experience where students learn how to think critically and creatively and how to communicate effectively. Courses emphasize the breadth of an interdisciplinary approach to learning and focus on small classes and individual attention. See <http://www.honors.ucla.edu/honors-collegium/about/>.

FIAT LUX FRESHMAN SEMINAR PROGRAM

Fiat Lux seminars provide students with an opportunity to share ideas in class—an important academic skill that can be acquired only through practice. These 1-unit seminars, taught by distinguished faculty members from across UCLA, introduce freshman students to topics of intellectual importance and encourage them to participate in critical discussions with a small group of peers. The program takes its name from the motto of the University of California: *Fiat Lux—Let There be Light!* For details about seminar offerings each term, see the Schedule of Classes at <https://sa.ucla.edu/ro/public/soc>. For more information about the program, see <http://www.uei.ucla.edu/flatlux.htm>.

ADVISING AND ACADEMIC ASSISTANCE

Academic assistance is available in the form of staff and student counselors, faculty advisers, student services, tutorials, and special programs.

NEW STUDENT AND TRANSITION PROGRAMS

The UCLA New Student and Transition Programs welcome new undergraduate students to UCLA and ease their transition into and throughout the first year. New Student Orientation introduces students to UCLA through academic counseling and educational planning and orients students to all the special programs available to them. During Orientation, students work in small groups with peer counselors and gain insight into necessary academic skills. They learn how to plan their academic program and become familiar with educational opportunities, student services, and facilities available at UCLA. Individual counseling sessions help students adjust to University life and fulfill the advising requirements of the College or school. Sessions for family members are also offered.

New Student Orientation sessions are three-day, two-night residence hall live-in programs for first-year students and one- and two-day programs for transfer students. There is a fee for participation.

New Student and Transition Programs also offer the College Summer Institute (CSI), a six-week residential program in which new first-year students get a head

start on graduation requirements through UCLA summer courses.

During the academic year, additional programs are offered to provide academic advising and successful transition to the second year. For more information, contact the New Student and Transition Programs office in 201 Covel Commons, 310-206-6685. See <http://www.newstudents.ucla.edu>.

COLLEGE AND SCHOOL ADVISERS

The College and each school and academic department at UCLA have a staff of academic counselors and advisers to help students plan their academic program, monitor their progress toward the bachelor's degree, provide information about degree requirements, and assist with academic problems. See <http://www.registrar.ucla.edu/Academics/Academic-Counseling> for a list of College and school advising offices. To contact a departmental adviser, see the individual department; a list is available at <http://www.registrar.ucla.edu/Academics/Departments-Programs-and-Freestanding-Minors>.

ASK PEER COUNSELORS

The ASK Peer Counseling Program is an extension of College Academic Counseling. ASK peer counselors are undergraduate students from the College of Letters and Science trained to respond to student questions and concerns in several convenient settings. No appointments are required, just walk up and ASK. Peer counselors make referrals and provide information about academic rules and regulations, deadlines, and petitions and, as peers, can provide valuable personal experience.

Students can find ASK peer counselors weekdays when school is in session at various locations across campus. For details about locations and operating hours, see <http://www.ugeducation.ucla.edu/counseling/ask/>. Students may also e-mail questions to ask@college.ucla.edu.

COLLEGE ACADEMIC MENTORS

Letters and Science college academic mentors (CAMs) are graduate students who mentor primarily undergraduate lower division students and new transfer students to successfully navigate a large research university. In addition to addressing issues related to program planning and academic success, CAMs provide information and referrals to campus resources that focus on undergraduate achievement. Many CAMs have served as teaching assistants and can give unique perspectives on faculty members, course selection, major requirements, and preparation for and application to graduate school. See <http://www.ugeducation.ucla.edu/counseling/cam.html>.

For appointments, go to Window 1, A316 Murphy Hall. CAMs are also available in selected departments and through the MyUCLA Virtual Counseling link.

ACADEMIC ADVANCEMENT PROGRAM

The Academic Advancement Program (AAP, <http://www.aap.ucla.edu>), built on principles of social justice, has a threefold mission: (1) to ensure the academic success, retention, and graduation of students who have

been historically underrepresented in higher education, (2) to increase the numbers of AAP students entering graduate and professional schools, and (3) to develop the academic, political, scientific, economic, and community leadership necessary to transform society. AAP promotes academic achievement and excellence by providing students with an array of academic services.

Students are eligible for AAP if their academic profiles and personal backgrounds may impact their University experience and their retention and graduation from UCLA. Students are also eligible if they are part of any federally funded program that requires counseling, tutoring, or mentoring. For more information, contact AAP New Student Programs in 1230 Campbell Hall. See <http://www.aap.ucla.edu/programs/new-students/overview/> or call 310-206-1571.

ACADEMIC COUNSELING

College counselors at AAP holistically counsel students to facilitate their academic and personal success by empowering them with the knowledge and guidance to thrive in their undergraduate careers and beyond. Counselors and peer counselors work with students to plan their academic programs, monitor progress toward the degree, provide information about degree requirements, and connect them to various campus resources and opportunities. See <http://www.aap.ucla.edu/programs/counseling/overview/> or call 310-825-1481.



CENTER FOR COMMUNITY COLLEGE PARTNERSHIPS

The Center for Community College Partnerships (CCCP) develops academic partnerships between California community colleges, particularly those with large underrepresented populations, and the University to improve student competitiveness for UC admissions and increase the diversity of the UCLA transfer admit pool. The CCCP Scholars Program offers peer mentoring and several academic residential summer programs to help prepare students for transfer to a four-year university and to help institutions develop a transfer culture through a critical race theory framework. See <http://www.aap.ucla.edu/c-c-c-p/> or call 310-267-4441.

GRADUATE MENTORING AND RESEARCH PROGRAMS

AAP offers several programs aimed at helping students attain their academic and professional goals beyond the bachelor's degree. Students can plan their path to graduate or professional school with a mentor. Current graduate students mentor undergraduate students and help them prepare their application materials.

The Graduate Mentoring and Research Programs (GMRP) offer all AAP students one-on-one mentoring in preparation for graduate studies and professional

school admission. The office also offers a variety of workshops on graduate school topics. See <http://www.aap.ucla.edu/graduate-mentoring-and-research-programs/> or call 310-794-4186.

Community Development and Social Justice Program

The Community Development and Social Justice (CDSJ) Program assists undergraduate students interested in graduate or professional schools. The program works in the fields of labor/workplace studies, public health, public policy, social welfare, and urban planning to increase enrollment of AAP students committed to working toward social equity. Students conduct applied research projects and intern, under the supervision of a professional staff member, at a community-based organization. See <http://www.aap.ucla.edu/graduate-mentoring-and-research-programs//community-development-and-social-justice-program-cdsj/> or call 310-794-4186.

Educators for Tomorrow Scholars Program

The Educators for Tomorrow (EFT) Scholars Program aims to advance a new generation of socially conscious leaders interested in careers in education. It provides AAP students with opportunities to meet faculty members and students in the Graduate School of Education and Information Studies to get involved in community service programs, internships, service learning courses, and research. Students in the program work with educators at local public schools as interns and participate in educational roundtables. See <http://www.aap.ucla.edu/graduate-mentoring-and-research-programs/educators-for-tomorrow/> or call 310-794-4186.

McNair Research Scholars Program

The McNair Research Scholars Program prepares low-income, first-generation, and historically underrepresented undergraduate students for the best graduate programs in the country. The program works with 28 students annually to prepare them for Ph.D. programs in the humanities, arts, or social sciences. Students conduct an independent research project and participate in a research-intensive summer program. See <http://www.aap.ucla.edu/graduate-mentoring-and->



[research-programs/mcnair-research-scholars-program/](http://www.aap.ucla.edu/research-programs/mcnair-research-scholars-program/) or call 310-794-4186.

Research Rookies Program

The Research Rookies Program gives second-year AAP undergraduate students the opportunity to develop entry-level research projects in the humanities and social sciences. Over two academic terms, students meet regularly with graduate mentors and a faculty member. See <http://www.aap.ucla.edu/graduate-mentoring-and-research-programs/aap-junior-scholars/> or call 310-794-4186.

PEER COUNSELING

Peer counselors are upper division AAP students who assist entering students with the transition to the University and provide them with a perspective on life at UCLA. See <http://www.aap.ucla.edu/programs/counseling/peer-counselors/> or call 310-825-1481.

PEER LEARNING

AAP Peer Learning services promote academic excellence. Most peer learning facilitators are upper division AAP students who provide the intellectual challenge, encouragement, and personal support that students need to recognize their own authority as thinkers and learners. The sessions provide academic support through small groups that foster discussion and allow students to listen to and articulate new and different perspectives. See <http://www.aap.ucla.edu/programs/peer-learning/overview/> or call 310-206-7771.

SCHOLARSHIPS

There are many opportunities for eligible students in AAP to receive merit and need-based scholarship funds. Some awards require application; others are available through nomination. See <http://www.aap.ucla.edu/aap-scholarship-information/> or call 310-206-1805 for further information.

SUMMER PROGRAMS

The AAP seven-week intensive academic residential summer program for incoming freshman and transfer students prepares historically underrepresented, low-income, and/or first-generation students for the academic rigors and demands of a research university. Students are able to build a network of academic support prior to the regular school year that provides interaction with students from diverse backgrounds and broadens life experiences.

Students enroll in three University courses that meet UCLA requirements for graduation and receive support in small groups or individual sessions from teaching assistants and peer learning facilitators. Freshmen have the option of taking classes offered in the writing or mathematics/science intensive programs. Transfer student preparation involves an advanced composition course, honors research course, and upper division seminar. Academic counselors meet with students during the program and are available to assist students in shaping their educational plan toward graduation. See <http://www.aap.ucla.edu/programs/new-students/freshman-and-transfer-summer-programs/overview/> or call 310-206-1571.

VICE PROVOST INITIATIVE FOR PRECOLLEGE SCHOLARS

The Vice Provost Initiative for Precollege Scholars (VIPS) program is a partnership between UCLA and the Los Angeles and Pasadena school districts that prepares historically underrepresented students in 10 high schools to become competitively eligible for admission to UCLA and other flagship universities, and to encourage pursuit of graduate and professional education using a social justice framework and holistic approach. VIPS offers peer mentoring, summer programs, Saturday academies, and research opportunities to scholars and their families. See <http://www.aap.ucla.edu/programs/vips/overview/> or call 310-267-4676.

ACADEMIC EXCELLENCE

Eligible students receive the following honors and awards in recognition of academic achievement.

DEAN'S HONORS LIST

The School of the Arts and Architecture, Henry Samueli School of Engineering and Applied Science, Herb Alpert School of Music, School of Nursing, School of Theater, Film, and Television, and the deans of the five divisions in the College of Letters and Science award Dean's Honors to deserving students each term. Honors are based on the grade-point average attained within a specified number of units. Consult the College or school for further information.

LATIN HONORS

The College and schools award Latin honors according to overall grade-point average at graduation. To be eligible students must have completed at least 90 (98 for the School of Nursing) University of California units for a letter grade. The levels of honors are *summa cum laude*, *magna cum laude*, and *cum laude*. Specific requirements vary for each level and are detailed in the College and Schools section of this catalog. See <http://www.registrar.ucla.edu/Registration-Classes/Graduation/Final-Degree-Audit/Latin-Honors> for the most current calculations of Latin honors.

DEPARTMENTAL HONORS

In the College of Letters and Science, departmental honors and highest honors are awarded at graduation on the recommendation of a student's major department, based on successful completion of a departmental honors program. Students should consult their department for its requirements.

DEPARTMENTAL SCHOLAR PROGRAM

Departments in the College of Letters and Science and each school—except the Herb Alpert School of Music; School of Nursing; and School of Theater, Film, and Television—may nominate exceptionally promising juniors and seniors as Departmental Scholars to pursue

bachelor's and master's degree programs simultaneously. Nominations are submitted to the College or school dean for recommendation to the dean of the Graduate Division. Students interested in becoming Departmental Scholars should consult their depart-



ments well in advance of application dates for graduate admission (see the calendar at the beginning of this catalog). See <http://www.honors.ucla.edu/other-programs/departmental-scholars/> or call 310-825-1553 for further information.

HONOR SOCIETIES

ALPHA LAMBDA DELTA AND PHI ETA SIGMA

Alpha Lambda Delta and Phi Eta Sigma are national honor societies that recognize high achieving first-year students. Membership is based solely on academic achievement during the freshman year. To be eligible students must have a 3.5 grade-point average with 12 graded University of California units in the first term of their freshman or first year at UCLA, or a cumulative 3.5 GPA at the end of the second and/or third terms. Invitations are issued in winter quarter, and an induction ceremony is held during spring quarter. For more information, contact the Office of the Dean of Students, 1206 Murphy Hall, 310-825-3871. See <http://www.aldpes.ucla.edu>.

GOLDEN KEY

Golden Key is an international interdisciplinary academic honors organization dedicated to excellence. Students qualify on the basis of objective academic criteria. No more than the top 15 percent of enrolled sophomores, juniors, and seniors may be eligible.

The society recognizes and encourages scholastic achievement and excellence in all undergraduate fields of study. It unites with collegiate faculties and administrators in developing and maintaining high standards of education and promotes scholastic achievement and altruistic conduct through voluntary service. Invitations are issued in winter quarter, and a reception is held in spring quarter. For more information, contact the Office of the Dean of Students, 1206 Murphy Hall, 310-825-3871. See <http://ucla.goldenkey.org>.

MORTAR BOARD

Mortar Board is a national honor society for college seniors that recognizes outstanding and continual scholarship, leadership, and service to the campus community.

To be considered for membership, candidates must have completed 90 units and must have attained at least a B average or be in the highest 35 percent scholastically of the junior class, whichever is higher. Applications are available at <http://www.mortarboarducla.org/apply.html> early in winter quarter and are due by mid-February. Approximately 35 members are selected each spring by the outgoing chapter. See <http://www.mortarboarducla.org> or call 310-206-5523.

PHI BETA KAPPA

Phi Beta Kappa is a national academic honors society in the humanities, liberal arts, and sciences, founded at the College of William and Mary in 1776. Membership is conferred for high scholastic standing and is determined by vote of the UCLA Eta Chapter council according to scholarship records. Students do not apply for Phi Beta Kappa membership.

At UCLA only graduating seniors and selected juniors are elected to membership. The annual election is held in late April, with the initiation ceremony in June. At present, the minimum grade-point average considered is 3.67 (for 140 or more UC units); the minimum number of UC units considered is 90 (students at the 90-unit level must have at least a 3.85 GPA).

A reasonable distribution of courses in the humanities and sciences is also required, as is a foreign language course at the intermediate level (one level above the UCLA language requirement for graduation) or above. A Passed grade is computed approximately as a B, depending on number of courses taken and graded units. Students who are elected are notified by a My UCLA e-mail notification.

For further information, contact Phi Beta Kappa in the UCLA Scholarship Resource Center, 233 Covel Commons, 310-206-2875, or the direct line at 310-825-4112. See <http://www.college.ucla.edu/pbk/>.

TAU SIGMA

Tau Sigma is a national honor society that recognizes the high academic achievement of first-year transfer students. To become a member, UCLA students need to earn a 3.5 grade-point average or better during their first term at UCLA after transferring either from a community college or a four-year institution (summer quarter not included). Invitations are issued after each regular academic term, and an induction ceremony is held during spring quarter.

Tau Sigma honors UCLA's large transfer community for academic achievement and provides leadership, networking, and social activities. For more information, contact the Office of the Dean of Students, 1206 Murphy Hall, 310-825-3871. See <http://www.deanofstudents.ucla.edu/Honor-Societies>.



Graduate Study

Graduate students at UCLA benefit from—and contribute to—the resources of one of the country's outstanding research universities. A distinguished faculty committed to research and teaching, an extensive library system ranked among the best in the nation, and excellent research centers, institutes, and laboratories in virtually every major discipline all provide extraordinary opportunities for graduate endeavor.

Graduate training at UCLA takes place in the classrooms, the laboratories, the libraries, in specialized seminars, through independent research, and in teaching experiences. Graduate education is enriched by several hundred postdoctoral and visiting scholars from other universities who engage in research and, in some instances, teaching at UCLA every year. This unique research environment promotes the quality of original work and study that is the hallmark of graduate education.

The degree of Master of Arts or Master of Science, or one of several professional degrees such as Master of Business Administration, is intended to develop mastery of a field and prepare students for the practice of a profession. The doctoral degree (PhD, EdD, and so forth) is designed to prepare students for creative activity and original research, often in association with college or university teaching.

GRADUATE ADMISSION

Diversity, Inclusion, and Admissions

1237 Murphy Hall

310-206-3411

<https://grad.ucla.edu/admissions/>

Meeting the minimum requirements does not ensure graduate admission, which is limited by the number of places and the amount of student support available in UCLA's graduate programs. Applicants are evaluated on scholastic qualifications and formal preparation for the graduate field of study. Departments may have other requirements for admission, which are listed by department and by degree at <https://grad.ucla.edu>.

APPLYING FOR ADMISSION

Prospective students may apply online at <https://grad.ucla.edu/admissions/steps-to-apply/>.

WHEN TO APPLY

Most departments and schools have deadlines in November and early December for the following fall quarter. Consult the Admissions section of the Graduate Division website for specific deadlines for each major. A few departments accept applications for winter and spring quarters.

At the discretion of the department, applications may be considered if submitted after a program's stated deadline, provided the enrollment limits have not been exceeded.

APPLICATION FEE

A nonrefundable application fee is required when the application is submitted.

ENTRANCE REQUIREMENTS

U.S. applicants to graduate standing must hold a bachelor's degree from a regionally accredited institution comparable in standard and content to that awarded at the University of California. Degrees granted on the basis, for example, of nonacademic prior learning, test scores, and other than organized supervised coursework in academic subjects are not considered comparable. A scholastic average of B or better (or its equivalent if the letter grade system is not used) is required in the last two years of undergraduate coursework and in any postbaccalaureate study.

Requirements for international applicants are listed below.

SUPPORTING MATERIALS

Supporting materials to be submitted, including official transcripts of record and the nonrefundable application fee, are specified at <https://grad.ucla.edu/admissions/>. Submitted materials become the property of the University and are not returnable.

GRADUATE RECORD EXAMINATION

Applicants who apply for admission to a department or school that requires Graduate Record Examination (GRE) scores should arrange to take the examination no later than December so scores arrive on time. GRE



scores should be sent directly to the prospective department and not to the Graduate Division.

GRE registration and information about both paper and computer-based testing are available from ETS at <http://www.ets.org/gre>. Information on GRE fee waivers is also available on the ETS website.

LETTERS OF RECOMMENDATION

Most graduate professional schools, departments, and interdepartmental programs at UCLA require applicants to submit three letters of recommendation. Letters typically augment, validate, or explain information provided in the application and should be written by people qualified to analyze students' abilities and academic promise.

ABOUT THE UCLA GRADUATE DIVISION

The UCLA Graduate Division administers policy established by the Academic Senate and its Graduate Council for master's, doctoral, and graduate professional degree programs other than the professional degree programs in law, medicine, and dentistry, and for postdoctoral scholars. It oversees graduate recruitment and admissions (including the recruitment of a diverse student body), fellowships, teaching assistantships, graduate student researcher appointments, and other graduate student support, and the maintenance of high quality standards in all UCLA graduate programs. The dean of the Graduate Division also serves as vice provost of graduate education.

GRADUATE COUNCIL. The Graduate Council is a standing committee of the UCLA Academic Senate. In keeping with the University commitment to the philosophy of shared governance, the council is responsible for the establishment of policy and standards for graduate education and postdoctoral scholars at UCLA; the approval, review, and monitoring of graduate degree programs; and recommendations regarding fellowships and assistantships.

GRADUATE ADVISER. At matriculation, a graduate student usually selects or is assigned a graduate adviser who assists in program planning and completion of degree requirements. Sometimes this role is temporarily assumed by a faculty adviser assigned to the program as a whole. When the student's master's or doctoral committee is established, the chair of the committee assumes the adviser's role.

Students should submit official transcripts of record, in the original language and with an English translation certified by the institution, for all college and university work. The original of an academic record that cannot be replaced must not be sent; a properly certified copy should be sent instead. Specific information for applicants from a variety of educational systems is available at <https://grad.ucla.edu/admissions/international-applicants/>.

Proficiency in English

Most international applicants to UCLA graduate school are required to submit scores from either the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) examination. International students who hold a bachelor's or higher degree from a university located in the U.S. or in another country in which English is both the primary spoken language of daily life (e.g., Australia, Barbados, Canada, Ireland, Jamaica, New Zealand, United Kingdom) and the medium of instruction, or who have completed at least two years of full-time study at such an institution, are exempt from this requirement.

Information about the TOEFL is available at <http://www.ets.org/toefl>. Information about the IELTS is available at <http://www.ielts.org>.

Applicants who are required to submit TOEFL or IELTS scores (i.e., do not belong to the exempted categories listed) may also be required to take the UCLA English as a Second Language Placement Examination (ESLPE) to determine potential coursework in academic writing. Incoming students who score at least 100 on the TOEFL iBT (Internet-based test) or at least 7.5 overall band score on the IELTS examination are exempt from the ESLPE requirement.

Students who are required to take the ESLPE must do so before or during their first term at UCLA. Failure to do so results in a hold on student records. Students may take the ESLPE once only. Unauthorized retakes of the examination result in an invalid examination score. Depending on ESLPE results, students may be required to complete one or more courses in the English as a Second Language (ESL) credit-bearing series, beginning in their first term in residence at UCLA. The courses must be passed with a grade of C or better if taken for a letter grade, or B or better if taken on an S/U basis. Taking required ESL courses may prolong students' time to degree. If students do not achieve a minimum score on the ESLPE, their admission is deferred until they have acquired the necessary proficiency in English.

Graduate students who plan to work as teaching assistants (TAs) and are nonnative English-speaking international students are required to take the Test of Oral Proficiency (TOP), which is administered by the Office of Instructional Development (OID). Those who hold a bachelor's or higher degree from a U.S. institution are exempt. Students who do not plan to work as teaching assistants do not need to take the TOP.

For students who receive a clear pass (7.1 or above) on the TOP, no coursework is required. Students who receive a marginal pass (between 6.4 and 7.0) are

INTERNATIONAL APPLICANTS

International applicants who have completed their postsecondary education outside the U.S. are expected to hold a degree, with above average scholarship, from a university or university-level institution. If their examinations have been graded Excellent, Very Good, Good, and Pass, applicants must have at least a Very Good general rating to qualify for admission. Applicants who hold a three-year Bologna degree may be considered for admission on the recommendation of the department, program, or professional school.

Applicants who hold a three-year ordinary or pass degree, or who hold a professional diploma in accounting, business, librarianship, social work, physical education, health education, and so forth, or a four-year degree, diploma, or higher certificate from a technical, vocational, or postsecondary specialized school, should not apply for graduate admission. Persons with memberships in professional associations such as Institutes of Chartered Accountants, the Institute of Chartered Secretaries and Administrators, and so forth, also do not qualify for graduate admission unless they also hold recognized university-level degrees or titles.

required to take an approved oral skills course either before or during their first term as teaching assistants. Students scoring 6.3 or below are not eligible to become teaching assistants and are encouraged to complete recommended ESL coursework before taking the TOP examination again.

No other oral examination is accepted. Entering graduate students who plan to work as teaching assistants in their first term at UCLA must arrive early enough to take the TOP before instruction begins. The examination schedule and other information about TOP are available at <http://www.oid.ucla.edu/training/top> or by calling 310-825-3106.

ADMISSION TO THE SCHOOLS OF DENTISTRY, LAW, AND MEDICINE

Applicants for MS and PhD programs in departments of the Schools of Medicine and Dentistry should apply for admission to the Graduate Division as described above. For admission to DDS, JD, LLM, SJD, and MD degree programs in the Schools of Dentistry, Law, and Medicine, consult the school websites or write to the respective schools for information and application procedures.

ADMISSION TO GRADUATE PROGRAMS IN BIOSCIENCE

Applicants to PhD programs in fields related to life and biomedical sciences apply for admission to the individual degree-granting program. Graduate Programs in Bioscience is a consortium of PhD programs organized into specialized research groups, called home areas, that serve as the admissions and training units associated with the degree-granting programs. Through this structure, students can specialize in their chosen area while maintaining the flexibility to move between home areas to best pursue their research interests. See <https://biology.ucla.edu> for more information.

DEGREE-GRANTING PROGRAMS AND HOME AREAS

Consortium PhD programs offer the research home areas listed below.

Bioinformatics
Bioinformatics

Human Genetics
Genetics and Genomics

Molecular Biology
Biochemistry, Biophysics, and Structural Biology
Cell and Developmental Biology

Gene Regulation
Immunity, Microbes, and Molecular Pathogenesis

Molecular, Cellular, and Integrative Physiology
Molecular, Cellular, and Integrative Physiology

Molecular and Medical Pharmacology
Molecular Pharmacology: Diagnostics, Therapeutics, and the Biology of Disease

Neuroscience
Neuroscience

Physics and Biology in Medicine

Physics and Biology in Medicine

Additional opportunities for doctoral study include Biochemistry, Molecular and Structural Biology in the College of Letters and Science, Oral Biology in the School of Dentistry, and Molecular Toxicology in the Fielding School of Public Health.

Consult the individual program website for information and application procedures. See <https://www.grad.ucla.edu> for information about degree requirements for each program.

SPECIAL ADMISSION POLICIES

NO DEGREE OBJECTIVE

UCLA has no special limited or unclassified categories of graduate admission. Under some circumstances, however, applicants may be admitted for coursework without a degree objective. For example, teachers with a master's degree who wish some refresher study, or international students on a year's stay in the U.S., may wish to apply in this manner. Requirements for admission are the same as those for degree programs, and the academic program must agree to accept the student for the no degree objective (NDO) status. All admission to NDO status must be specially approved by the dean of the Graduate Division, as must any University financial assistance for students on NDO status.

DUPLICATION OF DEGREES

The University of California, in general, discourages the duplication of advanced degrees. At the same time, it recognizes that a professional degree does not duplicate an academic one, and that pressing needs may exist for degrees in different areas (see Concurrent and Articulated Degree Programs in the front of this catalog). Students who apply for a second academic degree at the same level or lower than the one they already hold are required to show compelling cause to the department. The Graduate Division is particularly concerned that a careful review and special justification be made by the graduate program in all cases where an applicant or continuing student is recommended for admission to a second doctoral program. This concern also extends to a recommendation for student support for pursuit of a second doctoral degree. All degree requirements and University regulations apply just as they do for a first degree. Courses and other degree requirements already applied to the earlier degree may not be applied to the second.

SUMMER SESSIONS COURSES

Enrollment in summer sessions courses does not constitute admission to graduate standing, nor does it substitute for the required continuous registration in fall, winter, and spring quarters. Students who wish to apply summer sessions courses to their subsequent graduate program should consult in advance with their departmental adviser. This is also true if they have been readmitted to graduate standing and wish to resume graduate study in summer sessions. Information and applications are available from Summer Sessions, 1331 Murphy Hall.

If students take summer sessions courses following the award of their bachelor's degree, the grades do not appear on the undergraduate transcript (they are included on a separate transcript). After students are accepted by the Graduate Division, summer sessions grades are included on the graduate transcript and computed in the grade-point average.

READMISSION

Students who have registered at any time as a graduate student at UCLA and are returning after an absence (except a formal leave of absence) must file an Application for Graduate Admission.

See the Academic Policies section of this catalog for readmission procedures.

REGISTRATION

Registrar's Office
1113 Murphy Hall
310-825-1091, option 6
<http://registrar.ucla.edu>

Registration consists of paying fees and enrolling in classes.

1. Registration fees and other University charges are due the 20th of each month. BruinBill accounts can be viewed through MyUCLA.
2. Enrollment in classes is completed through MyUCLA at <http://my.ucla.edu>.

Students must complete both processes by the established deadlines to be officially registered and enrolled for the term.

Graduate students must be either registered and enrolled or on an official leave of absence every term until their degrees are awarded. As an exception, certain graduate students may be eligible to pay the filing fee (see below). Failure to register or be on an official leave of absence for any term constitutes withdrawal from UCLA.

PAYING FEES

Details on fee payment, enrollment procedures, and deadlines are on the Registrar's Office website at <http://www.registrar.ucla.edu/Registration-Classes/Registration-and-Payment/Paying-Registration-Fees>.



E-BILL

BruinBill accounts are administered electronically (e-bill) through MyUCLA. Financial activity is displayed for the current term, as well as account activity for the last 24 months. MyUCLA also provides a link to important communications from the University regarding registration and University policies. Students can pay their BruinBill account electronically using electronic checks with no fee, or American Express, Discover, MasterCard, and VISA credit cards with a fee.

ANNUAL GRADUATE FEES

Although the exact cost of attending UCLA varies by program, there are some fees that all UCLA students must pay. UCLA does not charge on a per-unit basis. Each entering and readmitted student is required to submit a Statement of Legal Residence to the Diversity, Inclusion, and Admissions office in the Graduate Division with the Statement of Intent to Register. Students classified as nonresidents of California must pay annual nonresident supplemental tuition in addition to other registration fees. Legal residents of California are not required to pay nonresident supplemental tuition. For a definition of residence and nonresidence, see the Appendix.

Professional Degree Program Fees

Students admitted to the DDS, DEnv, DrPH, JD, MArch I, MFA in Art, MFA in Film and Television, MFA in Theater, MD, MPH, MPP, MSN, MSW, and MURP degree programs must also pay professional degree supplemental tuition, which varies by program.

Self-Supporting Program Fees

Students in self-supporting programs pay a flat annual fee instead of per-term fees. For details, consult the individual program. Self-supporting program fees are published online at <http://registrar.ucla.edu/Fees-Residence/Annual-Fees>.

MISCELLANEOUS FEES

Miscellaneous fees include charges for late registration fees payment. Late fees also apply if students file their study list late or do not pay off BruinBill balances on time. Fees are charged if any check is returned by a bank for any reason. Charges are assessed for most petitions and other special requests. There is also a fee for advancement to doctoral candidacy. A full list of miscellaneous fees is at <http://registrar.ucla.edu/Fees-Residence/Overview>.

STUDENT HEALTH INSURANCE

All UCLA graduate students are automatically assessed for and enrolled in the University of California Student Health Insurance Plan (UCSHIP) as a condition of registration at UCLA. Continued enrollment in a qualified medical/health insurance plan must be maintained during all registered terms. UCHSP components are medical, vision, dental, and behavioral health services.

The UCHSP fee is billed each term along with other UCLA fees. UCHSP fulfills all of the requirements mandated for a qualified medical/health insurance plan as defined by the University. The Ashe Student Health

and Wellness Center is the primary healthcare provider for UCSHIP and is where all nonemergency medical care must be initiated for UCSHIP claim payment consideration. See <http://www.studenthealth.ucla.edu>.

Waiving UCSHIP

Students may waive UCSHIP if they (1) maintain active enrollment in a qualified medical/health insurance plan that meets all established requirements, (2) apply for a UCSHIP waiver within established deadlines each term, and (3) correctly complete the online UCSHIP waiver form.

Students must apply for a UCSHIP waiver online. A pre-waiver worksheet is available to assist students before they complete an actual waiver. See the Ashe Center website for details, including a definition of qualified private medical/health insurance. Click the Insurance tab on <http://www.studenthealth.ucla.edu> and select the appropriate waiver link.

Deadlines for Waiving UCSHIP

Third-party individuals may not waive UCSHIP for a student. Waivers must be submitted by the stated deadlines whether or not fees have been paid by that date. The fall UCSHIP waiver is available between July 1 and the student fee payment deadline. Deadlines are strictly enforced. There are no refunds after the deadline.

The schedule for waiving UCSHIP is as follows:

School of Law Students

Fall Semester	
LLM	July 1–August 7
Year 1	July 1–August 7
Years 2, 3	July 1–August 20
Spring Semester	December 1–20

School of Medicine Students

Fall Semester	
Year 4	June 1–20
Years 1, 2, 3	July 1–20
Spring Semester	December 1–20

All Other Students

Fall Quarter	September 1–20
Winter Quarter	December 1–20
Spring Quarter	March 1–20

The UCSHIP fall quarter waiver website is available between July 1 and September 20, 2016. For semester students, the waiver website is available between July 1 and the fee payment deadline.

The above information serves as official notice of the UCLA mandatory medical/health insurance requirement. All students are responsible for providing complete and accurate information that must be submitted by the stated deadlines.

FEES

Students who formally withdraw from the University or take an approved leave of absence may receive partial refunds of fees. For more information, see Withdrawal in the Academic Policies section of this catalog or consult the Registrar's Office website at <http://www>

[.registrar.ucla.edu/Registration-Classes/Registration-and-Payment/Refunds-and-Reductions/Refunds](http://registrar.ucla.edu/Registration-Classes/Registration-and-Payment/Refunds-and-Reductions/Refunds) for policy details and specific refund deadlines for each term.

FEES DEFERRALS

Academic apprentice personnel are eligible to receive a fee deferral for registration fees assessed during the term in which they serve as an academic apprentice. For more information, students should contact their hiring department. Students are responsible for paying fees by the deferred payment deadline, which is two months after the standard term due date. Whether students attend UCLA, take a leave of absence, or withdraw from the University, they are responsible for the fees, but may be eligible to receive a partial fee refund according to the refund schedule at <http://www.registrar.ucla.edu/Fees-Residence/Term-Fees/Refund-Schedules>. Fees not paid by the deadline are subject to late fees.

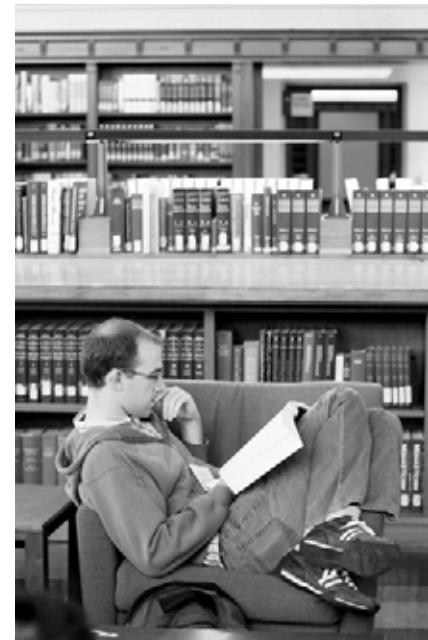
REDUCED NONRESIDENT SUPPLEMENTAL TUITION

The annual nonresident supplemental tuition for graduate doctoral students who have advanced to candidacy is reduced by 100 percent, effective the term after the student is advanced. Doctoral students may receive this reduced nonresident supplemental tuition rate for a maximum of three years. After three years, the full nonresident rate is assessed.

FILING FEE

Graduate students may be eligible to pay the filing fee (half the quarterly student services fee) in lieu of full registration fees for the term in which they expect to complete final degree requirements and receive their degree. Students are not eligible to pay the filing fee unless registered the immediately preceding term. For more information on other eligibility requirements, see <https://grad.ucla.edu/academics/graduate-study/filing-fee-application/>.

Students who pay the filing fee are not eligible for University services and are not considered in the same status as registered students.



IN ABSENTIA REGISTRATION

Graduate students conducting research or taking coursework outside California may be eligible for in absentia registration and reduction of tuition and the student services fee to 15 percent of the full amounts. See the Academic Policies section of this catalog for more information.

All fees are subject to change without notice by The Regents. Current academic year fees and update information is available from the Registrar's Office at <http://www.registrar.ucla.edu/Fees-Residence/Annual-Fees>.

ANNUAL BUDGET ESTIMATES

Budgets are designed to serve as a guide and are subject to change without notice. Budget information is available from Financial Aid and Scholarships at <http://financialaid.ucla.edu/Prospective-Student/Cost-of-Attendance>. Budgets for the schools of Medicine, Dentistry, and Nursing are higher due to specialized supplies. More information can be found at <http://medschool.ucla.edu/current-student-budget> for medicine students, <https://www.dentistry.ucla.edu/learning/projected-costs-0> for dentistry students, and <http://www.nursing.ucla.edu/academics/degree-programs/msn-masters-entry-clinical-nurse-mecn/things-you-should-know/> for nursing students.

ENROLLING IN CLASSES

The Schedule of Classes (<https://sa.ucla.edu/ro/public/soc>) contains listings of class times, meeting rooms, instructors, and all information necessary for enrolling in classes. Use the Schedule and academic counseling to assemble a program of courses.

MyUCLA ENROLLMENT

Students enroll in classes through MyUCLA at <http://my.ucla.edu>. The site walks students through the enrollment procedure.

Students are assigned specific times—called appointments—when they are allowed to enroll. Use MyUCLA to determine enrollment appointments.

Also use MyUCLA for other enrollment-related tasks, such as adding, dropping, or exchanging classes; signing onto the wait list for a class and checking wait list status; or changing the grading basis for a class. For more information, see the Registrar's Office website at <http://www.registrar.ucla.edu/Registration-Classes/Enrollment-Policies>.

IN-PERSON ENROLLMENT

For classes that require written approval or specialized processing, students may enroll in person at 1113 Murphy Hall, Monday through Friday from 9 a.m. to 4 p.m.



STUDY LIST

A study list is the record of courses a student is enrolled in for the term. At 11:59 p.m. on Friday of the second week of instruction the study list of enrolled courses becomes official, and all wait lists are eliminated. Students should verify their study list through MyUCLA after each enrollment transaction. Students are responsible for all courses and the grading basis as listed on MyUCLA and cannot receive credit for courses not listed.

After Friday of the second week, most changes to the official study list can be made with a fee through MyUCLA. Some changes require an Enrollment Petition along with approval signatures. See <http://www.registrar.ucla.edu/Registration-Classes/Study-List> for deadlines and complete instructions.

Errors or omissions should be corrected before the College or school deadlines for changes by petition. Unapproved withdrawal from or neglect of a course entered on the study list results in a failing grade.

FULL-TIME GRADUATE PROGRAM

Three courses (or 12 units) per term are considered the normal enrollment for graduate students and are required for students not in doctoral candidacy to be counted for full-time standing in University official enrollment records. Therefore, students are directed by their departments to enroll full time whenever possible.

Throughout their appointments, teaching assistants (TAs) and graduate student researchers (GSRs) are required to be registered and enrolled in at least 12 quarter units. TAs or GSRs terminate their appointments if they take a leave of absence, withdraw, or use a filing fee. Course 375 for TAs and independent studies at the 500 level for GSRs may be counted toward the 12-unit load.

Graduate students holding fellowships must be enrolled in at least 12 units, both before and after advancement to candidacy. The 12-unit minimum required per term may include, among others, the 500 series (individual study or research).

Veterans are required to make normal progress toward the degree as stated by the major department. Information on Department of Veterans Affairs regulations is available from the veterans benefits officer, 1113 Murphy Hall.

CONTINUOUS REGISTRATION POLICY

Graduate students must be either registered and enrolled or on an official leave of absence every term until their degrees are awarded. As an exception, certain graduate students may be eligible to pay the filing fee (see above). Failure to register or be on an official leave of absence for any term (fall, winter, or spring quarter) constitutes withdrawal from UCLA.

REGISTRATION IN THE FINAL TERM

If students are completing courses; using faculty time, library facilities, laboratories, or other University resources; or receiving University funds, they are required to register in the final term in which they expect to receive their degree.

When the award of a degree is expected at the end of a given term, but special circumstances (not involving preparation of the manuscript) over which a student has no control prevent the completion of all requirements before the first day of instruction in the next term, a student may petition for a waiver of registration for that term. Such petitions must be accompanied by a letter from the graduate adviser or department chair elaborating the exceptional circumstances.

HEALTH ASSESSMENT AND EVALUATION

New students enrolling in the Schools of Dentistry, Medicine, or Nursing, or the Social Welfare Department, must complete and return health evaluation forms to the Arthur Ashe Student Health and Wellness Center. See the Ashe Center website at <http://www.studenthealth.ucla.edu> to obtain professional school health clearances and monitor immunization compliance. To schedule a clearance appointment, call 310-825-4073 option 1, or visit the Ashe Center website. For specific questions related to requirements, contact the individual department.

Immunization Recommendations

UCLA recommends that all incoming students be vaccinated against or show immunity to multiple infectious diseases consistent with guidelines of the American College Health Association, California Department of Public Health, and U.S. Centers for Disease Control and Prevention (CDC). These recommendations help protect the health of students and the entire campus community. The need is more pressing than ever, given recent multistate measles outbreaks and re-emergence of other vaccine-preventable diseases among those not completely immunized. Students are encouraged to submit their immunization history to the Ashe secure patient portal. See <http://www.studenthealth.ucla.edu> for more information.

FINANCIAL SUPPORT

Fellowships and Financial Services
1228 Murphy Hall
310-825-1025

uclafellowship@grad.ucla.edu
<https://grad.ucla.edu/funding/financial-aid>

As a major center for graduate study, UCLA offers its qualified graduate students substantial support through several types of financial assistance.

Information on available funding for entering (and re-entering) students is included in the online Application for Graduate Admission. Continuing graduate students should complete the online Fellowship Application for Continuing Graduate Students. Completed fellowship applications must be returned to the home department by the published deadlines. Some departments have earlier deadlines; consult the Graduate Division website at <https://grad.ucla.edu/funding/financial-aid/funding-for-continuing-students/> for details.

The Graduate Division website includes a financial support section for entering students and one for continuing students. Both describe the full range of financial assistance available. Students should contact their department for more detailed information.

FELLOWSHIPS

The University administers several awards on the basis of scholarly achievement. Most awards are available in open competition, though some are restricted to new students or to specific departments. Some fellowship and scholarship awards are made from University funds; others are made from endowment funds held in trust by the University and given by interested friends and alumni. Still others come from annual donations by educational foundations, industry, government, and individual benefactors.

Most fellowship, traineeship, and grant awards are for one academic year (three terms). Fellowships and grants provide stipends in varying amounts for qualified students. Nonresident tuition fellowships cover the nonresident supplemental tuition, for periods of one to three terms, of selected graduate students who are not California residents.

ASSISTANTSHIPS

Academic apprenticeships train qualified students for careers in teaching and research, and compensate them for their services. Teaching assistantships provide experience in teaching undergraduates, with faculty supervision. Graduate student researcher appointments give students experience working on faculty-supervised research projects. For more information see <https://grad.ucla.edu/funding/working-at-ucla/>.

AWARDS BASED ON FINANCIAL NEED

Because the cost of a graduate education may present a financial hardship, students who require assistance in meeting educational costs are encouraged to apply for aid based on their financial need. Need is defined as the difference between allowable school-related expenses and financial resources. Financial aid applicants must file the Free Application for Federal Student Aid (FAFSA). The priority filing deadline is March 2. Some awards, such as university grants, are subject to availability of funding. Students who complete the FAFSA by March 2 should also make sure that any additional requested documentation is submitted to Financial Aid and Scholarships as soon as possible.

Students who need financial aid for Summer Sessions must submit a Summer Aid Application in addition to the FAFSA. Summer applications are available at <http://financialaid.ucla.edu> beginning April 1 and should be filed by April 30 for on-time consideration.

Financial aid is also available to UCLA students enrolled in Summer Travel, Summer Institutes, or UC cross-



campus Summer Sessions. See <http://financialaid.ucla.edu> for applications and deadline information.

Financial aid awards include work-study and low-interest loans. Students are usually awarded a financial aid package that is a combination of these forms of assistance. Further information is available from Financial Aid and Scholarships, A129J Murphy Hall, or at <http://financialaid.ucla.edu>.

DEGREE REQUIREMENTS

The following information is for prospective applicants and those outside the University who are interested in the basic structure of UCLA graduate degree requirements. It is not meant to be comprehensive or to serve as a primary resource for continuing students. Official, specific degree requirements, including language requirements, are detailed in the Program Requirements for UCLA Graduate Degrees on the Graduate Division website at <https://grad.ucla.edu>. *Standards and Procedures for Graduate Study at UCLA*, at <https://grad.ucla.edu/academics/graduate-study/standards-and-procedures-for-graduate-study/>, provides detailed information and sets forth general policies, many of which emanate from the Academic Senate and its Graduate Council, regarding completion of degree requirements, master's and doctoral committees, examinations, and foreign language requirements. General regulations concerning graduate courses, standards of scholarship, disqualification, appeal, leave of absence, normal progress toward degree, withdrawal, and a number of other matters also are included.

MASTER'S AND DOCTORAL STUDY

Graduate students earn a master's or doctoral degree by distinguished achievement in advanced study and research. In addition to coursework, there are various means of evaluating achievement in study, including qualifying and comprehensive examinations and various kinds of laboratory and fieldwork. Achievement in research is primarily assessed through evaluation of the master's thesis or doctoral dissertation. In addition to advanced study and research, professional master's and doctoral programs also may include professional training. This training may take the form of fieldwork, internships, or projects, and may lead to professional licensure.

UNIVERSITY MINIMUM STANDARDS

The requirements described here for master's and doctoral degrees are minimum standards set by the University. Individual schools or departments may set higher standards and may require additional courses and examinations for their master's degrees. Each department also sets additional requirements for doctoral degrees according to the demands of the field of study. See the Program Requirements for UCLA Graduate Degrees section of the Graduate Division website at <https://grad.ucla.edu> and the departmental graduate adviser for details. Policies and regulations are outlined in *Standards and Procedures for Graduate Study at*

UCLA at <https://grad.ucla.edu/academics/graduate-study/standards-and-procedures-for-graduate-study/>.

ACADEMIC RESIDENCE

For the master's degree, the minimum residence requirement consists of three academic terms of registration in graduate standing at the University of California, including at least two terms at UCLA.

For the doctoral degree, the minimum residence requirement is two years (six terms) of registration in graduate standing at the University of California, including one year (usually the second) in continuous residence at UCLA. If students earned a master's degree at UCLA, one year of this requirement will have been met. In most cases a longer period of residence is necessary, and from three to five years is generally considered optimal.

Academic residence for both degrees is established by successfully completing a minimum of one graduate or upper division course (4 units) during a term.

Students may earn one term of residence for summer study in either of these ways: (1) enroll in two six-week summer sessions taking at least 2 units of upper division and/or graduate work in each session OR (2) enroll in one eight-week session for at least 4 units of credit. Residence earned through Summer Sessions enrollment is limited to one third of the degree requirements.

To maintain satisfactory progress toward the degree, UCLA requires at least a B average in all courses taken in graduate standing at the University and in all courses applied toward a graduate degree, including those taken at another UC campus.

FOREIGN LANGUAGE REQUIREMENTS

Foreign language requirements are determined by individual departments and programs. If their program has a language requirement, students should fulfill it either before they begin graduate study or as soon as possible thereafter. All foreign language requirements must be satisfied before advancement to candidacy.

Many departments require graduate degree candidates to demonstrate proficiency in one or more foreign languages, so that they can acquire broad knowledge in their field of study and keep abreast of foreign developments in the field. Students are urged to complete language requirements as early as possible in their graduate career. If the department requires two or more foreign languages, students must complete at least one before the University Oral Qualifying Examination (unless, as is most common, the department requires that both be completed before the examination).

Some departments allow students to fulfill language requirements either by passing departmental examinations or by completing coursework in a foreign language. Certain departments may require additional languages, special competence, or other special procedures. In some departments, English satisfies the foreign language requirement if it is not the native language.

For further details on foreign language requirements, consult the Program Requirements for UCLA Gradu-

ate Degrees on the Graduate Division website at <https://grad.ucla.edu>.

CHANGING MAJORS

Continuing graduate students may petition for a change of major after discussing plans with the new department. Forms are available from the departments and should be filed with Academic Services, 1255 Murphy Hall. Deadlines are generally the same as those for the graduate admissions procedure.

PROGRAM OF STUDY AND SCHOLARSHIP

MASTER'S DEGREE

At least nine graduate and upper division courses (or any number of fractional courses totaling 36 units) must be completed in graduate standing; at least five of the nine (20 units) must be graduate-level courses. These unit requirements represent the University minimum standard. Many master's degree programs have higher unit requirements.

UCLA offers master's degrees under two plans: Plan I, the Master's Thesis; and Plan II, the Master's Capstone. Some departments offer both plans, and students must consult with their department to determine the plan for meeting their degree requirements. University minimum requirements are the same under either plan.

Plan I: Master's Thesis

Every master's degree thesis plan requires the completion of an approved thesis that demonstrates the student's ability to perform original, independent research.

Plan II: Master's Capstone

Following advancement to candidacy, students under Plan II must pass a comprehensive examination. Information concerning this examination and its format (which may be a recital, exhibition, project portfolio, etc.) is available in the departments.

DOCTORAL DEGREE

Doctoral programs are individualized and permit a high degree of specialization. The University does not specify course requirements for doctoral programs. Individual programs set their own requirements, which may include specific courses, and these must be completed before students take the University Oral Qualifying Examination. Students determine their course of study in consultation with a graduate adviser until the doctoral committee is appointed.

Doctoral Examinations before Advancement to Candidacy

Prior to advancement to candidacy, doctoral candidates fulfill the coursework, teaching, and/or examinations required by the major department or program. They are supervised during this period by a departmental adviser and/or departmental guidance committee. This committee administers a departmental written and, in some cases, oral examination (not to be confused with the University Oral Qualifying Exam-

ination) after students complete the recommended or required work. All students are required to successfully complete a written qualifying examination and the University Oral Qualifying Examination before advancement to doctoral candidacy. Once all departmental requirements are met, the department chair consults with the student and then nominates a doctoral committee.

University Oral Qualifying Examination

The doctoral committee, consisting of at least four faculty members nominated by the department, is appointed by the dean of the Graduate Division (consult *Standards and Procedures for Graduate Study at UCLA*, <https://grad.ucla.edu/academics/graduate-study/standards-and-procedures-for-graduate-study/>, for details on committee membership). To determine qualifications for advancement to candidacy, the committee administers the University Oral Qualifying Examination and, at its option, a separate written examination.

Doctoral Dissertation

Every doctoral degree program requires the completion of an approved dissertation that demonstrates the student's ability to perform original, independent research and constitutes a distinct contribution to knowledge in the principal field of study.



Academic Policies

Students at UCLA are responsible for understanding the policies and regulations established by the Academic Senate. Should any variations exist between explanations in this catalog and regulations in the *Manual of the Academic Senate*, the manual prevails in all cases.

ACADEMIC TERMS

Undergraduate programs and most graduate programs at UCLA use the quarter system for academic terms, credit units, and registration fees. An academic quarter term is 10 weeks of instruction, and there are 146 days of instruction in an academic year. Class credit is accumulated in quarter units (see below). Registration fees are due each quarter. For details on academic dates and deadlines, see the Registrar's Office term calendar at <http://registrar.ucla.edu/Calendars/Term-Calendar>. For fees, see the fee tables at <http://registrar.ucla.edu/Fees-Residence/Term-Fees>.

The School of Law and Geffen School of Medicine use the semester system.

LANGUAGE OF INSTRUCTION

Courses at UCLA are taught in the English language, unless otherwise noted in the course description (for example, foreign language courses).

ACADEMIC CREDIT

Academic work at UCLA is measured by units of credit, which are used to evaluate the amount of time a student has devoted to a particular subject and to determine a student's class level.



UNITS OF CREDIT

Most University courses are assigned a unit value. One unit represents three hours of work per week per term by the student, including both class attendance and preparation.

CLASS LEVELS

Undergraduate class levels are determined by the number of units completed as follows:

Freshman (UFR)	0-44.9 units
Sophomore (USO)	45-89.9 units
Junior (UJR)	90-134.9 units
Senior (USR)	135 or more units

Graduate class levels are based on the degree objective and whether or not students are advanced to candidacy for a doctorate.

REPETITION OF COURSES

Certain courses, as noted in their course descriptions, may be repeated for credit. Other courses taken at the University (except UCLA Extension) may be repeated only according to the following guidelines:

1. To improve the grade-point average, students may repeat only those courses in which they receive a grade of C- or lower; NP or U grades may be repeated to gain unit credit. Courses in which a letter grade is received may not be repeated on a P/NP or S/U basis. Courses originally taken on a P/NP or S/U basis may be repeated on the same basis or for a letter grade.
2. Repetition of a course more than once requires the approval of the College or school or the dean of the Graduate Division, and is granted only under extraordinary circumstances.
3. Degree credit for a course is given only once, but the grade assigned each time the course is taken is permanently recorded on the transcript.
4. For undergraduates who repeat a total of 16 units or less, only the most recently earned letter grades and grade points are computed in the GPA. After repeating 16 units, however, the GPA is based on all letter grades assigned and total units attempted.
5. For graduate students, all courses in which a letter grade is given, including repeated courses, are used in computing the GPA.

CREDIT FOR UPPER DIVISION TUTORIALS

Credit for upper division tutorial courses numbered 195 through 199 in a single term is limited to a maximum of 8 units. Subject to regulations governing

Passed/Not Passed grades, students may take these courses on a Passed/Not Passed or a letter-grade basis, but the total number of units allowed in upper division tutorial courses for a letter grade is 32.

To enroll in an upper division tutorial course, students must have advanced junior standing and at least a 3.0 grade-point average in the major field, or must have senior standing. Students who have an outstanding Incomplete grade in an upper division tutorial course may not enroll in another upper division tutorial course until the grade of Incomplete has been removed. On the advice of the instructor and chair, the dean of the College or school may authorize exceptions to the limitations listed. Departments may impose additional limitations on upper division tutorial courses.

CREDIT BY EXAMINATION

Students with high scholastic standing may earn credit for regular UCLA courses by taking examinations rather than enrolling in the courses. This is accomplished by establishing, with a UCLA faculty member, an individual plan of study that may include oral and written work in addition to other requirements. To be eligible, undergraduate students must have completed a minimum of 12 units at UCLA. Graduate students must be registered at the time of the examination and are limited to a maximum of three courses taken in this manner.

The results of these courses are entered on the record in the same way as University of California transfer credit, and grade points are assigned. Graduate credit earned by examination may be applied to minimum course requirements for master's degrees but cannot apply to academic residence requirements for master's or doctoral degrees.

Students need approval from the instructor, the department, and the College or school or the dean of the Graduate Division, from whom petitions for credit by examination (with fee) are available.

GRADES

The work of all students at UCLA is reported in terms of grades. Instructors are required to assign a final grade for each student registered in a course.

UNDERGRADUATE GRADES

The following grades are used to report the quality of undergraduate student work at UCLA:

- A+ Extraordinary
- A Superior
- B Good
- C Fair
- D Poor
- F Fail
- P Passed (achievement at grade C level or better)
- NP Not Passed
- I Incomplete
- IP In Progress
- DR Deferred Report

Grades A, B, C, and D may be modified by a plus (+) or minus (-) suffix. Grades A, B, C, and P denote satisfactory progress toward the degree, but a D grade must be offset by higher grades in the same term for students to remain in good academic standing. An F grade yields no unit or course credit.

GRADUATE GRADES

The following grades are used to report the quality of graduate student work at UCLA:

- A Superior Achievement
- B Satisfactorily demonstrated potentiality for professional achievement in field of study
- C Passed the course but did not do work indicative of potentiality for professional achievement in field of study
- F Fail
- S Satisfactory (achievement at grade B level or better)
- U Unsatisfactory
- I Incomplete
- IP In Progress
- DR Deferred Report

The grades A, B, and C may be modified by a plus or minus suffix. The grades A, B, and S denote satisfactory progress toward the degree, but a C grade must be offset by higher grades in the same term for students to remain in good academic standing. Courses in which a C grade is received, however, may be applied toward graduate degrees unless otherwise prohibited by the program requirements.

The Schools of Dentistry, Medicine, and Law use their own grading codes. Students who are interested in programs in any of these schools should consult the appropriate school announcement.

GRADE POINTS

Grade points per unit are assigned by the Registrar as follows:

Grade	Grade Points	Grade	Grade Points
A+	4.0	C-	1.7
A	4.0	D+	1.3
A-	3.7	D	1.0
B+	3.3	D-	0.7
B	3.0	F	0.0
B-	2.7	NP	0.0
C+	2.3	U	0.0
C	2.0		

As indicated, a plus (+) or minus (-) suffix added to a grade raises or lowers the grade-point value, except in the case of A+, which carries the same number of grade points as the A grade. Courses in which students receive a P or S grade may count toward satisfaction of degree requirements, but these grades, as well as DR, I, IP, and NR, are disregarded in determining the grade-point average. (If an I grade is later removed and a letter grade assigned, units and grade points are included in

subsequent GPAs.) NR indicates that no grade was received from the instructor.

GRADE-POINT AVERAGE

The grade-point average is determined by dividing the number of grade points earned by the number of units attempted. The total grade points earned for a course equals the number of grade points assigned times the number of course units. For example, if a student takes three four-unit courses and receives grades of A–, B–, and C+, then the GPA for the term equals the total grade points (34.8) divided by the total course units (12). The GPA is 2.9. For satisfactory standing, undergraduate students must maintain a C average (2.0 GPA) and graduate students a B average (3.0 GPA) in all courses taken at any campus of the University (except UCLA Extension).

Only grades earned in regular session or summer sessions at any UC campus and grades earned by Arts and Architecture and Letters and Science undergraduate students in UCLA Extension courses prefixed by XLC are computed in the UCLA grade-point average. Grades earned at another institution or in UCLA Extension courses other than those prefixed by XLC do not affect the GPA.

Other schools and agencies may calculate GPAs differently from the University when evaluating records for admission to graduate and professional school programs. Students should contact them about their policies in this regard.

Grade	Grade Points	Course Units	Total Grade Points
A–	3.7	4	14.8
B–	2.7	4	10.8
C+	2.3	4	9.2
Total	12		34.8

PASSED/NOT PASSED GRADES

Undergraduate students in good standing who are enrolled in at least 12 units (14 in the Henry Samueli School of Engineering and Applied Science) may take certain courses on a Passed/Not Passed (P/NP) basis.

The grade P is assigned for a letter grade of C or better. Units earned this way count toward degree requirements but do not affect the GPA. Students receive neither units nor course credit for an NP grade.

Students may enroll in one course each term on a P/NP basis (two courses if they have not elected the P/NP option in the preceding term). Their department or school may require that they take some or all courses in their major for a letter grade. Certain other courses or programs may also be exempt from the P/NP option; consult the College or school for details.

Students may make program changes to or from P/NP grading through the sixth week of instruction through MyUCLA.

Courses that are offered only on a P/NP basis are designated PN in the Schedule of Classes.

SATISFACTORY/UNSATISFACTORY GRADES

Graduate students in good standing (minimum 3.0 GPA) may enroll for Satisfactory/Unsatisfactory (S/U) grading in one graduate or upper division course outside the major field each term, in addition to any courses offered only on an S/U grading basis within the major. The grade S is assigned for a letter grade of B or better, but units earned in this manner are not counted in computing the GPA. Students receive neither units nor degree credit for a U grade. They may not elect the S/U option for Summer Sessions courses without an approved petition.

Courses taken on an S/U basis outside the major, and 500-series courses within the major, are applicable toward degree and/or academic residency requirements if so approved. Interdepartmental majors may not apply S/U courses to degree requirements, except for 500-series courses. Program changes to or from S/U grading may be made through the tenth week of instruction through MyUCLA.

Courses that are offered only on an S/U basis are designated SU in the Schedule of Classes.

INCOMPLETE GRADES

Once an Incomplete (I) grade is assigned, it remains on the transcript along with the passing grade students may later receive for the course. The instructor may assign the I grade when work is of passing quality but is incomplete for a good cause (such as illness or other serious problem). It is the student's responsibility to discuss with the instructor the possibility of receiving an I grade as opposed to a nonpassing grade.

If an I grade is assigned, students may receive unit credit and grade points by satisfactorily completing the coursework as specified by the instructor. Students should not re-enroll in the course; if they do, it is recorded twice on the transcript. If the work is not completed by the end of the next full term in residence, the I grade lapses to an F, NP, or U as appropriate. The College or school may extend the deadline in unusual cases (not applicable to graduate students).

IN PROGRESS GRADES

For certain courses extending over more than one term, evaluation of student performance is deferred until the end of the final term of the course. Provisional grades of In Progress (IP) are assigned in the intervening term(s) and are replaced with the final grade when students complete the full sequence. The school or College faculty or the Graduate Division determines credit if they do not complete the full sequence and petition for partial credit.

DEFERRED REPORT GRADES

Students may receive a Deferred Report (DR) grade when the instructor believes their work to be complete but cannot assign a grade because of disciplinary proceedings or other problems. If students are given a DR grade, the Office of the Dean of Students assists them in resolving the problem. For graduate students, the dean of the Graduate Division sets a deadline by which the DR lapses to an F if the problem is not

resolved and a grade assigned. The DR is changed to a grade, or perhaps to an Incomplete, when the instructor provides written confirmation that the situation is resolved. The DR grade is not included in determining the grade-point average.

CORRECTION OF GRADES

All grades except DR, I, and IP are final when filed by the instructor in the end-of-term course report. Thereafter, a grade change may be made only in case of a clerical or procedural error or other unusual circumstances. No grade may be revised by re-examination or, with the exception of I and IP grades, by completing additional work. Students who are dissatisfied with a grade should review their work with the instructor and receive an explanation of the grade assigned. All grade changes are recorded on the transcript. See the Appendix for further details and procedures for appealing grades.

ABSENCE AND READMISSION

To be registered for a term, students must enroll in courses and pay fees according to deadlines specified in the Registrar's Office term calendar. Students who do not register are subject to the following policies on absence and readmission.

CANCELLATION

Before the first day of classes, students may cancel registration by (1) completing and submitting a Cancellation of Registration form, available at <http://www.registrar.ucla.edu/Registration-Classes/Registration-and-Payment/Cancel-Registration>, or (2) faxing a written notice to 310-206-4520. Refund is as follows: fees paid by new undergraduate and Dentistry students are refunded except for the nonrefundable acceptance of admission fee; for new graduate, undergraduate, continuing, and re-entering students, a service fee is deducted from the amount of fees paid.

Graduate students who cancel their registration and do not apply for a formal leave of absence must file for readmission to return to the University.

WITHDRAWAL

Withdrawing from the University means discontinuing attendance in all courses in which students are enrolled. Students who withdraw during a term need to file a Withdrawal Notice, available online at <http://www.registrar.ucla.edu/Registration-Classes/Registration-and-Payment/Withdrawal>.

When students officially withdraw, a percentage of the student services fee may be refunded depending on the date the withdrawal form is filed. The UCSHIP fee is nonrefundable in most cases. Contact the Arthur Ashe Student Health and Wellness Center insurance office for more information.

Claims for refund must be presented within the academic (fiscal) year to which the claim is applicable. Consult the Registrar's Office website for policy details and specific refund dates.

Students may withdraw only if they have not taken any final examinations or otherwise completed the work in any classes. For undergraduates, one withdrawal places no restriction on readmission or continuation if they started the term in good academic standing. If they withdraw after one or more previous withdrawals or while in academic difficulty, a restriction may be placed on their continuance in undergraduate standing. Before withdrawing, they are urged to consult faculty, department, or College advisers to consider the full implications of this action.

Undergraduates may also withdraw from a term retroactively, provided no final examinations have been taken and no coursework has been completed. No withdrawals are accepted once they have officially graduated from the University.

Students who register and subsequently discontinue coursework or stop payment on registration checks without an approved petition for withdrawal, leave of absence, or cancellation receive F, NP, or U grades, as appropriate, for all courses in which they are enrolled for that term. A fine is assessed if any check for registration fees payment is returned by a bank for stopped payment, insufficient funds, or any other reason. No fees are refunded, and future registration privileges may be curtailed or revoked.

UNDERGRADUATE READMISSION

Students who complete a term (fall, winter, or spring quarter) and do not register the following term may return to UCLA the subsequent term as a continuing student and be eligible to register and enroll in advance.

ONE-TERM ABSENCE

Students on a one-term absence who plan to attend another institution—including UCLA Extension—should discuss plans with their College or school counselor before enrolling elsewhere. On returning to UCLA, they must have an official transcript mailed from the institution directly to UCLA Undergraduate Admission to have coursework evaluated.

PLANNED ACADEMIC LEAVE (PAL) FOR INTERNATIONAL TRAVEL

Students who plan to participate in a study abroad program sponsored by an institution other than UC



are required to take a planned academic leave of absence (PAL) from UCLA. After they are accepted into a program, students must register their program with the UCLA International Education Office (IEO), B300 Murphy Hall. Registering the program also generates the student application for the leave of absence.

Requirements for programs and registration can be found on the IEO website at <http://www.ieo.ucla.edu/nonucprograms>.

Students returning from an approved leave of absence for participation in a registered non-UC study abroad program are not required to seek readmission, but must provide official transcripts for coursework evaluation.

RE-ENTERING STUDENTS

To return to the University after an absence of more than one term, students—except for those on PAL for non-UC study abroad—must complete an Undergraduate Readmission Application and file it with the Registrar's Office in accordance with published deadlines. A nonrefundable fee applies.

Students must submit official transcripts from all institutions (including UCLA Extension) and a completed

Statement of Legal Residence with readmission applications. Coursework is evaluated when official transcripts are received. The paper records of nonregistered students, including transcripts submitted for transfer credit, are retained by the Registrar's Office for five academic years after the last registered term.

Students who have not registered for five years must resubmit official transcripts of all work completed outside UCLA. Readmission is generally approved if students were in good academic standing (2.0 grade-point average) when they left the University, if course-

work completed elsewhere in the interim is satisfactory, and if readmission applications are filed on time. The College or school may have other regulations. Contact the readmission clerk for more information at 310-825-1091, option 6.



READMISSION DEADLINES

Fall Quarter	August 15
Winter Quarter	November 25
Spring Quarter	February 25

GRADUATE READMISSION

For details on the policies below, consult *Standards and Procedures for Graduate Study at UCLA* at <https://grad.ucla.edu/academics/graduate-study/standards-and-procedures-for-graduate-study/>.

CONTINUOUS REGISTRATION POLICY

Graduate students must be either registered and enrolled or on an official leave of absence every term until their degrees are awarded. As an exception, certain graduate students may be eligible to pay the filing fee. Failure to register or be on an official leave of absence for any term (fall, winter, or spring quarter) constitutes withdrawal from UCLA.

GRADUATE LEAVE OF ABSENCE

Continuing graduate students in good standing (3.0 GPA or above) who have completed at least one term of UCLA graduate work may, with the support of their department and approval of the Graduate Division, be eligible for leaves of absence. Graduate students are allowed three quarters of official leave of absence.

Federal policy governing students on F-1 and J-1 visas restricts leaves of absence to certain conditions. Therefore, the Dashew Center for International Students and Scholars, in consultation with the Graduate Division, individually evaluates each international graduate student request for a leave of absence to determine that it meets federal (and University) eligibility criteria.

Students on approved leave of absence are not permitted to use faculty time or make use of University facilities for more than 12 hours since their last registration, and are not eligible for apprentice personnel employment or other services normally available to registered students. There is no need to apply for readmission, since the approved leave is for readmission to a specific term. The Registrar's Office notifies students about registration for the returning term.

The Leave of Absence Request is available at <https://grad.ucla.edu/academics/graduate-study/leave-of-absence-request/>. See the Registrar's Office calendar for the filing deadline.

Research doctoral students who are new parents or who are confronted with extraordinary parenting demands should consult *Standards and Procedures for Graduate Study at UCLA* in regard to Graduate Council policy requiring program accommodations for them.

In Absentia Registration

Academic and professional graduate students conducting research related to their degree program outside California may be eligible for in absentia registration. Students registered in absentia pay 15 percent of Tuition and the Student Services Fee, but pay the full amounts of other mandatory fees such as health insurance and nonresident supplemental tuition (if applicable). In absentia registration and fee reductions may be used for a maximum of six quarters or four semesters for academic doctoral students, and up to three quarters or two semesters for master's and professional graduate students. To register in absentia, complete an In Absentia Registration Petition at <https://grad.ucla.edu/academics/graduate-study/in-absentia-registration-petition-for-graduate-students/>. Complete details and restrictions are included.

APPLICATION FOR READMISSION

Students who are granted a formal leave of absence do not have to apply for readmission if they resume their graduate work in accordance with the terms of their leaves. All other continuing graduate students who fail to register for any regular session, or who fail to complete a term through cancellation or withdrawal, must apply for readmission.

Students who have registered at any time as a graduate student at UCLA and are returning after an absence (except a formal leave of absence) must file an Application for Graduate Admission, available online at <https://grad.ucla.edu/admissions/>. Payment of the nonrefundable application fee may be made by credit card only. Transcripts of all academic work completed since registration at UCLA as a graduate student must also be submitted.

TRANSCRIPTS AND RECORDS

The transcript reflects all undergraduate and graduate work completed in UCLA regular session and Summer Sessions. It lists chronologically the courses, units, grades, cumulative GPA, transfer credits, and total units.

Official UCLA paper transcripts are printed on security paper to safeguard against unauthorized duplication, alteration, and misrepresentation. The paper has a multicolor security background design and a border with the words *University of California, Los Angeles*. Authentication details are located in the lower right-hand corner of the transcript, and the transcript legend is located on the reverse of the document. Transcripts are issued in blue envelopes marked *Official Transcripts Enclosed*.

Official UCLA electronic PDF transcripts contain a background design, identifying border text, authentication details, and legend. The secure file is sent with a cover page that includes UCLA, student, and recipient information.

Two versions of official UCLA student records are available to order through MyUCLA: the academic transcript and the verification transcript. Each is designed to meet specific needs.

Unofficial academic transcripts are also available through MyUCLA.

ACADEMIC TRANSCRIPT

The academic transcript is a student's complete academic record, including a listing of courses taken, transfer credit, units, grades, grade-point average (GPA), earned UCLA degrees, and in-progress term information. In-progress information includes a list of the courses that a student enrolled in during the term the document was requested and other in-progress information such as a change in major or the removal of an I grade.

Grades for completed terms are processed immediately following the conclusion of final examinations. Complete academic transcripts are available approximately two weeks after the last day of the term. For graduating students, academic transcripts with the graduation date included are available approximately six weeks after the

end of the term. Students who require earlier proof of graduation should contact a degree auditor at 1113 Murphy Hall.

The minimum period required for processing and issuing academic transcripts for both registered and former students is three working days.

For auto insurance good-student discount, an academic transcript can be attached to the insurance form, or the form may be presented at 1113 Murphy Hall.

VERIFICATION TRANSCRIPT

The verification transcript certifies registration (fee payment), enrollment status, and degrees. Verification transcripts confirm student status only after registration fees have been paid for the term. Verification of student workload is based on actual enrolled units and does not consider wait-listed units or list courses for a term.

Verification of degree can be issued after the degree has been posted to the student's record, approximately six weeks after the term ends. If verification is required before the degree is posted, the student may contact a degree auditor at 1113 Murphy Hall.

THIRD-PARTY VERIFICATIONS

UCLA has authorized National Student Clearinghouse to act as its agent for all third-party verifications of student enrollment and degrees, including those for loans and creditors. Approved by the U.S. Department of Education, the Clearinghouse is a national organization that facilitates and expedites student enrollment verifications for creditors and other student service-related agencies. The Clearinghouse abides by all provisions of the Family Educational Rights and Privacy Act (FERPA). Degree verification for the most recent term is available approximately seven weeks after the term ends. See <http://www.studentclearinghouse.org>.

ORDERING TRANSCRIPTS

Continuing students must order official academic and verification transcripts through MyUCLA. Other students may order transcripts through MyUCLA, in person at 1113 Murphy Hall, or by using a Transcript Order form, available at <http://www.registrar.ucla.edu/Student-Records/Academic-Transcript/Order-an-Academic-Transcript>. The form should be sent to UCLA Registrar's Office, Attn: [Academic or Verification]



Transcript, 1105 Murphy Hall, Box 951429, Los Angeles, CA 90095-1429.

Requests are not processed if students have outstanding financial, academic, or administrative obligations (holds) to the University. Transcripts of work completed elsewhere must be requested directly from the campus or institution concerned.

More information on ordering transcripts is available by calling 310-825-1091 or by sending e-mail to transcripts@registrar.ucla.edu.

For UCLA Extension courses, order transcripts from UCLA Extension, P.O. Box 24901, Department K, Los Angeles, CA 90024-0910 or online at <https://www.uclaextension.edu/pages/str/transcripts.aspx>.

FEES AND PAYMENT

Most academic and verification transcripts are available at no charge after payment of the document fee.

A fee may be charged for some transcript-related services. For example, forms that must be completed by the Registrar's Office and envelopes that require official signatures are charged a special handling fee. Expedited service—processing within 24 hours (paper) or 30 minutes (PDF)—is available for an additional fee, or transcripts can be faxed with payment of an additional fee. Faxed transcripts are generally not considered official, and confidentiality cannot be guaranteed.

Transcript requests are not processed for anyone with outstanding obligations to the University. For exact fees, see <http://www.registrar.ucla.edu/Fees-Residence/Transcript-Related-Fees>.

STUDENT RECORDS

The Registrar prepares, maintains, and permanently retains a record of each student's academic work. Student files of pertinent documents are maintained up to five years from the admit term. Students may view their documents at the Registrar's Office, 1113 Murphy Hall. Advance notice of two to three days is required for viewing.

MyUCLA

Through MyUCLA, UCLA students acquire academic, financial, and personal information from their University academic records. See <http://my.ucla.edu>.

CHANGE OF NAME OR ADDRESS

Students who wish to change their legal name on official University records should complete a UCLA Legal Name Change or Correction form (available online at <http://www.registrar.ucla.edu/Student-Records/Personal-Information/Legal-Name-Change>) and submit it with documentation supporting the name change to the Registrar's Office, 1113 Murphy Hall. Students on an F or J visa must provide a current passport bearing the exact same name as the new name. All name changes are recorded on the transcript.

Student changes of address should be updated through MyUCLA.

CLOSURE OF STUDENT RECORDS

Student records are closed to revisions in enrollment, grading, and academic actions on award of a degree.

Students are responsible for requesting review of their record prior to award of their degree. See UCLA Procedure 220.1 Student Grievances Regarding Challenge to Content of Student Records Under the Family Educational Rights and Privacy Act, which may be found at <http://www.adminpolicies.ucla.edu/app/Default.aspx?&id=220-1>.

Changes requested by an individual after award of a degree are considered by the College or school only under extraordinary circumstances. Supportive documentation is required. On action of the academic dean, a statement of the request for revision and a note of the change will be recorded only in the memoranda section of the transcript.

DEGREES

Students must satisfy (1) University requirements, (2) College or school requirements, and (3) department requirements as described in this catalog.

UNDERGRADUATE DEGREES

Undergraduate degree requirements are subject to the following degree policies.

STUDENT RESPONSIBILITY

It is the responsibility of students to keep informed of and to comply with the rules, regulations, and policies affecting their academic standing. Meeting academic deadlines, monitoring the study list for accuracy, completing requisites, and fulfilling degree requirements are all part of their academic duties as students.

MINIMUM SCHOLARSHIP

The grades A through C and Passed denote satisfactory progress toward the bachelor's degree. The grades C– through D– yield unit credit but may not satisfy certain scholarship requirements. Even when they do, they must be offset by grades of C+ or better in other courses. Students must earn at least a C (2.0) average in all courses taken at any University of California campus. Students who fail to maintain this level may be placed on academic probation or may become subject to dismissal. The College and each school may set additional scholarship requirements.

Academic Probation

Students are placed on probation if their overall or term grade-point average falls between 1.5 and 1.99. While they are on probation, they may not take any course on a Passed/Not Passed basis. Probation ends at the close of a regular term if students have attained a C (2.0) average for the term and a cumulative C average in all University work. Students who do not end probation within two terms are subject to dismissal.

Academic Dismissal

Students are subject to dismissal from the University under any of the following conditions:

1. If their grade-point average in any one term is less than 1.5 or
2. If they do not earn at least a C (2.0) average in any term when they are on probation or
3. If they do not end probation within two terms

If students are subject to dismissal, their transcripts carry that notation. They should make an appointment with their College or school counselor. Depending on the situation, they are given conditions for continuation or are dismissed from the University.

PROGRESS TOWARD THE DEGREE

UCLA is a full-time institution, and it is expected that students complete their undergraduate degree requirements promptly. Normal progress toward graduation in four years is defined as the completion of 45 units per year, or 15 units per term.

MINIMUM PROGRESS AND EXPECTED CUMULATIVE PROGRESS

Each school enforces minimum progress regulations. The College enforces expected cumulative progress regulations. Students may be subject to disqualification for failing to meet minimum progress and expected cumulative progress requirements. See the College and Schools section for specific minimum progress and expected cumulative progress and study list regulations.

PETITIONS

A petition is a form submitted to explain an exception from any standard rule or regulation of the University. It is the only way to obtain formal approval from the department, the College or school, the Registrar, or office with authority over the particular request. Some petitions carry a fee.

Some uses of petitions are to change the College, school, or major; take more or fewer units than regulations permit; make changes to the study list after MyUCLA processing ends; or obtain credit by examination. In addition, students may petition for concurrent enrollment, double major, or waiver of scholarship requirements.

TRANSFER CREDIT

Every California community college has transfer course agreements that specify which courses will receive transfer credit. These courses are displayed on ASSIST (<http://www.assist.org>), the statewide transfer information site. Students can get some knowledge of transfer credit from accredited institutions other than the University of California or California community college by comparing the descriptions of courses taken with those in the *UCLA General Catalog*.

Once students complete the courses, they must have the other institution send official, sealed transcripts to UCLA Undergraduate Admission, 1147 Murphy Hall, Box 951436, Los Angeles, CA 90095-1436. Transfer students should discuss transfer credit with their College or school counselor and/or departmental adviser.

Community College

The maximum number of community college units allowed toward the bachelor's degree is 105 quarter units (70 semester units). UCLA Undergraduate Admission does not grant transfer credit for community college courses beyond 105 quarter units, but students may still receive subject credit for this coursework to satisfy lower division requirements. Consult the College or school counselors for possible further limitations. To convert semester units into quarter units, multiply the semester units by 1.5—for exam-

ple, 12 semester units \times 1.5 = 18 quarter units. To convert quarter units into semester units, multiply the quarter units by .666—for example, 12 quarter units \times .666 = 7.99 or 8 semester units.

Summer Sessions

Summer sessions grades at any UC campus are computed in the UCLA grade-point average.



UCLA Extension

Students who wish to receive degree credit for work taken through UCLA Extension should take courses that correspond in number to the undergraduate courses offered in regular session. The designation XL or XLC before the number of the Extension course signifies that the course is equivalent to the regular session course bearing the same number. Grades earned by undergraduate students in the College of Letters and Science, the School of Arts and Architecture, and the Henry Samueli School of Engineering and Applied Science in courses prefixed by XLC are computed in the UCLA grade-point average. No degree credit is given for courses numbered X300 through X499. Concurrent enrollment in Extension and regular session is not permitted.

DEGREE CHECKS

Anytime prior to graduation students may request a review of degree progress. These official degree checks detail requirements remaining to complete the bachelor's degree. The degree check process may be different for the College and each school. The Degree Progress Report (DPR) or Degree Audit is a computer-generated assessment of all degree requirements and the courses taken to fulfill them. View and print DPRs or Degree Audits through MyUCLA, or order one at a College or school counseling office.

College of Letters and Science

Degree Audits are available through MyUCLA and on request from a College counseling office (Academic Advancement Program, 1209 Campbell Hall; Honors Programs, A311 Murphy Hall; College Academic Counseling, A316 Murphy Hall). Students should review their DPR or Degree Audit with departmental undergraduate advisers and College counselors to ensure that all requirements will be satisfied.

School of the Arts and Architecture

Degree Audits are available through MyUCLA and on request from the Office of Student Services, 2200 Broad Art Center. Students should consult an adviser in the Office of Student Services when they have questions about degree requirements. Specific questions regarding major requirements should be referred to the departmental counselor.

Henry Samueli School of Engineering and Applied Science

Degree Audits are available through MyUCLA for students who entered fall quarter 2012 and later. Students who entered prior to fall quarter 2012 should use the HSSEAS Degree Audit Reporting System (DARS) at <http://www.seasoasa.ucla.edu/undergraduates/DARS> to determine which degree requirements are left to complete. Students should obtain an official degree check at least one term prior to their graduation term, and can make an appointment to see their academic counselor at 6426 Boelter Hall. Students should obtain an official degree check at least one term prior to their graduation term. For details, see the HSSEAS undergraduate degree audit website at <http://www.seasoasa.ucla.edu/seniors/degree-candidate-information>.

Herb Alpert School of Music

Degree Audits are available through MyUCLA and on request from the Office of Student Services, 1642 Schoenberg Music Building. Students should consult an adviser in this office when they have questions about departmental, school, or UCLA degree requirements.

School of Nursing

Degree Audits are available through MyUCLA for students who entered fall quarter 2012 and later. Students who entered prior to fall quarter 2012 may request their most recent degree check from the undergraduate student services coordinator in 2-147 Factor Building.

School of Theater, Film, and Television

Degree Audits are available through MyUCLA for students who entered fall quarter 2012 and later. Students who entered prior to fall quarter 2012 should make an appointment with their departmental counselor in the Student Services Office, 103 East Melnitz Building. Students entering as freshmen receive a written degree check on achieving junior standing; those entering as juniors receive a degree check on entry. Students may



initiate or request an updated degree check by making an appointment with their departmental counselor.

GRADUATE DEGREES

For graduate degree requirements and procedures, see Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu> and *Standards and Procedures for Graduate Study at UCLA* at <https://grad.ucla.edu/academics/graduate-study/standards-and-procedures-for-graduate-study/>.

CERTIFICATE OF RESIDENT STUDY

International students who must leave the University and the country before completing a degree or certificate program may request a Certificate of Resident Study in addition to a formal transcript. The certificate cannot be awarded if the studies involved are covered by a diploma or other certificate. The chair of the major department recommends the award of the certificate through a petition to the College, school, or Graduate Division. To be eligible to receive the certificate, students must have completed a program of at least nine courses with a minimum GPA of 2.0 (2.5 for Graduate Division students) and have satisfactorily completed a research project over a period of nine months or more.

GRADUATION

The awarding of degrees is the culmination of several steps that begin when students identify the term in which they expect to complete degree requirements.

UNDERGRADUATE STUDENTS

Approximately eight out of every 10 UCLA freshmen eventually receive a baccalaureate degree, either from UCLA or from another campus or institution. One third of all UCLA baccalaureate recipients go on to graduate school.

DECLARATION OF CANDIDACY

To initiate the steps leading to the award of a bachelor's degree, students must identify the term in which they expect to complete degree requirements through MyUCLA by the time they complete 160 units (172 units for engineering students) to avoid the late declaration of candidacy fee. The identified term must fall within the academic year (four quarters) subsequent to the term in which students reach or expect to reach the 160- or 172-unit mark. Once they complete 160/172 or more units, a fee is assessed each time students change the degree expected term.

Current-term or past-term candidates over the unit limit must file a UCLA Declaration of Candidacy form with the Registrar's Office at 1113 Murphy Hall. The form is available online at <http://www.registrar.ucla.edu/Registration-Classes/Graduation/Declare-Candidacy>.

Friday of the second week is the last day to declare candidacy for the current term (with fee depending on units completed). Declaration of candidacy after the second week may result in a degree award date for the following term and additional penalty fees.

Verify the degree expected term through MyUCLA. For questions about degree candidacy status, Letters and Science students may inquire at 1113 Murphy Hall. Arts and Architecture; Engineering; Music; Nursing; and Theater, Film, and Television students should see their school office. A photo ID is required. Declaring candidacy is not a guarantee of graduation.

IN ABSENTIA GRADUATION

Students who intend to complete degree requirements while nonregistered (those who take a course through UCLA Extension or at another institution, remove an Incomplete grade, and so on) must file a request to graduate in absentia with their degree auditor in 1113 Murphy Hall by the second-week candidacy deadline. Students graduating in absentia are assessed the undergraduate in absentia degree processing fee in addition to the declaration of candidacy fee if they were also not registered in the term immediately prior to their degree expected term.

FINAL DEGREE AUDITS AND GRADUATION

Degree auditors (at the Registrar's Office for Letters and Science students; 2200 Broad Art Center for Arts and Architecture students; 6426 Boelter Hall for Engineering students; 1642 Shoenberg Music Building for Music students; 2-137 Factor Building for Nursing students; and 103 East Melnitz Building for Theater, Film, and Television students) are responsible for verifying each candidate's eligibility for a bachelor's degree. Degree auditors have information pertaining to a student's graduation only if that student declared candidacy and completed 160 quarter units (172 units for engineering students).

During their graduating term, students should inform a degree auditor of grade changes, petitions for substitutions or exemptions, transfer credits, or similar changes that may affect their degree. Degree auditors notify students whose graduation eligibility cannot be verified of any requirements still outstanding and other problems in completing the degree.

Student records are closed to revisions in enrollment, grading, and academic actions on award of a degree. Students are responsible for requesting review of their record prior to award of their degree.

A Summary of Shortages for the Bachelor's Degree statement is sent to each current-term candidate who does not satisfy degree requirements that term. Students who receive such notices should contact a degree auditor immediately. If students expect to satisfy degree requirements in a later term, they must change their degree expected term through MyUCLA or at 1113 Murphy Hall. They may be assessed applicable fees.

Contact degree auditors only for questions about degree audits. Phone numbers are in the Registrar's Office website services directory at <http://www.registrar.ucla.edu/Contacts-Hours#directory>. For graduation ceremony procedures, contact the College or schools.

DEGREE DATE

Degrees are awarded at the end of fall, winter, and spring quarters and at the end of summer session C. School of Law and School of Medicine degrees are normally awarded at the end of fall and spring semesters. Consult the UCLA quarter, semester, and summer ses-

sion calendars for the degree award date, which is the final day of the term. See <http://www.registrar.ucla.edu/Calendars/Overview>.

COMMENCEMENT

The College and each school conduct ceremonies for their graduates. Ceremonies feature addresses and recognize candidates who have achieved high academic distinction and honors. Names of students who request that no public information be released do not appear in commencement ceremony programs. Students may change their privacy status on MyUCLA. Check with the College or school for eligibility requirements, programs, and time schedules. Further information, including the schedule of ceremonies, maps and parking, and updates, is at <https://www.commencement.ucla.edu>.

DIPLOMAS

Diplomas for both undergraduate and graduate students are available approximately three months after the degree award date. After the third week of their expected term of graduation, students should provide instructions for obtaining the diploma in person or by mail using the diploma request feature on MyUCLA. To expedite receipt of diplomas, instructions should be provided no later than one month after the last day of the degree term. Students may also request diplomas in person at 1113 Murphy Hall or by returning a Diploma Mail Request form, available at <http://www.registrar.ucla.edu/Student-Records/Diplomas/Diploma-Request>. Obtain recorded diploma availability information at 310-825-8883.

Change of Name

To be reflected on the diploma, name changes must be submitted to the Registrar's Office, 1113 Murphy Hall, by the last day of the degree expected term. Once the degree is awarded, only a court order will be accepted to make a name change. The replacement diploma fee applies.

Replacement Diploma

If an original diploma is destroyed, a replacement may be ordered by using the diploma request option on MyUCLA. Students may also order a replacement diploma in person at 1113 Murphy Hall, or by returning a Replacement Diploma Request available at <http://www.registrar.ucla.edu/Student-Records/Diplomas/Replacement-Diploma>. There is a fee for the replacement diploma, and it bears a reissue date and the signatures of the current officials of the state and University.

GRADUATE STUDENTS

Candidates for both master's and doctoral degrees must be advanced to candidacy and complete all degree requirements, including the master's thesis or capstone, or doctoral dissertation, before the degree is conferred (see the Registrar's Office calendar for filing deadlines). For graduate degree requirements and procedures, see Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu> and *Standards and Procedures for Graduate Study at UCLA* at <https://grad.ucla.edu/academics/graduate-study/standards-and-procedures-for-graduate-study/>.

College and Schools

The UCLA campus has one College and 12 professional schools. Each has its own degree requirements and is headed by a dean who has final academic authority. UCLA students enroll in the University and in the College or one of the schools described in this section.

COLLEGE OF LETTERS AND SCIENCE

David C. Schaberg, Dean of Humanities

Victoria L. Sork, Dean of Life Sciences

Miguel A. García-Garibay, Dean of Physical Sciences

Laura E. Gómez, Interim Dean of Social Sciences

Patricia A. Turner, Dean/Vice Provost of Undergraduate Education

UCLA
2300 Murphy Hall
Box 951430
Los Angeles, CA 90095-1430

310-825-9009
<http://www.college.ucla.edu>

Undergraduate programs in the College stress a liberal arts education that brings together perspectives from many fields in a unified approach to learning.

UCLA is one of the world's premier universities. At the core of the University's research programs, graduate training, and undergraduate instruction is the UCLA College of Letters and Science. With over 27,600 students and more than 900 faculty members, the College is the largest academic unit in the UC system and the academic heart of UCLA. The College offers more than 130 majors leading to the Bachelor of Arts, Bachelor of Science, or Bachelor of Arts and Sciences (BAS), as well as to master's and doctoral degrees.

For a complete list of College of Letters and Science degrees, see the table in the front of this catalog.

The undergraduate programs in the College stress a liberal arts education that brings together perspectives from many fields in a unified approach to learning. Students learn ways that issues are analyzed, questions are posed, and knowledge is organized. After sampling many general subjects, they concentrate on one field or subject and are required to pursue it rigorously and in depth, according to the standards of scholars in the field. When they reach the graduate level, they pose their own questions, analyze academic issues of their own making and, through their research, participate in the creation of knowledge.

ORGANIZATION OF THE COLLEGE

The College is organized in five divisions, each led by a dean. A description of each division follows.

HUMANITIES

The Humanities Division promotes, through scholarly inquiry and the transmission of ideas, sensitive, imaginative, and rigorous reflection on the human condition. Courses in literature help students understand the enduring power of texts both great and small—from cuneiform to manuscript to hypertext. Studies of nearly 100 foreign languages create a gateway to civilizations that span the globe and five millennia of human history. Philosophers provide training in the fundamental principles of logic and moral reasoning, and linguists—both theoretical and applied—illuminate the physiological, cognitive, and social aspects of human language. Art historians explore with students the forms and media through which humans have sought to express themselves and to challenge and make sense of their worlds. Programs in the humanities teach students to interpret texts with an informed sensitivity, to evaluate ideas critically, to write clearly and effectively about them, and to be able to question and discuss them with their peers. See <http://humanities.ucla.edu>.

LIFE SCIENCES

Faculty members and students in the Life Sciences Division play an essential role in unlocking the basic mechanisms of life at the most fundamental level. The geography of Southern California is conducive to life sciences research, since the diverse region is a natural laboratory for environmental biologists, plant and animal ecologists, and evolutionary biologists. Scientists in microbiology and molecular, cell, and developmental biology study embryo formation, cell signaling, and genetics. Neurochemists, neurophysiologists, psychobiologists, and behavior biologists study the underlying mechanisms of the neural basis of behavior. Physiological scientists examine the structure of muscle, hormonal control of behavior, and environmental conditions, such as weightlessness, that affect bone and muscle structure and function. Cognitive psychologists are concerned with the nature of knowledge—how people learn, remember, associate, and think, and how



computers relate to human thought processes. See <http://www.lifesciences.ucla.edu>.

PHYSICAL SCIENCES

Departments in the Physical Sciences Division present the results of human efforts to understand the natural sciences and their physical aspects, including the properties and characteristics of matter and energy; the science of numbers and order; the origin and structure of the universe, solar system, and Earth; and climatic change and its environmental impact. The bases for the physical sciences are the fundamental laws and proof of mathematics, chemistry, and physics. Studies in the physical sciences are experimental, theoretical, observational, and computational. Faculty members and students are interested in such topics as the nature and evolution of the galaxies; ozone depletion; nuclear winter; greenhouse effect; molecular recognition, interactions, design, synthesis, and structure; evolution of life and the continents; computational mathematics and symbolic logic; superconducting materials; plasma fusion, space plasmas; and high-energy accelerator physics. See <http://www.physicalsciences.ucla.edu>.

SOCIAL SCIENCES

Majors in the Social Sciences Division help students make sense of the rapidly changing world around them by giving them the tools and sensibilities to appreciate the complex interplay of individuals, environment, culture, and economy that makes up their social world. They study human and animal evolution, as well as the transformation of human societies from small groups to states. They explore and debate the meaning of cultural, ethnic, and racial identities in historical and contemporary settings. Some majors challenge students to analyze the role of labor, markets, and exchange, as well as the dynamics of political choices, participation, and institutions. Communication, from interpersonal conversation to mass media, and its impact on personal and political behavior are studied in different fields, while the impact of place and the natural environment are examined through geography. Underlying all of these topics is a drive to capture the elusive nature of human behaviors and relationships through direct observation and the questioning of prevailing theories. In addition, students learn exciting and diverse methods of social and environmental analysis, such as archaeology, linguistics, statistics, game theory, remote sensing and imagery, textual analysis, ethnography, geographic information systems, fieldwork, and ecology. See <http://socialsciences.ucla.edu>.

UNDERGRADUATE EDUCATION

The Undergraduate Education Division serves as the campuswide advocate for undergraduate education, promoting academic success for the diverse undergraduate population at UCLA and ensuring options for all students to engage in a challenging array of educational opportunities, from foundational general education courses to advanced research and capstone projects. See <http://www.ugeducation.ucla.edu>.

Academic Advancement Program. The Academic Advancement Program (AAP) is a multiracial, multi-ethnic, and multicultural program that promotes academic excellence through academic counseling, learning sessions, and mentoring. Students are eligible for AAP if their academic profiles and personal backgrounds may impact their University experience and

their retention and graduation from UCLA. See <http://www.aap.ucla.edu>.

Center for Community Learning. The Center for Community Learning serves faculty members, undergraduate students, and community partners through academic courses and programs, including credit-bearing internships, service learning courses, community-based research, AmeriCorps programs, and the Astin Scholars Program. It is home to the undergraduate minor in Civic Engagement. See <http://www.uei.ucla.edu/communitylearning.htm>.

Center for Educational Assessment. The Center for Educational Assessment (CEA) provides information and analysis to support planning, program and policy development, and other decision making about undergraduate education at UCLA. See <http://www.oid.ucla.edu/content/center-educational-assessment>.

College Academic Counseling. College Academic Counseling (CAC) provides College undergraduate students with counseling on academic regulations and procedures, course selection, preparation for graduate and professional programs, selection of appropriate majors, and the options and alternatives available to enhance a UCLA education. See <http://www.ugeducation.ucla.edu/counseling/>.

Honors Programs. Honors Programs offers academic programs and services designed to promote an outstanding honors education, including College Honors, Honors Collegium, Departmental Scholar Program, Individual Majors Program, Honors Scholarships, Honors Research Stipends, and specialized counseling and support services for College honors students. See <http://www.honors.ucla.edu>.

New Student and Transition Programs. New Student Orientation is the first introduction to UCLA for new students. During the three-day first-year student sessions and the one- and two-day transfer student sessions, a unique set of comprehensive and engaging programs is offered to make student transitions to UCLA great ones. See <http://www.newstudents.ucla.edu>.

Office of Instructional Development. The Office of Instructional Development (OID) supports undergraduate education by enhancing teaching and learning opportunities. Through grants, programs, and services, OID promotes the effective use of current and emerging instructional methodologies and technologies. See <http://www.oid.ucla.edu>.

Scholarship Resource Center. The Scholarship Resource Center (SRC) is designed to help students in the search for private scholarships, regardless of financial aid eligibility. The center also houses the Phi Beta Kappa Office. See <http://www.scholarshipcenter.ucla.edu>.

Transfer Alliance Program. The Transfer Alliance Program (TAP) seeks to strengthen academic ties between UCLA and honors programs in over 45 California community colleges to provide specialized transfer programs for participating students. See <http://www.tap.ucla.edu>.

Undergraduate Education Initiatives. Undergraduate Education Initiatives are innovative programs designed for undergraduate students that feature best practices in undergraduate education and attract UCLA's most distinguished faculty members from all campus areas. Programs include UCLA General Education, *Fiat Lux* Freshman Seminar Program,

Freshman Cluster Program, Undergraduate Student Initiated Education Program, and Writing II Program. See <http://www.uei.ucla.edu>.

Undergraduate Research Centers. Undergraduate Research Centers (URC)—one for students in the arts, humanities, social sciences, and behavioral sciences and one for students in science, engineering, and mathematics—exist as part of a continuing effort by the College to engage undergraduate students in research and creative activities at all levels. See <http://www.ugresearch.ucla.edu>.

UNDERGRADUATE DEGREE REQUIREMENTS

For a complete list of College of Letters and Science degrees, see the table in the front of this catalog.

Degree programs in the College offer students a variety of intellectual challenges by combining a wide distribution of courses and the opportunity to specialize in one particular field. To this end, students are required to select lower division courses that provide general foundations of human knowledge. In upper division courses, they concentrate on one major field of interest.

As described below, College students must meet three types of requirements for the Bachelor of Arts or Bachelor of Science degree:

1. University requirements
2. College requirements
3. Department requirements

UNIVERSITY REQUIREMENTS

The University of California has two requirements that undergraduate students must satisfy to graduate: (1) Entry-Level Writing or English as a Second Language

and (2) American History and Institutions. Students who do not satisfy the Entry-Level Writing requirement prior to enrollment must pass an approved course or other program prescribed by their UC campus of residence. Only after satisfying the Entry-Level Writing requirement can they take an English composition course for transfer credit after enrolling at UCLA. See Degree Requirements in the Undergraduate Study section for details.

COLLEGE REQUIREMENTS

The College of Letters and Science has eight requirements that must be satisfied for the award of the degree: unit, scholarship, academic residence, writing, quantitative reasoning, foreign language, diversity, and general education.

UNIT REQUIREMENT

Students must satisfactorily complete for credit a minimum of 180 units for the bachelor's degree. At least 60 of the 180 units must be upper division courses numbered 100 through 199. A maximum of 216 units is permitted. Students with Advanced Placement Examination or International Baccalaureate Examination (transfer) credit may exceed the unit maximum by the amount of that credit.

SCHOLARSHIP REQUIREMENT

Students must earn at least a C (2.0) grade-point average in all courses undertaken at UCLA for receipt of the bachelor's degree. They must also attain a 2.0 GPA in a major and satisfy both the course and scholarship requirements for that major, including preparation for the major. Some majors have additional requirements.

ACADEMIC RESIDENCE REQUIREMENT

Thirty-five of the final 45 units completed for the bachelor's degree must be earned in residence in the College. A minimum of 24 upper division units must be completed in the major while in residence in the College. The academic residence requirements apply to all students, both continuing and transfer.

WRITING REQUIREMENT

Students must complete the University Entry-Level Writing or English as a Second Language (ESL) requirement prior to completing the College writing requirement.

New students admitted to the College are required to complete a two-term writing requirement—Writing I and Writing II. Two courses in English composition are required for graduation. Both courses must be taken for letter grades, and students must receive grades of C or better (C– grades are not acceptable).

Writing I. The Writing I requirement must be satisfied within the first three terms of enrollment by completing English Composition 3 or 3SL with a grade of C or better (C– or a Passed grade is not acceptable).

The Writing I requirement may also be satisfied by (1) scoring 4 or 5 on one of the College Board Advanced Placement Examinations in English, (2) a combination of a score of 720 or better on the SAT Reasoning Test, Writing and superior performance on the English Composition 3 Proficiency Examination, (3) completing a course equivalent to English Composition 3 with

College of Letters and Science Structure of a Degree

University Requirements

1. Entry-Level Writing or English as a Second Language
2. American History and Institutions

College Requirements

1. Unit
2. Scholarship
3. Academic Residence
4. Writing Requirement
 - Writing I
 - Writing II
5. Quantitative Reasoning
6. Foreign Language
7. Diversity
8. General Education
 - Foundations of Arts and Humanities
 - Foundations of Society and Culture
 - Foundations of Scientific Inquiry

Department Requirements

1. Preparation for the Major
2. The Major

Courses that do not satisfy specific University, College, or department requirements are referred to as electives and can be used to meet the minimum unit requirement for graduation.

a grade of C or better (C– or a Passed grade is not acceptable) taken at another institution, or (4) scoring 5, 6, or 7 on an International Baccalaureate Higher Level Examination.

Students whose native language is not English may need to take English Composition 1A, 1B, and 2I before enrolling in a Writing I course. All courses in the sequence must be passed with a grade of C or better (C– or a Passed grade is not acceptable).

Qualifying examination scores and courses are determined by the College Faculty Executive Committee.

Writing II. The Writing II requirement must be satisfied within seven terms of enrollment by completing one course from a list approved by the College Faculty Executive Committee. The course must be completed with a grade of C or better (C– or a Passed grade is not acceptable). Writing II courses are listed in the Schedule of Classes at <https://sa.ucla.edu/ro/public/soc>.

Applicable Writing II courses may also be applied toward preparation for the major requirements and, if approved for general education (GE) credit, may fulfill a GE requirement.

Transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum (IGETC) will have satisfied the Writing I, Writing II, and reciprocity requirements. No transfer student is admitted to the College without completing, with a grade of C or better (C– grade is not acceptable), a college-level writing course that Undergraduate Admission accepts as equivalent to English Composition 3.

QUANTITATIVE REASONING REQUIREMENT

The quantitative reasoning requirement may be satisfied by completing one approved UCLA course (see list below) or an equivalent course within the first seven terms of enrollment. The course must be taken for a letter grade, and students must receive a grade of C or better (C– grade is not acceptable).

The requirement may also be satisfied by achieving an SAT Reasoning Test Mathematics Section score of 600 or better or an SAT Subject Test in Mathematics score of 550 or better. Approved UCLA courses and examinations, and qualifying scores, are determined by the College Faculty Executive Committee. Approved courses are listed below.

Applicable courses may also be applied toward preparation for the major requirements and, if approved for general education (GE) credit, may fulfill a GE requirement.

Transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum (IGETC) will have satisfied the quantitative reasoning and reciprocity requirements. No transfer student is admitted to the College without completing, with a grade of C or better (C– grade is not acceptable), a college-level quantitative reasoning course that Undergraduate Admission accepts as equivalent to those approved by the College Faculty Executive Committee.

Approved courses include Biostatistics 100A, 100B, Life Sciences 20, 30A, Mathematics 2 (or any higher numbered course except 19, 71SL, 72SL, 89, 89HC, 98XA, 98XB, 99, 103A, 103B, 103C, 105A, 105B, 105C, 189, 189HC, 195, 197, 199), Philosophy 31, Political Science 6, 6R, Program in Computing 10A,

10B, 10C, Statistics 10, 12, 13, and former courses 11 and 14.

FOREIGN LANGUAGE REQUIREMENT

The foreign language requirement may be satisfied by one of the following methods: (1) completing a college-level foreign language course equivalent to level three or above at UCLA with a grade of C or Passed or better or (2) scoring 3, 4, or 5 on the College Board Advanced Placement (AP) foreign language examination in Chinese, French, German, Italian, Japanese, or Spanish, or scoring 4 or 5 in Latin, thereby earning College credit or (3) presenting a UCLA foreign language departmental examination score indicating competency through level three. Consult the Schedule of Classes or the appropriate department for times and places of the regularly scheduled examinations. Students who wish to demonstrate proficiency in a language that is taught in a UCLA department that has no scheduled examination should contact the appropriate department to arrange for one. Students wishing to take an examination in a language not taught at UCLA should contact a College counselor.

Transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum (IGETC) will have satisfied the foreign language and reciprocity requirements.

The following language courses may be used to fulfill the foreign language requirement:

Afrikaans (Germanic Languages) 105A and 105B
American Sign Language (Linguistics) 1, 2, and 3, or 8
Ancient Near East (Near Eastern Languages) 120A-120B-120C or 122 (Ancient Egyptian); 140A-140B-140C (Sumerian)

Arabic (Near Eastern Languages) 1A-1B-1C or 8
Armenian (Near Eastern Languages) 101A-101B-101C or 104A-104B-104C

Bulgarian (Slavic Languages) 101A-101B-101C

Chinese (Asian Languages) 1, 2, and 3, or 1A, 2A, and 3A, or 8 or 8A

Czech (Slavic Languages) 101A-101B-101C

Dutch (Germanic Languages) 103A-103B, and 103C, or 104A-104B

Filipino (Asian Languages) 1, 2, and 3, or 3R or 8

French (French and Francophone Studies) 1, 2, and 3, or 8

German (Germanic Languages) 1, 2, and 3, or 8

Greek (Classics) 1, 2, and 3, or 16; 8A-8B-8C or 15 (Modern Greek)

Hebrew (Near Eastern Languages) 1A-1B-1C or 8

Hindi-Urdu (Asian Languages) 1, 2, and 3, or 3R

Hungarian (Slavic Languages) 101A-101B-101C

Indigenous Languages of the Americas (Spanish and Portuguese) M5A-M5B-M5C (Nahuatl; also see Chicana and Chicano Studies M5A-M5B-M5C and International and Area Studies M5A-M5B-M5C); 17 or 18A-18B-18C (Quechua)

Indonesian (Asian Languages) 1, 2, and 3

Iranian (Near Eastern Languages) 1A-1B-1C or 8 or 20A-20B-20C (Persian); M115A-M115B-M115C (Azeri)

Italian 1, 2, and 3, or 9

Japanese (Asian Languages) 1, 2, and 3, or 8

Korean (Asian Languages) 1, 2, and 3, or 1A, 2A, and 3A, or 8

Latin (Classics) 1, 2, and 3, or 16

Lithuanian (Slavic Languages) 101A-101B-101C

Polish (Slavic Languages) 101A-101B-101C

Portuguese (Spanish and Portuguese) 1, 2, and 3, or 11A-11B

Romanian (Slavic Languages) 101A-101B-101C or 103
 Russian (Slavic Languages) 1, 2, and 3, or 10 or 15A-15B or 100B
 Scandinavian 1, 2, and 3, or 8 (Swedish); 11, 12, and 13 (Norwegian); 21, 22, and 23 (Danish)
 Semitics (Near Eastern Languages) 140A-140B and 141 (Akkadian)
 Serbian/Croatian (Slavic Languages) 101A-101B-101C
 South Asian (Asian Languages) 110A (Sanskrit)
 Spanish (Spanish and Portuguese) 1, 2, and 3, or 2A and 3A, or 7A or 10 or 11A-11B
 Thai (Asian Languages) 1, 2, and 3, or 3R
 Turkic Languages (Near Eastern Languages) 101A-101B-101C (Turkish); 111A-111B-111C (Uzbek); M115A-M115B-M115C (Azeri)
 Ukrainian (Slavic Languages) 101A-101B-101C
 Vietnamese (Asian Languages) 1, 2, and 3, or 1A, 2A, and 3A, or 3R or 8
 Yiddish (Germanic Languages) 101A, 101B, and 101C, or 102B

DIVERSITY REQUIREMENT

The diversity requirement may be satisfied by completing one course from the faculty-approved list of courses. The course must be taken for a letter grade, and students must receive a grade of C or better (C- grade is not acceptable). Applicable courses may also be applied toward major, minor, or elective requirements and, if approved for general education (GE) credit, may fulfill a GE requirement. For a list of approved courses, see <http://www.registrar.ucla.edu/Academics/Diversity-Requirement>.

GENERAL EDUCATION REQUIREMENTS

General education (GE) is more than a checklist of required courses. It is a program of study that (1) reveals to students the ways that research scholars in the arts, humanities, social sciences, and natural sciences create and evaluate new knowledge, (2) introduces students to the important ideas and themes of human cultures, (3) fosters appreciation for the many perspectives and the diverse voices that may be heard in a democratic society, and (4) develops the intellectual skills that give students the dexterity they need to function in a rapidly changing world.

This entails the ability to make critical and logical assessments of information, both traditional and digital; deliver reasoned and persuasive arguments; and identify, acquire, and use the knowledge necessary to solve problems.

FOUNDATIONS OF KNOWLEDGE

Students follow a general education curriculum that is grouped into three foundational areas: Foundations of the Arts and Humanities, Foundations of Society and Culture, and Foundations of Scientific Inquiry.

Ten courses (48 units minimum) are required. GE-approved Writing II courses may fulfill an appropriate foundational area. See the foundational area descriptions below for a breakdown of courses required.

Students who complete a yearlong GE Cluster series (1) fulfill the Writing II requirement, (2) complete 40 percent of their general education requirements, and (3) receive laboratory/demonstration credit where appropriate.

Courses listed in more than one category can fulfill GE requirements in only one of the cross-listed categories.

Foundations of the Arts and Humanities. Three 5-unit courses, one from each subgroup:

Literary and Cultural Analysis
 Philosophical and Linguistic Analysis
 Visual and Performance Arts Analysis and Practice

The aim of courses in this area is to provide perspectives and intellectual skills necessary to comprehend and think critically about our situation in the world as human beings. In particular, the courses provide the basic means to appreciate and evaluate the ongoing efforts of humans to explain, translate, and transform their diverse experiences of the world through such media as language, literature, philosophical systems, images, sounds, and performances. The courses introduce students to the historical development and fundamental intellectual and ethical issues associated with the arts and humanities and may also investigate the complex relations between artistic and humanistic expression and other facets of society and culture.

Foundations of Society and Culture. Three 5-unit courses, one from each subgroup and a third course from either subgroup:

Historical Analysis
 Social Analysis

The aim of courses in this area is to introduce students to the ways in which humans organize, structure, rationalize, and govern their diverse societies and cultures over time. The courses focus on a particular historical question, societal problem, or topic of political and economic concern in an effort to demonstrate how issues are objectified for study, how data is collected and analyzed, and how new understandings of social phenomena are achieved and evaluated.

Foundations of Scientific Inquiry. Four courses, two from each subgroup. One 5-unit course from each sub-

College of Letters and Science General Education Requirements

Foundations of the Arts and Humanities

Literary and Cultural Analysis	1 Course
Philosophical and Linguistic Analysis	1 Course
Visual and Performance Arts Analysis and Practice	1 Course
Total = 15 units minimum	

Foundations of Society and Culture

Historical Analysis	1 Course
Social Analysis	1 Course
Third course from either subgroup	1 Course
Total = 15 units minimum	

Foundations of Scientific Inquiry

Life Sciences	2 Courses
Physical Sciences	2 Courses
In each subgroup, one of the two courses must be 5 units and carry either laboratory/demonstration or Writing II credit. For students entering Fall Quarter 2009 through Spring Quarter 2017, the laboratory requirement is reduced to one 5-unit course from either subgroup.	
Other courses in the subgroups may be 4 units.	
Total = 18 units minimum (17 min. Fall 2009-Spring 2017)	

Total GE	10 Courses/48 Units Minimum
	(10 Courses/47 Units Minimum 09F-17S)

group must include either laboratory/demonstration or Writing II credit. For students entering fall quarter 2009 through spring quarter 2017, the laboratory requirement is reduced to one 5-unit course from either subgroup. Other courses in the subgroups may be 4 units:

Life Sciences
Physical Sciences

The aim of courses in this area is to ensure that students gain a fundamental understanding of how scientists formulate and answer questions about the operation of both the physical and biological world. The courses also deal with some of the most important issues, developments, and methodologies in contemporary science, addressing such topics as the origin of the universe, environmental degradation, and the decoding of the human genome. Through lectures, laboratory experiences, writing, and intensive discussions, students consider the important roles played by the laws of physics and chemistry in society, biology, Earth and environmental sciences, and astrophysics and cosmology.

Foundations Course Lists. Creating and maintaining a general education curriculum is a dynamic process; consequently, courses are frequently added to the list. For the most current list of approved courses that satisfy the Foundations of Knowledge GE plan, consult an academic counselor or see <http://www.registrar.ucla.edu/Academics/GE-Requirement>.

Advanced Placement Examination Credit

Students may not use Advanced Placement (AP) Examination credit to satisfy the College's 10-course foundational area general education requirement. See the AP table at <http://www.admission.ucla.edu/prospect/APCreditLS.htm>. Consult a departmental counselor for applicability of AP credit toward course equivalencies or satisfaction of Preparation for the Major requirements.

Reciprocity with Other UC Campuses

Students who transfer to UCLA from other UC campuses and have met all GE requirements prior to enrolling at UCLA are not required to complete the College GE requirements. Written verification from the dean at the other UC campus is required. Consult a College counselor regarding eligibility for this option.

Intersegmental General Education Transfer Curriculum

Transfer students from California community colleges have the option to fulfill UCLA lower division GE requirements by completing the Intersegmental General Education Transfer Curriculum (IGETC) prior to transfer. The curriculum consists of a series of subject areas and types of courses that have been agreed on by the University of California and the California community colleges. Although GE or transfer core courses are degree requirements rather than admission requirements, students are advised to fulfill them prior to transfer. The IGETC significantly eases the transfer process, as all UCLA GE requirements are fulfilled when students complete the IGETC courses. Students who select the IGETC must complete it entirely before enrolling at UCLA.

Students who are unable to complete one or two IGETC courses prior to transfer may request certification of partial completion of IGETC from their community college. On certification, the remaining courses must be completed with a minimum grade of

C or better or Passed in each. Students who fail to complete the remaining IGETC coursework or who are otherwise not eligible for IGETC or partial IGETC are required to complete the College GE requirements. Consult a college adviser regarding this prior to enrolling in any courses.

DEPARTMENT REQUIREMENTS

College departments generally set two types of requirements that must be satisfied for the award of the degree: (1) Preparation for the Major (lower division courses) and (2) the Major (upper division courses). Departments also set requirements for minors and specializations.

PREPARATION FOR THE MAJOR

Admission to a major often requires completion of a set of courses known as Preparation for the Major. Students in life sciences majors must complete a set of preparatory courses known as the Life Sciences Core Curriculum. Each department sets its own Preparation for the Major requirements; see the Curricula and Courses section of this catalog.

THE MAJOR

A major in the College consists of a group of coordinated upper division courses and is designated as departmental, interdepartmental, or individual. Each course applied toward the major and preparation for the major must be taken for a letter grade unless otherwise stipulated by the department. Students who have been away from the University for several terms should consult with their major department or curriculum adviser concerning the requirements under which they are to graduate.

Each department sets its own major requirements; see the Curricula and Courses section of this catalog.

Departmental Majors. A departmental major consists of a minimum of 36 upper division units and a maximum of 60 upper division units. The majors are established and supervised by campus departments.

Interdepartmental Majors. An interdepartmental major consists of a minimum of 48 upper division units and a maximum of 75 upper division units, of which no more than 32 units may be coursework in one department. The programs are administered by interdepartmental committees made up of faculty whose membership is determined by research interest, not by departmental affiliation. By cutting across the usual lines of departmental division, a subject area is studied from the perspectives of different disciplines and a greater degree of program flexibility is achieved.

Individual Capstone Majors. If students have some unusual but definite academic interest for which no suitable major is offered at the University and have completed at least three terms of work (45 units minimum) at the University with a grade-point average of 3.4 or better, they may petition for an individual major that is also a designated capstone major. The consent of the College Honors Programs and the assistance of a faculty adviser are required. Individual majors must be approved by the vice provost for Undergraduate Education.

The individual major must consist of at least 48 and no more than 60 upper division units, a majority of which must be in departments offering a major in the College. A capstone senior thesis of at least 8 but no

more than 12 units is required. For details about individual majors, contact Honors Programs, A311 Murphy Hall, 310-825-1553. See <http://www.honors.ucla.edu/other-programs/design-your-own-major/>.

Double Majors. Students in good academic standing and on track to graduate on time may be permitted to have a double major consisting of majors from two departments within the College. Both majors must be completed within the maximum limit of 216 units, and students must obtain the approval of both departments and the College.

With few exceptions, double majors in the same department are unacceptable. No more than 20 upper division units may be common to both majors.

MINORS AND SPECIALIZATIONS

Students may choose to pursue a minor to complement their major program of study. Minors consist of no fewer than seven courses (28 units) and no more than nine courses (36 units). Some minors also have admission requirements.

The Computing specializations are sequences of supplemental courses that enhance work in a major.

For a list of minors and specializations, see the chart at the beginning of this catalog; descriptions are in the Curricula and Courses section.

POLICIES AND REGULATIONS

Degree requirements are subject to policies and regulations, including the following:

STUDENT RESPONSIBILITY

Students should take advantage of academic support resources, but they are ultimately responsible for keeping informed of and complying with the rules, regulations, and policies affecting their academic standing.

STUDY LIST

The study list is a record of classes that a student is taking for a particular term. The allowable study list load is up to 19 units. After the first term, students may petition to enroll in more than 19 units if they attained at least a B average the preceding term in a total program of at least 15 units and have an overall grade-point average of 3.0. First-term transfer students from any other campus of the University may carry excess units on the same basis as students who have completed one or more terms at UCLA; however, they are not encouraged to do so.

PROGRESS TOWARD THE DEGREE

UCLA is a full-time institution, and it is expected that students complete their undergraduate degree requirements promptly. Normal progress toward graduation in four years is defined as the completion of 45 units per year, or 15 units per term.

The Degree Progress Report (DPR) or Degree Audit is a record of degree requirements and the courses taken to fulfill them. Students are responsible for monitoring their progress toward the degree. They must read and understand the catalog, check the online catalog for updates, and consult regularly with the College and department counselors to confirm they are satisfying all program requirements. Department counselors advise students on progress and completion of the

major requirements. Counselors in College Academic Counseling, the Academic Advancement Program, Honors Programs, and Student Athletics Counseling assist students with College requirements and degree planning and provide DPRs or Degree Audits on request. Students can also view DPRs or Degree Audits through MyUCLA.

MINIMUM PROGRESS/EXPECTED CUMULATIVE PROGRESS

During a regular term of enrollment, undergraduate students in the College are required to enroll in a minimum of 13 units. Students are also required to meet cumulative progress unit expectations as outlined in the Expected Cumulative Progress Chart at <http://www.ugradu.edu/counseling/exp-cum-prog.html>.

The following courses count toward minimum progress and expected cumulative progress but are exempt from the maximum unit limit of 216: 19 (Fiat Lux), 88S (Undergraduate Student Initiated Education seminars), 89 and 189 (honors seminars), 89HC and 189HC (honors contracts), M97X (PEERS lectures), 98X, 98XA, and 98XB (PEERS laboratories), 99 (student research tutorials), 190 (research colloquia), 193 (journal club seminars), 194 (research group or internship seminars), Honors Collegium 101A through 101J, Mathematics 71SL, 72SL, Science Education 1SL, and 10SL.

REDUCED FEE PROGRAMS

While full-time study is expected and required of students, some students may qualify for part-time study due to compelling reasons of occupation, home and family responsibilities, or health. Under this policy, part-time status is defined as 10 units or less per term based on enrolled units at the end of the third week, and is presumed to be of a permanent nature. On approval of part-time status, a reduction of the tuition fee by one half and a reduction of the nonresident supplemental tuition fee by one half are approved.

To be eligible for part-time study, students must provide documentation of occupation, home and family responsibility, or health that prevents them from carrying a full-time study load, as well as documentation of a need for part-time study for a minimum of three consecutive terms. Once approved for part-time study, students must complete two courses of 10 units or less in each of the three consecutive terms. Only under documented extraordinary circumstances is a one-course study list approved. Documentation must specify that a one-course study list is warranted.

Students should obtain the Fee Reduction Request from College Academic Counseling or at <http://www.registrar.ucla.edu/Registration-Classes/Registration-and-Payment/Reduced-Fee-Programs>. The application for part-time study must be submitted with accompanying documentation by Friday of the second week of the term. Students approved for part-time study who become enrolled in or receive credit for more than 10 units during a term must pay the full fees for that term.

DECLARING A MAJOR

Students are expected to select a major by the beginning of their junior year. This may be a program of related upper division courses within a single department (departmental major) or a group of related

courses involving a number of departments (interdepartmental major) or, under certain circumstances, a group of courses selected to meet a special need (individual capstone major).

Most entering freshmen are unsure about specific academic goals and request to be admitted to the College as "undeclared." These students then explore fields of study by taking introductory courses in the physical and life sciences, social sciences, and humanities in search of an area that most excites their interest.

All students with 90 or more units toward a degree are expected to declare a premajor or a major. When they are ready to do so, they obtain approval on a Petition for Declaration of Major from the department or interdepartmental degree committee that governs their intended major.

CHANGING A MAJOR

Students in good academic standing who wish to change their major may petition to do so provided they can complete the new major within the 216-unit limit and are on track to graduate on time. Petitions must be submitted to and approved by the department or committee in charge of the new major. Admission to certain majors may be closed or restricted; changes are normally not permitted if students are on probation or have begun their last term.

Students who fail to attain a grade-point average of 2.0 (C) in preparation for the major or major courses may be denied the privilege of entering or continuing in that major. Some departments may have higher grade-point requirements for their preparation and major courses or other restrictions; consult the appropriate department regarding minimum standards.

RE-ENTERING STUDENTS AND THEIR MAJORS

Students returning to the University to resume their studies after an absence of several years may find their previous major area of study no longer available. They then must select a current major in which to complete their studies. Consult an academic counselor for assistance.

CREDIT LIMITATIONS

The following credit limitations apply to all undergraduate students enrolled in the College. In many cases units are not deducted until the final term before graduation. Students with questions should consult an academic counselor.

Transfer students with credit from other institutions (advanced standing credit) receive a Degree Progress Report (DPR) or Degree Audit from Undergraduate Admission indicating the transferable units from former institutions; however, the following credit limitations may reduce the total number of transferred units that apply toward the degree in the College. Consult a counselor in College Academic Counseling about these limitations.

Advanced Placement Examinations. Advanced Placement (AP) Examination credit may not be applied toward a degree unless students had less than 36 units of credit at the time of the examination(s). See the AP table at <http://www.admission.ucla.edu/prospect/APCreditLS.htm> for UCLA course equivalents and credit allowed for GE requirements.

College Level Examination Program. Credit earned through the College Level Examination Program (CLEP) and through the California State University English Equivalency Examination may not be applied toward the bachelor's degree.

Community College Unit Limit. After completing 105 quarter units toward the degree in all institutions attended, students are allowed no further unit credit for courses completed at a community college.

Credit by Examination. Within the College, eligibility for credit by examination is usually limited to students who have been approved as Departmental Scholars or who are admitted to a departmental honors program or Honors Programs. Students who have completed a minimum of 12 units at UCLA with a minimum 3.5 overall grade-point average may petition for credit by examination. The examination for that course must be taken successfully before they may petition for credit by examination in another course.

Students may receive credit by examination for only one course out of 10 courses completed. Credit by examination may not be used to gain credit for prior knowledge, audited courses, or courses taken elsewhere. Units for a course taken by examination are applied toward the 216-unit maximum allowable units for graduation. Petitions for credit by examination (with fee) are available only through an appointment with a counselor in Honors Programs, A311 Murphy Hall.

Education Abroad Program. Students participating in the Education Abroad Program may receive a maximum of 48 units of credit toward the degree in addition to the 8 units maximum allowed for the Intensive Language Program.

Foreign Language. Credit is not allowed for completing a less advanced course in grammar and/or composition after students have received credit for a more advanced course. College credit for an international student's native language and literature is allowed for (1) courses taken in native colleges and universities or (2) upper division (advanced language courses only) and graduate courses taken at the University of California or another English-speaking institution of approved standing. No credit is allowed for lower division courses.

Performance Courses. No more than 12 units of music and/or dance performance courses (Dance 6 through 16, 56 through 65, C109A, C113A, C115, 116, Ethnomusicology 91A through 91Z, 161A through 161Z, Music 60A through 65, C90A through 90S, 160A through 165, and World Arts and Cultures 5, 114) may be applied toward the bachelor's degree whether taken at UCLA or another institution.

Physical Education. No more than 4 units in physical education activities courses may be applied toward the bachelor's degree.

Physics Courses. Any two or more courses from Physics 1A, 1AH, and 6A are limited to a total of 6 units of credit.

ROTC Courses. For students contracted in the Aerospace Studies Department, 36 units of aerospace studies credit may be applied toward the requirements for the bachelor's degree; for students contracted in the Military Science Department, 26 units of military science credit may be applied; for students contracted in the Naval Science Department, 26 units of naval science credit may be applied.

Statistics Courses. Credit is allowed for only one of the following introductory statistics courses: Statistics 10, 12, 13 (or former 10H, 11, or 14), or any equivalent course taken at UCLA or another institution.

Upper Division Tutorials. No more than 8 units of credit may be taken per term in upper division tutorials numbered 195 through 199. The total number of units allowed in such courses for a letter grade is 32; see specific restrictions under each departmental listing.

300- and 400-Level Courses. No more than 8 units in the 300 and 400 series of courses may be applied toward the bachelor's degree. Credit is not granted for X300 and X400 courses taken in UCLA Extension.

HONORS

College undergraduate students who achieve scholastic distinction may qualify for the following honors and programs:

COLLEGE HONORS

The highest academic recognition the College confers on its undergraduate students is College Honors, which is awarded to graduating seniors who successfully complete the College Honors program and who have an overall University of California grade-point average of 3.5 or better. The program provides exceptional undergraduate students an opportunity to pursue individual excellence.

For details on the College Honors program and entry requirements, see <http://www.honors.ucla.edu/college-honors-program/>.

DEAN'S HONORS

The Dean's Honors list recognizes high scholastic achievement in any one term. The following criteria are used to note Dean's Honors on the student records: (1) a 3.75 grade-point average in any one term with at least 12 graded units and no grade of NP or I or (2) a 3.66 GPA and at least 56 grade points during the term, with no grade of NP or I. Dean's Honors are automatically recorded on the transcript.

DEPARTMENTAL HONORS

Individual departments and programs in the College offer departmental honors programs. Admission and curricular requirements vary according to the department or program. See the Curricula and Courses section of this catalog for details, and consult the departmental adviser about procedures and arrangements. Students who successfully complete the requirements graduate with departmental honors or highest honors.

LATIN HONORS

Students who have achieved scholastic distinction may be awarded the bachelor's degree with Latin honors. To be eligible, students must have completed 90 or more units for a letter grade at the University of California and must have attained an overall grade-point average at graduation that places them in the top five percent of College graduates (GPA of 3.893 or better) for *summa cum laude*, the next five percent (GPA of 3.816 or better) for *magna cum laude*, and the next 10 percent (GPA of 3.700 or better) for *cum laude*. Coursework taken on the Education Abroad Program is applied toward Latin honors at graduation. The minimum GPAs required are subject to change on an annual

basis. Required GPAs in effect in the graduating year (fall, winter, spring, summer) determine student eligibility. Students should consult their Degree Progress Reports, Degree Audits, or <http://www.registrar.ucla.edu/Registration-Classees/Graduation/Final-Degree-Audit/Latin-Honors> for the most current calculations of Latin honors.

DEPARTMENTAL SCHOLAR PROGRAM

Departments may nominate exceptionally promising undergraduate students (juniors and seniors) as UCLA Departmental Scholars to pursue bachelor's and master's degrees simultaneously. Qualifications include completion of 24 courses (96 quarter units) at UCLA or the equivalent at a similar institution, the requirements in preparation for the major, and eligibility to participate in the College Honors program. Students must also have at least one term of coursework remaining at UCLA. To obtain both the bachelor's and master's degrees, students must be provisionally admitted to the Graduate Division, fulfill requirements for each program, and maintain a minimum B average. No course may be used to fulfill requirements for both degrees. Interested students should consult their department well in advance of application dates for graduate admission. For further information, contact the Honors Programs Office in A311 Murphy Hall or see <http://www.honors.ucla.edu/other-programs/departmental-scholars/>.

GRADUATE STUDY

The College of Letters and Science provides graduate students virtually unlimited opportunities for academic pursuit, faculty-sponsored research, and field-work relative to specific programs and career goals.

With Graduate Division approval and subject to University minimum requirements, each department sets its own standards for admission and other requirements for the award of master's and doctoral degrees. For complete degree requirements, see Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu>.

For information on the proficiency in English requirements for international graduate students, see Graduate Admission in the Graduate Study section of this catalog.

DAVID GEFFEN SCHOOL OF MEDICINE

Kelsey C. Martin, Interim Dean

UCLA

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<http://medschool.ucla.edu>

At the David Geffen School of Medicine at UCLA, faculty members and students play a dynamic role on campus and in the Los Angeles community. Not only are they in the clinics, wards, and operating rooms of the Ronald Reagan UCLA Medical Center and multiple private and public affiliated medical centers, they are also at work in the facilities of many research pro-

grams of the school and broader University. They volunteer in community clinics, health fairs, and public schools, and participate in research and clinical care in multiple global settings.

Students at the Geffen School of Medicine are exposed to the best of many worlds—strong research-oriented basic and clinical science departments, a hospital consistently ranked among the nation's elite, superb affiliated clinical facilities that provide the full spectrum of teaching settings and patient populations, a biomedical library that is considered one of the world's best, and a multidisciplinary global health program. Geffen School of Medicine departments are staffed by a distinguished faculty of respected researchers and practitioners.

DEGREES

The Geffen School of Medicine offers an MD degree program, special programs in affiliation with other hospitals and universities, and postgraduate medical training programs, and faculty members participate in the Graduate Programs in Bioscience. Additionally, the following master's and doctoral degrees are offered through the UCLA Graduate Division:

- Biological Chemistry (MS, PhD)
- Biomathematics (MS, PhD)
- Clinical Research (MS)
- Human Genetics (MS, PhD)
- Microbiology, Immunology, and Molecular Genetics (MS, PhD)
- Molecular and Medical Pharmacology (MS, PhD)
- Molecular, Cellular, and Integrative Physiology (PhD)
- Neurobiology (MS, CPhil, PhD)
- Neuroscience (PhD)
- Pathology—Cellular and Molecular Pathology (MS, PhD)
- Physics and Biology in Medicine (MS, PhD)
- Psychiatry and Biobehavioral Sciences Clinical Psychology Internship (Certificate)

MD DEGREE PROGRAM

The Doctor of Medicine (MD) degree program develops a comprehensive scientific and humanistic approach to patient care that includes basic sciences, preventive medicine, diagnosis, and therapeutic skills for evidence-based medicine. Clinical skills are taught in the context of anatomical, molecular, pathophysiological, and psychosocial factors in health, disease, and treatment.

The curriculum is an innovative, integrated, organ system-based program, with problem-based learning case studies to link basic, clinical, and social studies. Because medical school is but one phase in a physician's education, the curriculum stresses self-directed learning to prepare students for a future in which scientific knowledge, social values, and human needs are ever changing. Formats for instruction include lectures, problem-based learning tutorials, seminars, laboratories, standardized patient exercises, and clinical experiences; students are involved in patient care from their first week through graduation.

The MD program is a four-year medical curriculum that prepares students broadly for careers in research, practice, and teaching in the medical field of their choice. The curriculum emphasizes issues of growing

importance such as primary care, research opportunities for careers in academic medicine, human genetics and the evolving world of gene therapy, psychosocial issues of health and disease, evidence-based medicine, medical ethics, and clinical reasoning.

For details on the MD curriculum or to apply to the program, see <http://medschool.ucla.edu/apply-apply-now> or contact the Geffen School of Medicine Admissions Office, 17-253 East Center for the Health Sciences, UCLA, Box 957035, Los Angeles, CA 90095-7035.

SPECIAL PROGRAMS

PARTNERSHIP PROGRAMS

Extending medical education to a broader segment of tomorrow's physicians and researchers, the Geffen School of Medicine admits a select group of students into two innovative partnership programs. In addition to completing the requirements for the MD degree, students engage in specialized coursework and/or projects designed to fulfill the mission of each program.

Charles Drew/UCLA Medical Education Program

The mission of the Charles Drew (CDU)/UCLA Medical Education Program is to train students to practice medicine with competence and compassion in disadvantaged rural and urban communities. Each year 24 students are admitted to the program. Students spend their first two years at the UCLA campus and complete their last two years of clinical work in specially designed



nated training centers in medically underserved communities and at UCLA and affiliated hospitals. A distinguishing component of the program is the required medical research thesis. See <http://www.cdrewu.edu/com/pgm/CDUUCLA>.

Students at the Geffen School of Medicine are exposed to the best of many worlds—strong research-oriented basic and clinical science departments, a hospital consistently ranked among the nation's elite, and superb clinical facilities.

UCLA PRIME Program

The UCLA PRIME Program is a five-year dual degree program to develop leaders in medicine who address policy, care, and research issues in healthcare for underserved populations. A commitment to serve and experience in working with diverse medically disadvantaged populations is paramount. The program leads to the MD and a master's degree in areas that complement the mission of the program. Each year the class is comprised of 18 students. Students identify with one of two programs: PRIME UCLA-Westwood or PRIME UCLA-CDU. Following successful completion of the required clinical clerkships, students pursue a one-year master's degree. See <http://www.medsch.ucla.edu/prime> or call 310-794-5912.

ARTICULATED AND CONCURRENT DEGREE PROGRAMS

Medical Scientist Training Program

The Geffen School of Medicine and the Graduate Division offer an articulated degree program that

allows students to earn both the MD and PhD in about eight years, depending on the course of study and research. The PhD may be awarded in one of several medical or social sciences fields. Call the Medical Scientist Training Program at 310-794-1817 for details or see <http://mstp.healthsciences.ucla.edu>.

MD/MBA, MD/MPH, MD/MPP

Concurrent programs with the Anderson Graduate School of Management and Luskin School of Public Affairs and an articulated program with the Fielding School of Public Health allow UCLA medical students to earn both the MD and MBA, MD and MPP, or the MD and MPH degrees over five years by following a designated course of study and some shared coursework. Separate application must be made to the Anderson School, Luskin School of Public Affairs, or Fielding School of Public Health during the third year of medical school. Call 310-825-3970 for information.

POSTGRADUATE MEDICAL TRAINING

Postgraduate medical training programs, including residencies, are offered through all the clinical departments at UCLA and the affiliated training hospitals such as Harbor-UCLA, Cedars-Sinai, and Greater Los Angeles VA System. Programs at the affiliated institutions broaden the scope of the teaching programs by providing extensive clinical facilities, special population settings, and diverse practice modes. Information about these programs is available from the individual clinical departments of the Geffen School of Medicine or the affiliated hospitals.

SETEL INSTITUTE FOR NEUROSCIENCE AND HUMAN BEHAVIOR

The Semel Institute is one of the world's leading interdisciplinary research and education institutes devoted to the understanding of complex human behavior. Fourteen research centers, ranging from genetics to human culture, together with research initiatives distributed widely across the academic departments of the Geffen School of Medicine and the College of Letters and Science provide a comprehensive and outstanding research and training environment for the study of neuroscience and behavior.

The research portfolio of the 400 faculty members, graduate students, and fellows who work in the institute spans behavioral genetics, developmental neurobiology, cognitive neuroscience, neuropharmacology,



brain imaging, clinical research, health policy, and sociocultural studies of human behavior and its disorders. For further information, see <http://www.semeli.ucla.edu>.

GRADUATE SCHOOL OF EDUCATION AND INFORMATION STUDIES

Marcelo M. Suárez-Orozco, Dean

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The Graduate School of Education and Information Studies (GSE&IS) at UCLA is dedicated to inquiry, the advancement of knowledge, the improvement of professional practice, and service to the education and information professions. GSE&IS develops future generations of scholars, teachers, information professionals, and institutional leaders. Its work is guided by the principles of individual responsibility and social justice, an ethic of caring, and commitment to the communities it serves.

Faculty members and students of GSE&IS combine a passion and skill for cutting-edge research with an appreciation for its application in the widely diverse cultures and communities in which it exists. These communities serve as fertile training ground for students in all programs, through internships, research projects, summer placements, and teaching opportunities.

GSE&IS is committed to the highest quality professional education and to the application of research and scholarship to the challenges facing a diverse and increasingly urbanized world.

DEPARTMENTS AND PROGRAMS

The school consists of two departments—the Department of Education and the Department of Information Studies. Both have a clear and strong commitment to the pursuit of excellence in their research-oriented and professional degree programs.

Research-oriented master's and doctoral programs prepare top scholars in their respective fields, while future librarians, archivists, and information professionals, teachers, student affairs practitioners, school administrators, and superintendents are prepared in the various master's and doctoral professional degree programs. Additionally, the UCLA Lab School (Corinne A. Seeds campus) and the UCLA Community School provide an innovative educational program for students PreK-6 and K-12, respectively.

DEGREES

The school offers the following degrees, in addition to an undergraduate minor in Education Studies:
Education (MA, MEd, EdD, PhD)

The Graduate School of Education and Information Studies is committed to understanding and improving teaching and learning, educational practice, information policy, and information systems in a diverse society.

Educational Administration (Joint EdD with UC Irvine)
 Information Studies (PhD)
 Library and Information Science (MLIS, accredited by American Library Association)
 Special Education (Joint PhD with California State University, Los Angeles)

Credential Programs

The school offers two credential programs that are accredited by the California Commission on Teacher Credentialing:

Preliminary Administrative Services Credential
 Teacher Credential

Articulated Degree Programs

The school offers two articulated degree programs:

Education MEd/Latin American Studies MA
 Library and Information Science MLIS/Latin American Studies MA

Concurrent Degree Programs

The school offers two concurrent degree programs:

Education MEd, MA, EdD, or PhD/Law JD
 Library and Information Science MLIS/Management MBA

ADMISSION

Admission criteria established by the UCLA Graduate Division require a bachelor's degree from a regionally accredited institution comparable in standards and content to a bachelor's degree from the University of California. A scholastic average of B (3.0 on a 4.0 scale) or better—or its equivalent if the letter grade system is not used—is required for the last 60 semester units or last 90 quarter units of undergraduate study and in any postbaccalaureate study. Further requirements for international students are explained in the Graduate Study section. See <https://grad.ucla.edu/admissions/>.

Departments and programs in the school set additional admission requirements. See <https://gseis.ucla.edu>.

DEGREE REQUIREMENTS

Specific degree requirements vary according to the department and program. Refer to Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu>.

RESEARCH CENTERS AND INSTITUTES

The centers and institutes outlined below provide GSE&IS with valuable resources that support school programs and research. See <https://gseis.ucla.edu/research-centers/>.

BLACK MALE INSTITUTE

The Black Male Institute (BMI) is a cadre of scholars, practitioners, community members, and policymakers

dedicated to improving the educational experiences and life chances of black males. Educational settings are considered to be critical spaces for developing informed action to address black male persistence in schooling, recognizing that the challenges that impact the academic success of black males are manifold, be they economic, social, legal, or health-related. See <http://blackmaleinstitute.org>.

CENTER FOR IMPROVING CHILD CARE QUALITY

The Center for Improving Child Care Quality (CICCQ) conducts high-quality, policy-relevant research, with focus on improving the early care and education environments of young children. Utilizing expertise in the areas of child development, professional development, child care quality, attachment, and observational and survey research methodology, CICCQ conducts basic, applied, and policy-driven research at the local, state, and national levels. CICCQ takes a collaborative approach to the evaluation process, building relationships with community partners to inform research, practice, and professional development. See <https://ciccq.gseis.ucla.edu>.

CENTER FOR INFORMATION AS EVIDENCE

The Center for Information as Evidence (CIE) serves as an interdisciplinary forum to address the ways in which information objects and systems are created, used, and preserved as legal, administrative, scientific, social, cultural, and historical evidence. CIE is committed to incorporating perspectives from ethnic communities around the world to sustain the diversity within indigenous cultural heritages and broaden methods of information analysis and conservation. See <https://cie.gseis.ucla.edu>.

CENTER FOR INTERNATIONAL AND DEVELOPMENT EDUCATION

The Center for International and Development Education (CIDE) is a research and action center whose mission is to enhance educational capacity, facilitate human and economic development, and promote cross-cultural exchanges related to international and development education. This is accomplished through a series of publications, research programs, practical initiatives, and networks with existing development and academic institutions. See <http://www.cideucla.org>.

CENTER FOR RESEARCH AND INNOVATION IN ELEMENTARY EDUCATION

The Center for Research and Innovation in Elementary Education (CONNECT) links nationally recognized researchers with teachers and administrators at UCLA Lab School and public schools in Southern California to investigate central issues in education. Programs examine children's learning and development from preschool to sixth grade; investigate teaching diverse student populations; encourage exchange of ideas among scholars, practitioners, and policymakers concerned with child development and school reform; and disseminate effective educational approaches and research. See <http://www.connect.gseis.ucla.edu>.

CENTER FOR STUDY OF EVALUATION/ NATIONAL CENTER FOR RESEARCH ON EVALUATION, STANDARDS, AND STUDENT TESTING

The Center for Study of Evaluation (CSE)/National Center for Research on Evaluation, Standards, and Student Testing (CRESST) is devoted to educational research, development, training, and dissemination. CSE/CRESST provides leadership to the field in these areas by creating new methodologies for evaluating educational quality, creating new designs for assessing student learning, promoting the sound use of assessment data, setting the national research agenda, and influencing practice. See <http://www.cse.ucla.edu>.

CENTER X

Center X provides a unique setting where researchers and practitioners collaborate to design and conduct programs that prepare and support K-12 education professionals committed to social justice, instructional excellence, the integration of research and practice, and caring in low-income urban schools. See <https://centerx.gseis.ucla.edu>.

CIVIL RIGHTS PROJECT/PROYECTO DERECHOS CIVILES

The Civil Rights Project/Proyecto Derechos Civiles (CRP) is a research center dedicated to creating a new generation of research in social sciences and law on the critical issues of civil rights and equal opportunity for racial and ethnic groups in the U.S. It has commissioned more than 400 studies, published 14 books, been cited in major Supreme Court decisions on affirmative action, and issued numerous reports from authors at universities and research centers across the country. See <https://civilrightsproject.ucla.edu>.

DIGITAL CULTURES LABORATORY

The Digital Cultures Laboratory (DCL) offers a unique, people-focused analysis of new technologies as they spread across the world. Faculty members and students examine and discuss the means by which new media technologies impact economics, cultures, politics, labor, and the environment through our collaborations with global partners. They share their insights through digital platforms, monthly blog-posts, interviews, consultancies, and collaborative research projects. See <http://digitalcultures.net>.

HIGHER EDUCATION RESEARCH INSTITUTE

The Higher Education Research Institute (HERI) conducts research, evaluation, information, policy studies, and research training in postsecondary education. HERI's research program includes the outcomes of postsecondary education, leadership development, institutional transformation, faculty performance, federal and state policy, and educational equity, and houses the Cooperative Institutional Research Program (CIRP), the largest ongoing national study of college students in the U.S. See <http://heri.ucla.edu/index.php>.

INSTITUTE FOR DEMOCRACY, EDUCATION, AND ACCESS

The Institute for Democracy, Education, and Access (IDEA) seeks to understand and challenge pervasive racial and social class inequalities in education. In

addition to conducting research and policy analysis, IDEA supports educators, public officials, advocates, community activists, and young people as they design, conduct, and use research to make high-quality public schools and successful college participation routine occurrences in all communities. IDEA also studies how research combines with strategic communications and public engagement to promote widespread participation in civic life. See <https://idea.gseis.ucla.edu>.

INSTITUTE FOR IMMIGRATION, GLOBALIZATION, AND EDUCATION

The Institute for Immigration, Globalization, and Education (IGE) conducts multidisciplinary and comparative research engaging policymakers, practitioners, and institutional leaders. The research serves to inform efforts to expand opportunities, reduce barriers, and improve the wellbeing of diverse, vulnerable, and marginalized students. The work is timely in the context of globalization, which is profoundly changing the developmental contexts, educational trajectories, and life courses of children, adolescents, and young adults. See <http://ige.gseis.ucla.edu>.

PAULO FREIRE INSTITUTE

The Paulo Freire Institute (PFI) seeks to gather scholars and critics of Freire's pedagogy in permanent dialog to foster the advancement of new pedagogical theories and concrete interventions in the real world. PFI brings together research, teaching, and technology while concentrating on five major areas: studies of globalization and education, teacher education, a comparative perspective on Latin American education, the politics of education, and Paulo Freire's political philosophy and critical pedagogy. See <http://www.paulofreireinstitute.org>.

SUDIKOFF FAMILY INSTITUTE FOR EDUCATION AND NEW MEDIA

The Sudikoff Family Institute for Education and New Media utilizes the popular press and other media to disseminate the work of GSE&IS scholars to policymakers, educators, and the general public. Sudikoff Fellows are selected each year from GSE&IS faculty members to enhance awareness of critical issues related to education and information studies by contributing to a variety of media that reach a lay audience, or serve the public interest in some manner. See <https://sudikoff.gseis.ucla.edu>.

HENRY SAMUELI SCHOOL OF ENGINEERING AND APPLIED SCIENCE

Jayathi Y. Murthy, Dean

UCLA
6426 Boelter Hall
Box 951601
Los Angeles, CA 90095-1601
310-825-2826
<http://engineering.ucla.edu>

The Henry Samueli School of Engineering and Applied Science (HSSEAS) at UCLA, founded in 1945, is committed to providing a rigorous hands-on engineering education to undergraduate and graduate students. Recognized nationally and internationally as a top engineering program, UCLA Engineering is the birthplace of the Internet and has developed breakthrough technologies in wireless communication, solar energy, clean water, and much more. As part of a great public University, the school is committed to a core mission of teaching, research, and service.

UCLA Engineering supports dynamic programs in traditional and new disciplines and pursues cutting-edge research in areas such as advanced healthcare technologies, new materials, next-generation communications and memory devices, software, computer analytics, and cybersecurity, robotics, technologies and systems for the aerospace industry and space exploration, renewable energy, and sustainable and resilient infrastructure systems. Partnerships across campus reflect the school's commitment to a wide range of interdisciplinary activities.

Students receive their education through lectures, hands-on experience in laboratories, and solving real-world problems. The undergraduate degree curriculum provides exposure to the humanities, social sciences, life sciences, and the arts. It also includes a technical breadth requirement, designed to provide students with working knowledge of a technical field outside their major. The school emphasizes that engineers must uphold high ethical standards in creating and managing technology and is committed to training engineers from diverse backgrounds. Opportunities exist for students to gain exposure to entrepreneurship and commercialization of technologies. Undergraduate students are encouraged to participate in industrial internships and academic research. Students are committed to a high standard of achievement and service to society, consistent with the mission of the school and the University.

DEPARTMENTS AND PROGRAMS

The Henry Samueli School of Engineering and Applied Science has seven departments offering study in aerospace engineering, bioengineering, chemical engineering, civil engineering, computer science, computer science and engineering, electrical engineering, manufacturing engineering (MS only), materials engineering, and mechanical engineering. Undergraduate programs in aerospace engineering, bioengineering, chemical engineering, civil engineering, computer science and engineering, electrical engineering, materials engineering, and mechanical engineering are accredited by the Engineering Accreditation Commission of ABET (see <http://www.abet.org>). The computer science and computer science and engineering programs are accredited by the Computing Accreditation Commission of ABET (see <http://www.abet.org>).

For specific programs, see the department information in the Curricula and Courses section or refer to the school *Announcement* available from the Office of Academic and Student Affairs, 6426 Boelter Hall.

DEGREES

The school offers the following degrees, in addition to undergraduate minors in Bioinformatics and in Environmental Engineering:

Aerospace Engineering (BS, MS, PhD)

Bioengineering (BS, MS, PhD)
Chemical Engineering (BS, MS, PhD)
Civil Engineering (BS, MS, PhD)
Computer Science (BS, MS, PhD)
Computer Science and Engineering (BS)
Electrical Engineering (BS, MS, PhD)
Engineering (MEngr, online MS, Engr)
Engineering—Aerospace (online MS)
Engineering—Computer Networking (online MS)
Engineering—Electrical (online MS)
Engineering—Electronic Materials (online MS)
Engineering—Integrated Circuits (online MS)
Engineering—Manufacturing and Design (online MS)
Engineering—Materials Science (online MS)
Engineering—Mechanical (online MS)
Engineering—Signal Processing and Communications (online MS)
Engineering—Structural Materials (online MS)
Engineering and Applied Science (Graduate Certificate of Specialization)
Manufacturing Engineering (MS)
Materials Engineering (BS)
Materials Science and Engineering (MS, PhD)
Mechanical Engineering (BS, MS, PhD)

Concurrent Degree Program

The school offers one concurrent degree program: Computer Science MS/Management MBA

UNDERGRADUATE ADMISSION

Applicants for admission to the school must satisfy the University admission requirements as outlined in the Undergraduate Study section. Students must apply directly to HSSEAS by selecting one of the majors within the school or the undeclared engineering option. In the selection process many elements are considered, including grades, test scores, and academic preparation. Applicants are accepted at either the freshman or junior level.

ADMISSION AS A FRESHMAN

Freshman applicants must satisfy the examination requirement described in the Undergraduate Study section and should take required tests by the December test date, since scores are part of the review process. Instruct the testing agencies to send results directly to Undergraduate Admission.

Applicants must submit scores from an approved core test of mathematics, language arts, and writing. This requirement may be satisfied by taking either the ACT with Writing tests, the SAT Reasoning Test (last administered January 2016), or the SAT with Essay test. Applicants to the school are strongly encouraged to also take the following SAT Subject Tests: Mathematics Level 2 and a laboratory science test (Biology E/M, Chemistry,

**HENRY SAMUELI
SCHOOL OF
ENGINEERING AND
APPLIED SCIENCE**

With strong programs in traditional engineering, the Henry Samueli School of Engineering and Applied Science also advances research in the evolving fields of biomedical engineering, wireless communications and networking, and micromachines.



or Physics) that is closely related to the intended major. Freshman applicants must meet the University subject, scholarship, and examination requirements described at <http://www.admission.ucla.edu>.

Credit for Advanced Placement Examinations. Students may fulfill part of the school requirements with credit allowed at the time of admission for College Board Advanced Placement (AP) Examinations with scores of 3, 4, or 5. Students with AP Examination credit may exceed the 213-unit maximum by the amount of this credit. AP Examination credit for freshmen entering in fall quarter 2016 fulfills HSSEAS requirements as indicated on the school AP table at <http://www.admission.ucla.edu/prospect/APCreditEN.htm>.

Students who have completed 36 quarter units after high school graduation at the time of the examination receive no AP Examination credit.

ADMISSION AS A JUNIOR

Students who begin their college work at a California community college are expected to remain at the community college to complete the lower division requirements in chemistry, computer programming, English composition, mathematics, physics, and the recommended engineering courses before transferring to UCLA. Transfer students who have completed the recommended lower division program in engineering at California community colleges normally can complete the remaining requirements for one of the BS degrees in two to three academic years of full-time study. Students who select certain majors, such as Computer Science and Engineering or Chemical Engineering, may be required to complete additional lower division courses for the major sequence.

Lower Division Requirements

Applicants to the school in junior standing should have completed 90 quarter units (60 semester units) in good standing, including the following lower division minimum subject requirements:

1. Chemistry courses equivalent to Chemistry and Biochemistry 20A, 20B, 20L at UCLA (only Chemistry and Biochemistry 20A is required for the Electrical Engineering major; the Bioengineering and Chemical Engineering curricula also require Chemistry and Biochemistry 30A, 30AL, 30B). The Computer Science and Computer Science and Engineering majors do not require chemistry
2. Mathematics courses equivalent to Mathematics 31A, 31B, 32A, 32B, 33A, 33B at UCLA
3. Physics courses equivalent to Physics 1A, 1B, 1C, 4AL, 4BL at UCLA, depending on curriculum selected
4. Computer programming: applicants to the Computer Science, Computer Science and Engineering, and Electrical Engineering majors may take any C++, C, or Java course to meet the admission requirement, but to be competitive the applicant must take a C++ course equivalent to Computer Science 31 at UCLA. Applicants to Chemical Engineering may take any C++, C, Java, or MATLAB course to satisfy the admission requirement, but lack of a MATLAB course equivalent to Mechanical and Aerospace Engineering M20 or Civil and Environmental Engi-

neering M20 at UCLA will delay time to graduation. Applicants to all other engineering majors may take any C++, C, Java, or MATLAB course to satisfy the admission requirement, but the MATLAB course equivalent to Mechanical and Aerospace Engineering M20 or Civil and Environmental Engineering M20 is preferred

5. Additional life sciences (4 units), English composition (5 units), and humanities/social sciences courses (total of 16 quarter units minimum) equivalent to HSSEAS general education (GE) courses

Transfer students must also complete a course equivalent to English Composition 3 at UCLA and a second UC-transferable English composition course.

All lower division requirements should be completed by the end of the spring term prior to anticipated enrollment at UCLA.

Transfer Credit

Students transferring to the school from institutions that offer instruction in engineering subjects in the first two years, particularly California community colleges, may be given credit for certain engineering core requirements.

Many sophomore courses in circuit analysis, strength of materials, and properties of materials may satisfy Civil and Environmental Engineering 108, Electrical Engineering 100, and Materials Science and Engineering 104 requirements respectively. Check with the Office of Academic and Student Affairs.

UNDERGRADUATE DEGREE REQUIREMENTS

Henry Samueli School of Engineering and Applied Science students must meet three types of requirements for the Bachelor of Science degree:

1. University requirements
2. School requirements
3. Department requirements

UNIVERSITY REQUIREMENTS

The University of California has two requirements that undergraduate students must satisfy in order to graduate: (1) Entry-Level Writing or English as a Second Language and (2) American History and Institutions. See Degree Requirements in the Undergraduate Study section for details.

SCHOOL REQUIREMENTS

The Henry Samueli School of Engineering and Applied Science has seven requirements that must be satisfied for the award of the degree: unit, scholarship, academic residence, writing, technical breadth, ethics, and general education.

UNIT REQUIREMENT

The minimum units allowed for HSSEAS students is between 180 and 185, depending on the program. The maximum allowed is 213 units.

After 213 quarter units, enrollment may not normally be continued in the school without special permission

from the associate dean. This regulation does not apply to Departmental Scholars.

SCHOLARSHIP REQUIREMENT

Students must earn at least a C (2.0) grade-point average in all courses taken at any UC campus. In addition, at least a 2.0 grade-point average must be achieved in total upper division required courses and total upper division engineering courses. See a counselor in 6426 Boelter Hall for details.

ACADEMIC RESIDENCE REQUIREMENT

Of the last 48 units completed for the BS degree, 36 must be earned in residence in HSSEAS on this campus. No more than 16 of the 36 units may be completed in summer sessions at UCLA.

WRITING REQUIREMENT

Students must complete the University Entry-Level Writing or English as a Second Language (ESL) requirement prior to completing the school writing requirement.

Students admitted to the school are required to complete a two-term writing requirement—Writing I and engineering writing. Both courses must be taken for letter grades, and students must receive grades of C or better (C– grades are not acceptable).

Writing I. The Writing I requirement must be satisfied by completing English Composition 3 or 3SL with a grade of C or better (C– or a Passed grade is not acceptable) by the end of the second year of enrollment.

The Writing I requirement may also be satisfied by (1) scoring 4 or 5 on one of the College Board Advanced Placement Examinations in English, (2) a combination of a score of 720 or better on the SAT Reasoning Test, Writing and superior performance on the English Composition 3 Proficiency Examination, (3) completing a course equivalent to English Composition 3 with a grade of C or better (C– or a Passed grade is not acceptable) taken at another institution, or (4) scoring 5, 6, or 7 on an International Baccalaureate Higher Level Examination.

Students whose native language is not English may need to take English Composition 1A, 1B, and 2I before enrolling in a Writing I course. All courses in the sequence must be passed with a grade of C or better (C– or a Passed grade is not acceptable).

Engineering Writing. The engineering writing requirement is satisfied by selecting one approved engineering writing (EW) course from the HSSEAS writing course list or by selecting one approved Writing II (W) course. The course must be completed with a grade of C or better (C– or a Passed grade is not acceptable). Writing courses are listed in the Schedule of Classes at <https://sa.ucla.edu/ro/public/soc>.

Writing courses also approved for general education credit may be applied toward the relevant general education foundational area.

TECHNICAL BREADTH REQUIREMENT

The technical breadth requirement consists of a set of three courses providing sufficient breadth outside the student's core program. A list of HSSEAS Faculty Executive Committee-approved technical breadth requirement courses is available in the Office of Academic and Student Affairs, and deviations from that

list are subject to approval by the associate dean for Academic and Student Affairs. None of the technical breadth requirement courses selected by students can be used to satisfy other major course requirements.

ETHICS REQUIREMENT

The ethics and professionalism requirement is satisfied by completing one course from Engineering 183EW or 185EW with a grade of C or better (C– or a Passed grade is not acceptable). The course may be applied toward the engineering writing requirement.

GENERAL EDUCATION REQUIREMENTS

General education (GE) is more than a checklist of required courses. It is a program of study that (1) reveals to students the ways that research scholars in the arts, humanities, social sciences, and natural sciences create and evaluate new knowledge, (2) introduces students to the important ideas and themes of human cultures, (3) fosters appreciation for the many perspectives and the diverse voices that may be heard in a democratic society, and (4) develops the intellectual skills that give students the dexterity they need to function in a rapidly changing world.

This entails the ability to make critical and logical assessments of information, both traditional and digital; deliver reasoned and persuasive arguments; and identify, acquire, and use the knowledge necessary to solve problems.

Students may take one GE course per term on a Passed/Not Passed basis if they are in good academic standing and are enrolled in at least three and one-half courses (14 units) for the term. For details on P/NP grading, see Grading in the Academic Policies section or consult the Office of Academic and Student Affairs.

GE courses used to satisfy the engineering writing and/or ethics requirements must be taken for a letter grade.

Henry Samueli School of Engineering and Applied Science Structure of a Degree

University Requirements

1. Entry-Level Writing or English as a Second Language
2. American History and Institutions

School Requirements

1. Unit
2. Scholarship
3. Academic Residence
4. Writing Requirement
 - Writing I
 - Engineering Writing
5. Technical Breadth
6. Ethics Requirement
7. General Education
 - Foundations of Arts and Humanities
 - Foundations of Society and Culture
 - Foundations of Scientific Inquiry

Department Requirements

1. Preparation for the Major
2. The Major

Courses that do not satisfy specific University, school, or department requirements are referred to as electives and can be used to meet the minimum unit requirement for graduation.

FOUNDATIONS OF KNOWLEDGE

General education courses are grouped into three foundational areas: Foundations of the Arts and Humanities, Foundations of Society and Culture, and Foundations of Scientific Inquiry.

Five courses (24 units minimum) are required. Engineering writing requirement courses also approved for GE credit may be applied toward the relevant GE foundational areas.

Students must meet with a counselor in the Office of Academic and Student Affairs to determine the applicability of GE Cluster courses toward the engineering writing or GE requirements.

Courses listed in more than one category can fulfill GE requirements in only one of the cross-listed categories.

Foundations of the Arts and Humanities. Two 5-unit courses selected from two different subgroups:

Literary and Cultural Analysis

Philosophical and Linguistic Analysis

Visual and Performance Arts Analysis and Practice

The aim of courses in this area is to provide perspectives and intellectual skills necessary to comprehend and think critically about our situation in the world as human beings. In particular, the courses provide the basic means to appreciate and evaluate the ongoing efforts of humans to explain, translate, and transform their diverse experiences of the world through such media as language, literature, philosophical systems, images, sounds, and performances. The courses introduce students to the historical development and fundamental intellectual and ethical issues associated with the arts and humanities and may also investigate the complex relations between artistic and humanistic expression and other facets of society and culture.

Foundations of Society and Culture. Two 5-unit courses, one from each subgroup:

Historical Analysis

Social Analysis

The aim of courses in this area is to introduce students to the ways in which humans organize, structure, ratio-

nalize, and govern their diverse societies and cultures over time. The courses focus on a particular historical question, societal problem, or topic of political and economic concern in an effort to demonstrate how issues are objectified for study, how data is collected and analyzed, and how new understandings of social phenomena are achieved and evaluated.

Foundations of Scientific Inquiry. One course (4 units minimum) from the Life Sciences subgroup or one course from Bioengineering CM145/Chemical Engineering CM145, Chemistry and Biochemistry 153A, or Civil and Environmental Engineering M166/Environmental Health Sciences M166:

Life Sciences

This requirement is automatically satisfied for Bioengineering and Chemical Engineering majors. The requirement is satisfied for Civil Engineering majors by the natural science requirement.

The aim of courses in this area is to ensure that students gain a fundamental understanding of how scientists formulate and answer questions about the operation of both the physical and biological world. The courses also deal with some of the most important issues, developments, and methodologies in contemporary science, addressing such topics as the origin of the universe, environmental degradation, and the decoding of the human genome. Through lectures, laboratory experiences, writing, and intensive discussions, students consider the important roles played by the laws of physics and chemistry in society, biology, Earth and environmental sciences, and astrophysics and cosmology.

Foundations Course Lists. Creating and maintaining a general education curriculum is a dynamic process; consequently, courses are frequently added to the list. For the most current list of approved courses that satisfy the Foundations of Knowledge GE plan, consult an academic counselor or see <http://www.registrar.ucla.edu/Academics/GE-Requirement>.

INTERSEGMENTAL GENERAL EDUCATION TRANSFER CURRICULUM

Transfer students from California community colleges have the option to fulfill UCLA lower division GE requirements by completing the Intersegmental General Education Transfer Curriculum (IGETC) prior to transfer. The curriculum consists of a series of subject areas and types of courses which have been agreed on by the University of California and the California community colleges. Although GE or transfer core courses are degree requirements rather than admission requirements, students are advised to fulfill them prior to transfer. The IGETC significantly eases the transfer process, as all UCLA GE requirements are fulfilled when students complete the IGETC courses. Students who select the IGETC must complete it entirely before enrolling at UCLA. Otherwise, they must fulfill the Henry Samueli School of Engineering and Applied Science GE requirements. The school does not accept partial IGETC.

DEPARTMENT REQUIREMENTS

Henry Samueli School of Engineering and Applied Science departments generally set two types of requirements that must be satisfied for the award of the degree: (1) Preparation for the Major (lower division courses) and (2) the Major (upper division courses).

Henry Samueli School of Engineering and Applied Science General Education Requirements

Foundations of the Arts and Humanities

Literary and Cultural Analysis

Philosophical and Linguistic Analysis

Visual and Performance Arts Analysis

and Practice 2 Courses

Each course must be from a different subgroup.

Total = 10 units minimum

Foundations of Society and Culture

Historical Analysis 1 Course

Social Analysis 1 Course

Total = 10 units minimum

Foundations of Scientific Inquiry

Life Sciences 1 Course

Total = 4 units minimum

Total GE 5 Courses/24 Units Minimum

Engineering writing requirement courses also approved for GE credit may be applied toward the relevant GE foundational areas.

Preparation for the Major courses should be completed before beginning upper division work.

PREPARATION FOR THE MAJOR

A major requires completion of a set of courses known as Preparation for the Major. Each department sets its own Preparation for the Major requirements; see the Curricula and Courses section of this catalog.

THE MAJOR

Students must complete their major with a scholarship average of at least a 2.0 (C) in all courses in order to remain in the major. Each course in the major department must be taken for a letter grade. See the Curricula and Courses section of this catalog for details on each major.

POLICIES AND REGULATIONS

Degree requirements are subject to policies and regulations, including the following:

STUDENT RESPONSIBILITY

Students should take advantage of academic support resources, but they are ultimately responsible for keeping informed of and complying with the rules, regulations, and policies affecting their academic standing.

STUDY LIST

The study list is a record of classes that a student is taking for a particular term. It is the student's responsibility to present a study list that reflects satisfactory progress toward the degree. Study lists or programs of study that do not comply with the standards set by the faculty may result in enforced withdrawal from the University or other academic action. Study lists require approval of the dean of the school or a designated representative.

Undergraduate students in the school are expected to enroll in at least 12 units each term. Students enrolling in less than 12 units must obtain approval by petition to the dean prior to enrollment in courses. The normal program is 16 units per term. Students may not enroll in more than 21 units per term unless an Excess Unit Petition is approved in advance by the dean.

MINIMUM PROGRESS

Full-time HSSEAS undergraduate students must complete a minimum of 36 units in three consecutive terms in which they are registered.

CREDIT LIMITATIONS

The following credit limitations apply to all undergraduate students enrolled in the school:

Advanced Placement Examinations. Some portions of Advanced Placement (AP) Examination credit are evaluated by corresponding UCLA course number. If students take the equivalent UCLA course, a deduction of UCLA unit credit is made prior to graduation. See the HSSEAS AP table at <http://www.admission.ucla.edu/prospect/APCreditEN.htm>.

College Level Examination Program. Credit earned through the College Level Examination Program (CLEP) may not be applied toward the bachelor's degree.

Community College Unit Limit. After students have completed 105 quarter units (regardless of where the units are completed), they do not receive unit credit or subject credit for courses completed at a community college.

Foreign Language. No credit is granted toward the bachelor's degree for college foreign language courses equivalent to quarter levels one and two if the equivalent of level two of the same language was completed with satisfactory grades in high school.

REPETITION OF COURSES

For undergraduate students who repeat a total of 16 units or less, only the most recently earned letter grades and grade points are computed in the grade-point average (GPA). After repeating 16 units, the GPA is based on all letter grades assigned and total units attempted. The grade assigned each time a course is taken is permanently recorded on the transcript.

1. To improve the grade-point average (GPA), students may repeat only those courses in which they receive a grade of C- or lower; NP or U grades may be repeated to gain unit credit. Courses in which a letter grade is received may not be repeated on a P/NP or S/U basis. Courses originally taken on a P/NP or S/U basis may be repeated on the same basis or for a letter grade.
2. Repetition of a course more than once requires the approval of the College or school or the dean of the Graduate Division and is granted only under extraordinary circumstances.
3. Degree credit for a course is given only once, but the grade assigned each time the course is taken is permanently recorded on the transcript.
4. There is no guarantee that in a later term a course can be repeated (such as in cases when a course is deleted or no longer offered). In these cases students should consult with their academic counselor to determine if there is an alternate course that can be taken to satisfy a requirement. The alternate course would NOT count as a repeat of the original course.

MINORS AND DOUBLE MAJORS

HSSEAS students in good academic standing may be permitted a minor or double major. The minor or second major must be outside the school (e.g., Electrical Engineering major and Economics major). HSSEAS students are not permitted to double major with two school majors (e.g., Chemical Engineering and Civil Engineering). Students may file an Undergraduate Request to Double Major or Add Minor form at the Office of Academic and Student Affairs. The school determines final approval of a minor or double major request; review is done on a case by case basis, and filing the request does NOT guarantee approval.

While HSSEAS considers minor or double major requests, specializations are not considered at this time. Students interested in a minor or double major should meet with their counselor in 6426 Boelter Hall.

COUNSELING SERVICES

New undergraduate students must have their course of study approved by an academic counselor. After the first term, curricular and career advising is accomplished on a formal basis. Students are assigned a

faculty adviser in their particular specialization in their freshman year.

In addition, undergraduate students are assigned, by major, to an academic counselor in the Office of Academic and Student Affairs who provides them with advice regarding general requirements for the degrees and University and school regulations and procedures. It is the students' responsibility to periodically meet with their academic counselor in the Office of Academic and Student Affairs, as well as with their faculty adviser, to discuss curriculum requirements, programs of study, and any other academic matters of concern.

Students normally follow the curriculum in effect when they enter the school. California community college transfer students may also select the curriculum in the catalog in effect at the time they began their community college work in an engineering program, providing attendance has been continuous since that time.

Students admitted to UCLA in fall quarter 2012 and thereafter use the Degree Audit system, which can be accessed through MyUCLA at <http://my.ucla.edu>. Students should contact their academic counselor in 6426 Boelter Hall with any questions.

Students following the 2005-06 through 2011-12 catalog years use the program called Degree Audit Reporting System (DARS) and should contact their academic counselor in 6426 Boelter Hall with any questions. See <http://www.seasoasa.ucla.edu/dars/>.

Undergraduate students following a catalog year prior to 2005-06 and beginning their upper division major field coursework are advised to meet with their academic counselor in 6426 Boelter Hall to review their degree requirements.

Academic counselors in the Office of Academic and Student Affairs assist students with University procedures and answer questions related to general requirements.

HONORS

HSSEAS undergraduate students who achieve scholastic distinction may qualify for the following honors and programs:

DEAN'S HONORS LIST

Students following the engineering curricula are eligible to be named to the Dean's Honors List each term. Minimum requirements are a course load of at least 15 units (12 units of letter grade) with a grade-point average equal to or greater than 3.7. Students are not eligible for the Dean's Honors List if they receive an Incomplete (I) or Not Passed (NP) grade or repeat a course. Only courses applicable to an undergraduate degree are considered toward eligibility for Dean's Honors.

LATIN HONORS

Students who have achieved scholastic distinction may be awarded the bachelor's degree with honors. To be eligible, students must have completed 90 or more units for a letter grade at the University of California and must have attained a cumulative grade-point average at graduation which places them in the top five percent of the school (GPA of 3.884 or better) for *summa cum laude*, next five percent (GPA of 3.802 or better) for *magna cum laude*, and the next 10 percent (GPA of 3.642 or better) for *cum laude*. The minimum GPAs required are subject to change on an annual

basis. Required GPAs in effect in the graduating year determine student eligibility.

Based on grades achieved in upper division courses, engineering students must have a 3.884 grade-point average for *summa cum laude*, a 3.802 for *magna cum laude*, and a 3.642 for *cum laude*. For all designations of honors, students must have a minimum 3.25 GPA in their major field upper division courses.

TAU BETA PI

The UCLA chapter of Tau Beta Pi, the national engineering honor society, encourages high scholarship, provides volunteer tutors, and offers many services and programs to foster a spirit of liberal culture in engineering colleges. See <https://tbp.seas.ucla.edu>.

DEPARTMENTAL SCHOLAR PROGRAM

Exceptionally promising juniors or seniors may be nominated as Departmental Scholars to pursue engineering bachelor's and master's degree programs simultaneously. Minimum qualifications include the completion of 24 courses (96 quarter units) at UCLA, or the equivalent at a similar institution, the current minimum grade-point average required for honors at graduation, and the requirements in preparation for the major. To obtain both the bachelor's and master's degrees, Departmental Scholars fulfill the requirements for each program. Students may not use any one course to fulfill requirements for both degrees.

For details, consult the Office of Academic and Student Affairs in 6426 Boelter Hall well in advance of application dates for admission to graduate standing.

SPECIAL PROGRAMS

EXTRACURRICULAR ACTIVITIES

Students are encouraged to participate in UCLA extracurricular activities, especially those relevant to engineering, such as the student engineering society (the Engineering Society, University of California), student publications, and programs of the technical and professional engineering societies in the Los Angeles area.

The student body takes an active part in shaping policies of the school through elected student representatives on the school's Faculty Executive Committee.

WOMEN IN ENGINEERING

Among HSSEAS students, women make up approximately 23 percent of the undergraduate and graduate enrollment. Today's opportunities for women in engineering are excellent, as both employers and educators try to change the image of engineering as a males only field. Women engineers are in great demand in all fields of engineering.

The Society of Women Engineers (SWE), recognizing that women in engineering are still a minority, has established a UCLA student chapter that sponsors field trips and engineering-related speakers (often professional women) to introduce the various options available to women engineers. The UCLA chapter of SWE, in conjunction with other Los Angeles schools, also publishes an annual résumé book to aid women students in finding jobs and presents a career day for women high school students. See <http://www.seas.ucla.edu/swe/>.

CONTINUING EDUCATION

Continuing education in engineering is developed and administered by the UCLA Extension (UNEX) Department of Engineering and Technology in close cooperation with HSSEAS. The department offers evening classes, short courses, certificate programs, special events, and education and training at the workplace. The office (542 UNEX, 10995 Le Conte Avenue) is open Monday through Friday. Call 310-825-4100 for information systems and engineering programs, 310-825-3344 for short course programs, 310-206-7260 for technical management classes, and 310-825-3858 for the Technical Management Program. See <http://engineering.uclaextension.edu>.

GRADUATE ADMISSION

In addition to meeting the requirements of the Graduate Division, applicants to the HSSEAS graduate programs are required to take the General Test of the Graduate Record Examination (GRE). Specific information about the GRE may be obtained from the department of interest.

Students entering the Engineer/PhD program normally are expected to have completed the requirements for the master's degree with at least a 3.25 grade-point average and to have demonstrated creative ability. Normally the MS degree is required for admission to the PhD program. Exceptional students, however, can be admitted to the PhD program without having an MS degree.

For information on the proficiency in English requirements for international graduate students, see Graduate Admission in the Graduate Study section of this catalog.

To submit a graduate application, see <http://www.seas.osa.ucla.edu/graduate-admissions-2/>. From there connect to the site of the preferred department or program and go to the online graduate application.

GRADUATE DEGREE REQUIREMENTS

Graduate degree information is updated annually in Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu>.

MASTER OF SCIENCE DEGREES

No lower division courses may be applied toward graduate degrees. In addition, the various departments generally do not allow, for graduate degree credit, courses required of their undergraduate students. Consult the departmental graduate affairs office for more information.

Individual departments within the school may impose certain restrictions on the applicability of other undergraduate courses toward graduate degrees. Consult with the graduate adviser on departmental requirements and restrictions.

Major Fields or Subdisciplines

The MS program focuses on one major field. The major fields and subdisciplines offered at the MS level in most cases parallel those listed below for the PhD program. There are some differences (for example, manufacturing engineering in the Department of

Mechanical and Aerospace Engineering is offered only at the MS level). Contact the department concerned regarding possible differences between the MS and PhD fields and subdisciplines. Students are free to propose to the school any other field of study, with the support of their adviser.

Course Requirements

A total of nine courses is required for the MS degrees, including a minimum of five graduate courses. (Some fields require more than five; obtain specific information from the department of interest.) A majority of the total formal course requirement and of the graduate course requirement must consist of courses in HSSEAS. In the thesis plan, seven of the nine courses must be formal courses, including at least four from the 200 series. The remaining two courses may be 598 courses involving work on the thesis. In the comprehensive examination plan, at least five of the nine courses must be in the 200 series; the remaining four courses may be either 200-series graduate or upper division undergraduate courses. No 500-series courses may be applied toward the comprehensive examination plan requirements.

Thesis Plan

The thesis must either describe some original piece of research that students have done, usually but not necessarily under the supervision of the thesis committee, or else provide a critical exposition of some topic in their major field of study. Students would normally start to plan the thesis at least one year before the award of the MS degree is expected. There is no examination under the thesis plan.

Comprehensive Examination Plan

For information on the comprehensive examination plan for each department, see Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu>.

CONCURRENT DEGREE PROGRAM

A concurrent degree program between HSSEAS and the Anderson Graduate School of Management allows students to earn two master's degrees simultaneously: the MBA and the MS in Computer Science. Contact the Office of Academic and Student Affairs for details.

MASTER OF SCIENCE IN ENGINEERING ONLINE DEGREE

The primary purpose of the Master of Science in Engineering online self-supporting degree program is to enable employed engineers and computer scientists to augment their technical education beyond the Bachelor of Science degree and to enhance their value to the technical organizations in which they are employed. For further information, see <http://msengrol.seas.ucla.edu>.

MASTER OF ENGINEERING DEGREE

The Master of Engineering (MEngr) degree is granted to graduates of the Engineering Executive Program, a two-year work-study program consisting of graduate-level professional courses in the management of technological enterprises. For details, write to the HSSEAS Office of Academic and Student Affairs, 6426 Boelter Hall, UCLA, Box 951601, Los Angeles, CA 90095-1601, 310-825-2514.

ENGINEER DEGREE

HSSEAS offers an Engineer (Engr) degree at a level equivalent to completion of preliminaries in the PhD program. The Engineer degree represents considerable advanced training and competence in the engineering field but does not require the research effort involved in a PhD dissertation.

Requirements for the Engineer degree are identical to those of the PhD degree up to and including the oral preliminary examination, except that the Engineer degree is based on coursework. The minimum requirement is 15 (at least nine graduate) courses beyond the bachelor's degree, with at least six courses in the major field (minimum of four graduate courses) and at least three in each minor field (minimum of two graduate courses in each).

The PhD and Engineer degree programs are administered interchangeably, so that a student in the PhD program may exit with an Engineer degree or pick up the Engineer degree en route to the PhD degree; similarly, a student in the Engineer degree program may continue to the PhD after receiving the Engineer degree. The time spent in either of the two programs may also be applied toward the minimum residence requirement and time limitation for the other program.

PHD DEGREES

The PhD programs prepare students for advanced study and research in the major areas of engineering and computer science. All candidates must fulfill the minimum requirements of the Graduate Division. Major and minor fields may have additional course and examination requirements. For further information, contact the individual departments.

Fields of Study

Established fields of study for the PhD are listed below. With the support of an adviser, students may propose any other field of study to their department. Instructions on the definition of acceptable ad hoc fields and procedures for their approval are available in each department office.

Bioengineering Department. Biomedical instrumentation; biomedical signal and image processing; biosystems science and engineering; medical imaging informatics; molecular cellular tissue therapeutics; neuroengineering

Chemical and Biomolecular Engineering Department. Chemical engineering

Civil and Environmental Engineering Department. Civil engineering materials, environmental engineering, geotechnical engineering, hydrology and water resources engineering, structures (structural mechanics and structural/earthquake engineering)

Computer Science Department. Artificial intelligence, computational systems biology, computer network systems, computer science theory, computer system architecture, graphics and vision, information and data management, software systems

Electrical Engineering Department. Circuits and embedded systems, physical and wave electronics, signals and systems

Materials Science and Engineering Department. Ceramics and ceramic processing, electronic and optical materials, structural materials

Mechanical and Aerospace Engineering Department.

Applied mathematics (established minor field only), applied plasma physics (minor field only), design, robotics, and manufacturing (DROM), dynamics, fluid mechanics, heat and mass transfer, nanoelectromechanical/microelectromechanical systems (NEMS/MEMS), structural and solid mechanics, systems and control

GRADUATE CERTIFICATE OF SPECIALIZATION

A Certificate of Specialization is available in all areas, except computer science, offered by HSSEAS.

Requirements for admission are the same as for the MS degree.

Each graduate certificate program consists of five 100- or 200-series courses, at least two of which must be at the graduate level. No work completed for any previously awarded degree or credential may be applied toward the certificate. Successful completion of a certificate program requires an overall minimum B average in all courses applicable to the certificate. In addition, graduate certificate candidates are required to maintain a minimum B average in 200-series courses used in the certificate program. A minimum of three terms of academic residence is required. The time limitation for completing the requirements of a certificate program is two calendar years. Details regarding the certificate programs may be obtained from each department office.

Courses completed in HSSEAS for a Certificate of Specialization may subsequently be applied toward master's and/or doctoral degrees.

**HERB ALPERT SCHOOL
OF MUSIC**

Judith L. Smith, Interim Dean

UCLA
2539 Schoenberg Music Building
Box 957234
Los Angeles, CA 90095-7234
310-825-4761
<http://schoolofmusic.ucla.edu>

With its three outstanding departments of Ethnomusicology, Music, and Musicology, the Herb Alpert School of Music at UCLA aspires to educate the whole student through productive collaborations between performance and scholarship, a cross-cultural global understanding of the art of music, and preparatory training for a broad range of careers in music after graduation.

The school is also home to two undergraduate minors. The Music History minor provides undergraduates with an overview of music history and the study of music. Students may select from a wide variety of undergraduate courses that range through the history of European and American music. The Music Industry minor introduces students to critical perspectives on the formative effects the music industry and music technology have on musical practices around the world.

Public concerts, lectures, symposia, master classes, and musical theater and opera productions are a hallmark

of the school. Each department hosts a calendar of events open to the entire community, enriching the lives of both those on stage and those in the audience, and contributing to the quality of life in the city and beyond.

Schoenberg Music Building includes the Jan Popper Theater (a recital hall) and Schoenberg Hall (the main concert hall), both of which are fully equipped for audio recording. The building also houses the Music Library and Ethnomusicology Archive, as well as numerous classrooms, practice rooms, an orchestra room, band room, choral room, organ studio, ethnomusicology performance rooms, Ethnomusicology Laboratory, Henry Mancini Media Laboratory, World Instrument Collection, and the Thelonius Monk Institute of Jazz Performance.

The Evelyn and Mo Ostin Music Center includes a high-technology recording studio, spaces for rehearsal and teaching, a café and social space for students, and an Internet-based music production center.

DEPARTMENTS AND PROGRAMS

Students in the Department of Ethnomusicology study the performance and context of music-making from a global perspective, including a concentration in jazz studies, and the Department of Music offers concentrations in composition, music education, and performance. The Department of Musicology provides students with a broad understanding of the history and culture of music.

Information regarding academic programs is available from the Student Services Office, 1642 Schoenberg Music Building, UCLA, Box 957234, Los Angeles, CA 90095-7234, <http://schoolofmusic.ucla.edu>, 310-206-5002.

Students interested in obtaining instructional credentials for California elementary and secondary schools should consult the Department of Education, 1009 Moore Hall, 310-825-8328.

DEGREES

The school offers the following degrees, in addition to undergraduate interdisciplinary minors in Music History and Music Industry:

Ethnomusicology (BA, MA, CPhil, PhD)

Music (BA, MA, MM, CPhil, DMA, PhD)

Music History (BA)

Musicology (MA, CPhil, PhD)

UNDERGRADUATE ADMISSION

In addition to the University of California undergraduate application, some departments in the Herb Alpert School of Music require auditions, portfolios, or evidence of creativity. Information regarding departmental requirements is available on each department website; see <http://schoolofmusic.ucla.edu> (click on Academics). The annual deadline date for applications is November 30 for admission in the following Fall Quarter. After the UC application has been filed, applicants may need to submit supplemental application material and should consult the individual department website for details.

UNDERGRADUATE DEGREE REQUIREMENTS

Herb Alpert School of Music students must meet three types of requirements for the Bachelor of Arts degree:

1. University requirements
2. School requirements
3. Department requirements

UNIVERSITY REQUIREMENTS

The University of California has two requirements that undergraduate students must satisfy in order to graduate: (1) Entry-Level Writing or English as a Second Language and (2) American History and Institutions. See Degree Requirements in the Undergraduate Study section for details.

Herb Alpert School of Music students enrolled in English Composition 1A, 1B, and 2I must take each course for a letter grade.

SCHOOL REQUIREMENTS

The Herb Alpert School of Music has eight requirements that must be satisfied for the award of the degree: unit, scholarship, academic residence, writing, quantitative reasoning, foreign language, diversity, and general education.

UNIT REQUIREMENT

Students must complete for credit, with a passing grade, no less than 180 units and no more than 216 units, of which at least 60 units must be upper division courses (numbered 100 through 199). Credit for upper division tutorials numbered 195 through 199 is limited to a maximum of 24 units total for a letter grade, 8 of which may be applied toward the major.



SCHOLARSHIP REQUIREMENT

A 2.0 (C) average is required in all work attempted at the University of California, exclusive of courses in UCLA Extension and those graded Passed/Not Passed. A 2.0 (C) average is also required in all upper division courses in the major taken at the University, as well as in all courses applied toward the general education and University requirements.

ACADEMIC RESIDENCE REQUIREMENT

Students are in residence while enrolled and attending classes at UCLA as a major in the Herb Alpert School of Music. Of the last 45 units completed for the bachelor's degree, 35 must be earned in residence in the school. No more than 18 of the 35 units may be completed in UCLA Summer Sessions.

Herb Alpert School of Music Structure of a Degree

University Requirements

1. Entry-Level Writing or English as a Second Language
2. American History and Institutions

School Requirements

1. Unit
2. Scholarship
3. Academic Residence
4. Writing Requirement
 - Writing I
 - Writing II
5. Quantitative Reasoning
6. Foreign Language
7. Diversity
8. General Education
 - Foundations of Arts and Humanities
 - Foundations of Society and Culture
 - Foundations of Scientific Inquiry

Department Requirements

1. Preparation for the Major
2. The Major

Courses that do not satisfy specific University, school, or department requirements are referred to as electives and can be used to meet the minimum unit requirement for graduation.

Courses in UCLA Extension (either class or online) may not be applied toward any part of the residence requirements.

WRITING REQUIREMENT

Students must complete the University's Entry-Level Writing or English as a Second Language (ESL) requirement prior to completing the school writing requirement.

Students admitted to the school are required to complete a two-term writing requirement—Writing I and Writing II. The courses must be taken for letter grades, and students must receive grades of C or better (C– grades are not acceptable).

Writing I. The Writing I requirement must be satisfied within the first three terms of enrollment by completing English Composition 3 or 3SL with a grade of C or better (C– or a Passed grade is not acceptable).

The Writing I requirement may also be satisfied by (1) scoring 4 or 5 on one of the College Board Advanced Placement Examinations in English, (2) a combination of a score of 720 or better on the SAT Reasoning Test, Writing and superior performance on the English Composition 3 Proficiency Examination, (3) completing a course equivalent to English Composition 3 with a grade of C or better (C– or a Passed grade is not acceptable) taken at another institution, or (4) scoring 5, 6, or 7 on an International Baccalaureate Higher Level Examination.

Students whose native language is not English may need to take English Composition 1A, 1B, and 2I before enrolling in a Writing I course. All courses in the sequence must be passed with a grade of C or better (C– or a Passed grade is not acceptable).

Writing II. The Writing II requirement must be satisfied within the first seven terms of enrollment by com-

pleting one course from a faculty-approved list of Writing II courses published at <http://www.registrar.ucla.edu/Academics/Writing-II-Requirement> and available on the student Degree Audit. The course must be completed with a grade of C or better (C– or a Passed grade is not acceptable).

Applicable Writing II courses may also be applied toward preparation for the major or minor requirements and, if approved for general education (GE) credit, may be applied toward the relevant general education foundational area.

Transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum (IGETC) will have satisfied the Writing I, Writing II, and reciprocity requirements. No transfer student is admitted to the College without completing, with a grade of C or better (C– grade is not acceptable), a college-level writing course that Undergraduate Admission accepts as equivalent to English Composition 3.

QUANTITATIVE REASONING REQUIREMENT

In the Herb Alpert School of Music, students must demonstrate basic skills in quantitative reasoning. The requirement may be satisfied by completing one approved UCLA course (see list below) for a letter grade of C or better or Passed (C– or a Not Passed grade is not acceptable).

The quantitative reasoning requirement may also be satisfied by achieving an SAT Reasoning Test Mathematics Section score of 600 or better or an SAT Subject Test in Mathematics score of 550 or better.

If approved for general education (GE) credit, applicable courses may also fulfill a GE requirement.

Approved courses include Biostatistics 100A, 100B, Life Sciences 20, 30A, Mathematics 2 (or any higher numbered course except 19, 71SL, 72SL, 89, 89HC, 98XA, 98XB, 99, 103A, 103B, 103C, 105A, 105B, 105C, 189, 189HC, 195, 197, 199), Philosophy 31, Political Science 6, 6R, Program in Computing 10A, 10B, 10C, Statistics 10, 12, 13, and former courses 11 and 14.

FOREIGN LANGUAGE REQUIREMENT

Students may meet the foreign language requirement by (1) scoring 3, 4, or 5 on the College Board Advanced Placement (AP) foreign language examination in Chinese, French, German, Italian, Japanese, or Spanish, or scoring 4 or 5 on the AP foreign language examination in Latin, (2) presenting a UCLA foreign language proficiency examination score indicating competency through level three, or (3) completing one college-level foreign language course equivalent to level three or above or American Sign Language 1, 2, and 3, or 8 at UCLA with a grade of C or Passed or better. The foreign language requirement must be completed within the first six terms of enrollment.

International students may petition to use an advanced course in their native language for this requirement. Students whose entire secondary education has been completed in a language other than English may petition to be exempt from the foreign language requirement.

Transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum (IGETC) will have satisfied the foreign language and reciprocity requirements.

DIVERSITY REQUIREMENT

The diversity requirement is predicated on the notion that students in music must be trained to understand the local, national, and global realities in which they make, understand, interpret, and teach music. Those realities include the multicultural, transnational, and global nature of contemporary society. To satisfy the requirement, students must complete one course from the faculty-approved list of diversity courses (available online, through degree audits, or in the Student Services Office). The course must be taken for a letter grade, and students must receive a grade of C or better (C- or a Passed grade is not acceptable).

Students can take a course in any of three parts of their overall program: (1) general education courses, (2) courses in the major, or (3) upper division nonmajor elective courses. As such, students are not required to complete an additional course to satisfy the diversity requirement.

GENERAL EDUCATION REQUIREMENTS

General education (GE) is more than a checklist of required courses. It is a program of study that (1) reveals to students the ways that research scholars in the arts, humanities, social sciences, and natural sciences create and evaluate new knowledge, (2) introduces students to the important ideas and themes of human cultures, (3) fosters appreciation for the many perspectives and the diverse voices that may be heard in a democratic society, and (4) develops the intellectual skills that give students the dexterity they need to function in a rapidly changing world.

This entails the ability to make critical and logical assessments of information, both traditional and digital; deliver reasoned and persuasive arguments; and identify, acquire, and use the knowledge necessary to solve problems.

FOUNDATIONS OF KNOWLEDGE

General education courses are grouped into three foundational areas: Foundations of the Arts and Humanities, Foundations of Society and Culture, and Foundations of Scientific Inquiry.

Eight courses (38 units minimum) are required. A Writing II course also approved for general education may be applied toward the relevant general education foundational area.

Students who complete a yearlong GE Cluster series fulfill the Writing II requirement and complete nearly 50 percent of their general education requirements. Students who do not complete the yearlong GE Cluster series must meet with a counselor in the Student Services Office to determine applicable GE credit.

Courses listed in more than one category can fulfill GE requirements in only one of the cross-listed categories.

Foundations of the Arts and Humanities. Three 5-unit courses, one from each subgroup. Courses required to satisfy the major or other courses taken in the major field may be used to satisfy this GE requirement:

Literary and Cultural Analysis

Philosophical and Linguistic Analysis

Visual and Performance Arts Analysis and Practice

The aim of courses in this area is to provide perspectives and intellectual skills necessary to comprehend and think critically about our situation in the world as

human beings. In particular, the courses provide the basic means to appreciate and evaluate the ongoing efforts of humans to explain, translate, and transform their diverse experiences of the world through such media as language, literature, philosophical systems, images, sounds, and performances. The courses introduce students to the historical development and fundamental intellectual and ethical issues associated with the arts and humanities and may also investigate the complex relations between artistic and humanistic expression and other facets of society and culture.

Foundations of Society and Culture. Three 5-unit courses, one from each subgroup and a third course from either subgroup:

Historical Analysis

Social Analysis

The aim of courses in this area is to introduce students to the ways in which humans organize, structure, rationalize, and govern their diverse societies and cultures over time. The courses focus on a particular historical question, societal problem, or topic of political and economic concern in an effort to demonstrate how issues are objectified for study, how data is collected and analyzed, and how new understandings of social phenomena are achieved and evaluated.

Foundations of Scientific Inquiry. Two courses from either subgroup. If both courses are selected from the same subgroup, they must be from different departments:

Life Sciences

Physical Sciences

The aim of courses in this area is to ensure that students gain a fundamental understanding of how scientists formulate and answer questions about the operation of both the physical and biological world. The courses also deal with some of the most important issues, developments, and methodologies in contemporary science, addressing such topics as the origin of the universe, environmental degradation, and the decoding of the human genome. Through lectures,

Herb Alpert School of Music General Education Requirements

Foundations of the Arts and Humanities

Literary and Cultural Analysis	1 Course
Philosophical and Linguistic Analysis	1 Course
Visual and Performance Arts Analysis	
and Practice	1 Course
Total = 15 units minimum	

Foundations of Society and Culture

Historical Analysis	1 Course
Social Analysis	1 Course
Third course from either subgroup	1 Course
Total = 15 units minimum	

Foundations of Scientific Inquiry

Life Sciences/Physical Sciences	2 Courses
Two courses from either subgroup	If both courses are selected from the same subgroup, they must be from different departments.
Total = 8 units minimum	

Total GE 8 Courses/38 Units Minimum

A Writing II course also approved for general education may be applied toward the relevant general education foundational area.

laboratory experiences, writing, and intensive discussions, students consider the important roles played by the laws of physics and chemistry in society, biology, Earth and environmental sciences, and astrophysics and cosmology.

Foundations Course Lists. Creating and maintaining a general education curriculum is a dynamic process; consequently, courses are frequently added to the list. For the most current list of approved courses that satisfy the Foundations of Knowledge GE plan, consult an academic counselor or see <http://www.registrar.ucla.edu/Academics/GE-Requirement>.

Reciprocity with Other UC Campuses

Students who transfer to UCLA from other UC campuses and have met all GE requirements prior to enrolling at UCLA are not required to complete the Herb Alpert School of Music GE requirements. Written verification from the dean at the other UC campus is required. Verification letters should be sent to the Student Services Office, Herb Alpert School of Music, 2539 Schoenberg Music Building, UCLA, Box 957234, Los Angeles, CA 90095-7234.

Intersegmental General Education Transfer Curriculum

Transfer students from California community colleges have the option to fulfill UCLA lower division GE requirements by completing the Intersegmental General Education Transfer Curriculum (IGETC) prior to transfer. The curriculum consists of a series of subject areas and types of courses which have been agreed on by the University of California and the California community colleges. Although GE or transfer core courses are degree requirements rather than admission requirements, students are advised to fulfill them prior to transfer. The IGETC significantly eases the transfer process, as all UCLA GE requirements are fulfilled when students complete the IGETC courses. Students who select the IGETC must complete it entirely before enrolling at UCLA. Otherwise, they must fulfill the Herb Alpert School of Music GE requirements.

DEPARTMENT REQUIREMENTS

Herb Alpert School of Music departments generally set two types of requirements that must be satisfied for the award of the degree: (1) Preparation for the Major (lower division courses) and (2) the Major (upper division courses). Preparation for the Major courses should be completed before beginning upper division work.

PREPARATION FOR THE MAJOR

A major requires completion of a set of courses known as Preparation for the Major. Each department sets its own Preparation for the Major requirements; see the Curricula and Courses section of this catalog.

THE MAJOR

A major is composed of at least 36 units and no more than 58 units of upper division courses.

Students must complete their major with a scholarship average of at least a 2.0 (C) in all courses in order to remain in the major. Each course in the major department must be taken for a letter grade.

As changes in major requirements occur, students are expected to satisfy the new requirements insofar as

possible. Hardship cases should be discussed with the department adviser, and petitions for adjustment should be submitted to the dean of the school when necessary.

Minors and Double Majors. Students may petition to be reviewed for a minor and/or double major on an individual basis. It is strongly recommended that students pursuing a minor or double major enroll in 15 to 20 units per term. Contact the Student Services Office for an outline of criteria required.

POLICIES AND REGULATIONS

Degree requirements are subject to policies and regulations, including the following:

STUDENT RESPONSIBILITY

Students should take advantage of academic support resources, but they are ultimately responsible for keeping informed of and complying with the rules, regulations, and policies affecting their academic standing.

STUDY LIST

Each term the student study list must include from 15 to 20 units. The school has no provision for part-time enrollment. After the first term, students may petition to carry more than 20 units if they have an overall grade-point average of 3.0 (B) or better and have attained at least a B average in the preceding term with all courses passed. Consult the Student Services Office no later than the end of the second week of instruction.

MINIMUM PROGRESS

Students are expected to complete satisfactorily at least 40 units during any three consecutive terms in residence; they are placed on probation if they fail to pass these units. They are subject to disqualification if they fail to pass at least 32 units in three consecutive regular terms in residence.

CHANGING A MAJOR

Students in good academic standing who wish to change their major may petition to do so provided they can complete the new major within the 216-unit limit and normal time to degree (12 terms for students who entered as freshmen; six terms for students who entered as transfers). Petitions must be submitted to and approved by the department or committee in charge of the new major. Admission to certain majors may be closed or restricted; changes are normally not permitted if students are on probation or have begun their last term.

CONCURRENT ENROLLMENT

Enrollment at a non-UC institution or at UCLA Extension while enrolled at UCLA is not permitted.

CREDIT LIMITATIONS

The following credit limitations apply to all undergraduate students enrolled in the school:

Advanced Placement Examinations. Credit earned through the College Board Advanced Placement (AP) Examinations may be applied toward certain University/school requirements. Consult a counselor in the

Student Services Office to determine applicable credit. Portions of AP Examination credit may be evaluated by corresponding UCLA course numbers (e.g., French 4). If students take the equivalent UCLA course, unit credit for such duplication is deducted before graduation. See the AP table at <http://www.admission.ucla.edu/prospect/APCreditAA.htm> for UCLA course equivalents and credit allowed for GE requirements.

Graduate Courses. Undergraduate students who wish to take courses numbered in the 200 series for credit toward a specific degree requirement must petition for advance approval of the department chair and the dean of the school and must meet the specific qualifications. Courses numbered in the 400 and 500 series may not be applied toward the degree.

COUNSELING SERVICES

The Herb Alpert School of Music offers advising, program planning in the major and general education requirements, and individual meetings with school and departmental counselors. For counseling information, contact the Student Services Office, Herb Alpert School of Music, 1642 Schoenberg Music Building, 310-206-5002.

HONORS

Herb Alpert School of Music undergraduate students who achieve scholastic distinction may qualify for the following honors and programs:

DEAN'S HONORS

To receive Dean's Honors, students must have at least 12 graded units per term with a grade-point average of 3.8 for less than 16 units of work (3.7 GPA for 16 or more units). The honor is posted on the transcript for the appropriate term. Students are not eligible for Dean's Honors in any given term if they receive an Incomplete or a Not Passed (NP) grade, change a grade, or repeat a course.

LATIN HONORS

Latin Honors are awarded at graduation to students with superior grade-point averages. To be eligible, students must have completed 90 or more units for a letter grade at the University of California. The levels of honors are *summa cum laude*, *magna cum laude*, and *cum laude*. The minimum GPAs required are subject to change on an annual basis. Required GPAs in effect in the graduating year determine student eligibility. Contact the Student Services Office or <http://www.registrar.ucla.edu/Registration-Classes/Graduation/Final-Degree-Audit/Latin-Honors> for the most current calculations of Latin honors.

GRADUATE STUDY

The advanced degree programs offered in the Herb Alpert School of Music provide graduate students with unique research opportunities when combined with special resources, such as the Young Research Library, the special collections of the Music Library, and the University's performance halls.

Fellowships, grants, and assistantships are available through the departments and the dean of the Graduate Division.

ADMISSION

In addition to requiring that applicants hold a bachelor's degree from an accredited U.S. institution or an equivalent degree of professional title from an international institution, each department in the school has limitations and additional requirements. In general, samples of creative work (auditions, portfolios, computer programs, etc.) are required. Detailed information is available on individual department websites and in Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu>.

For information on the proficiency in English requirements for international graduate students, see Graduate Admission in the Graduate Study section of this catalog.

DEGREE REQUIREMENTS

Requirements to fulfill each degree objective vary according to the degree and the department. For complete degree requirements, see Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu>.

JOHN E. ANDERSON GRADUATE SCHOOL OF MANAGEMENT

Judy D. Olian, Dean

UCLA
F407 Mullin Management Commons
Box 951481
Los Angeles, CA 90095-1481
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fax: 310-206-2073
<http://www.anderson.ucla.edu>

In today's rapidly changing global marketplace, it is essential that professional managers be conversant with the latest concepts and principles of management. At the John E. Anderson Graduate School of Management at UCLA, which is consistently ranked among the best such schools in the nation, students prepare to become first-rate managers with both specialized skills and a broad understanding of the general economic, business, and managerial environment. This background enables them to become effective and efficient directors of organizations and people whether they are in the private, public, or not-for-profit sector.

Specifically, the Anderson Graduate School of Management offers the business community a wide range of higher education programs that provide state-of-the-art information in a variety of fields. Through its faculty, the school advances the art and science of management by engaging in fundamental and cutting-edge research in all fields of management and by educating scholars who can continue to create this new knowledge.

Students come from diverse professional and educational backgrounds and seek equally diverse personal and professional goals. Whether they pursue the professional MBA or a PhD in Management, they graduate with a broad understanding of people and organizations and with a sound technical background in the economic and mathematical concepts of management planning and decision making.

The school offers a variety of programs leading to graduate degrees at the master's and doctoral levels. These include a professional (MBA) master's and a Master of Financial Engineering (MFE), as well as an Executive MBA Program designed for working managers who are moving from specialized areas into general management and a three-year Fully Employed MBA Program for emerging managers. The school also offers dual Global Executive MBA degrees with the National University of Singapore (NUS) Business School and with the Universidad Adolfo Ibáñez (UAI) in Santiago, Chile, that prepare participants for top positions in organizations around the world. A PhD in Management is also offered, as are a certificate Executive Program and research conferences and seminars for experienced managers.



The Anderson School of Management prepares students to become first-rate managers with specialized skills and a broad understanding of the general economic, business, and managerial environment.

ate minors in Accounting and in Entrepreneurship and several undergraduate courses in management. Enrollment in these courses, although open to all University students who have completed the requisites, is limited. For more information, see <http://anderson.ucla.edu/programs-and-outreach/accounting-minor> and <http://www.uei.ucla.edu/entrepreneurshipminor.htm>.

DEGREES AND PROGRAMS

The school offers the following degrees, in addition to an undergraduate minor in Accounting:

Master of Business Administration (MBA)
Executive Master of Business Administration (EMBA)
Fully Employed Master of Business Administration (FEMBA)
Global Executive MBA for the Americas (GEMBA)—dual degree program with Universidad Adolfo Ibáñez in Chile)
Global Executive MBA for Asia Pacific (GEMBA)—dual degree program with National University of Singapore)
Master of Financial Engineering (MFE)
Master of Science (MS)
Candidate in Philosophy (CPhil)
Doctor of Philosophy (PhD)

Concurrent Degree Programs

The school offers 10 concurrent degree programs:

Management MBA/Computer Science MS
Management MBA/Dentistry DDS
Management MBA/Latin American Studies MA
Management MBA/Law JD
Management MBA/Library and Information Science MLIS
Management MBA/Medicine MD
Management MBA/Nursing MSN

Management MBA/Public Health MPH
Management MBA/Public Policy MPP
Management MBA/Urban Planning MURP

UCLA Anderson Executive Education

Founded in 1954, UCLA Anderson Executive Education offers innovative learning solutions that focus on leadership, management, and strategy to meet the unique business objectives of individual executives and leading organizations worldwide. More than 50 custom and open enrollment programs are offered annually to leaders of today, both on campus and wherever they are in the world. See <http://www.anderson.ucla.edu/executive-education>.

RESEARCH CENTERS

Eight interdisciplinary research centers provide valuable resources that support school programs: Center for Global Management (CGM), Center for Management of Enterprise in Media, Entertainment, and Sports (MEMES), Easton Technology Management Center, Harold and Pauline Price Center for Entrepreneurship and Innovation, Laurence D. and Lori W. Fink Center for Finance and Investments, Morrison Center for Marketing and Data Analytics, Richard S. Ziman Center for Real Estate, and the UCLA Anderson Forecast. See <http://www.anderson.ucla.edu/centers> for further details.

OUTREACH PROGRAMS

A wide range of outreach programs, such as the Applied Management Research Program (AMR), Global Access Program (GAP), Entrepreneurship Bootcamp for Veterans with Disabilities, Leaders in Sustainability Certificate Program, Management Development for Entrepreneurs (MDE), and Riordan Programs, offer many teaching, research, and service resources to UCLA, the city, and beyond. See <http://www.anderson.ucla.edu/programs-and-outreach>.

JONATHAN AND KARIN FIELDING SCHOOL OF PUBLIC HEALTH

S. Jody Heymann, Dean

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16-035 Center for the Health Sciences
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This is an exciting time to study public health. The field is experiencing an unprecedented level of attention as the nation continues to better prepare itself for a variety of threats to its health and security. As a result, many new and exciting opportunities exist for students, faculty members, and graduates.

The field of public health strives to create healthier communities. Where medicine treats the individual, public health looks to the larger community. Those

working in public health focus on efforts to assess the health of people and their environments and develop policies and programs to protect people and help them lead healthier lives.

To achieve these goals, public health crosses many of the traditional academic disciplinary boundaries, drawing from medicine, law, public policy, economics, and biology to name a few. Making water safe to drink and air safe to breathe, controlling toxic waste, halting the spread of infectious disease, promoting the advantages of healthy lifestyles, and minimizing violence in our communities are all examples of public health in action. Increasingly public health is called on to help determine which clinical approaches to an individual health problem are best (outcomes research), and to assess and identify disparities in access to healthcare, quality of healthcare, and health status.

The Jonathan and Karin Fielding School of Public Health at UCLA is among the top public health schools in the country and offers superior public health training and real-world experience. The school's classrooms and laboratories are under the same roof as the UCLA medical, dental, and nursing schools and just steps away from its science facilities and schools of engineering, law, management, and public affairs.

The school is enriched by its location in Los Angeles, where a melting pot of cultures, industries, environmental situations, and urban issues provides unparalleled opportunities for research, teaching, and service. Its location also provides students and faculty members with a unique opportunity to be involved with cutting-edge healthcare issues, as many of the health system changes have origins in Southern California.

Students can look forward to working with acclaimed public health experts and innovators. Among its 250 faculty members are more than 15 members of the prestigious Institute of Medicine, three past presidents of the American Public Health Association, and two past presidents of the International Epidemiological Association.

The school's 595 students are among the most talented and promising in the nation and are a culturally diverse group—one of the most diverse of all schools of public health—representing more than 30 countries and nearly every region of the U.S. Graduates continue to make an impressive impact on the field and can be found at the forefront of all major public health efforts.

DEPARTMENTS

The school offers graduate programs leading to both academic and professional degrees in five departments. The Department of Biostatistics develops statistical and analytical techniques for public health use. The Department of Community Health Sciences addresses behaviors that prevent disease and enhance health, health problems of high-risk groups (women, children, the aged, the poor, the disadvantaged, and racial and ethnic minorities), health education and promotion, public health policy, community nutrition, and international health. The Department of Environmental Health Sciences elucidates health hazards in the general environment and in the workplace. The Department of Epidemiology is concerned with the nature, extent, and distribution of disease and health in populations. The Department of Health Policy and Management deals with the organization, financing, delivery, quality, and distribution of healthcare

services. The school also administers an interdepartmental degree program in molecular toxicology.

See the Curricula and Courses section for further information on each department.

JONATHAN AND
KARIN FIELDING
SCHOOL OF PUBLIC
HEALTH

DEGREES AND PROGRAMS

The school offers the following degrees, in addition to an undergraduate minor in Public Health:

Biostatistics (MS, PhD)
Community Health Sciences (MPH-HP, MS, PhD)
Environmental Health Sciences (MS, PhD)
Epidemiology (MS, PhD)
Health Policy and Management (EMPH, MS, PhD)
Molecular Toxicology (PhD)
Preventive Medicine and Public Health (MS)
Public Health (MPH, DrPH)

New students are not being admitted to the MS in Preventive Medicine and Public Health at this time.

Articulated Degree Programs

The school offers two articulated degree programs:
Public Health MPH/Latin American Studies MA
Public Health MPH/Medicine MD

Concurrent Degree Programs

The school offers eight concurrent degree programs:
Community Health Sciences MPH/Urban Planning
MURP
Environmental Health Sciences MPH/Urban Planning
MURP
Public Health MPH/African Studies MA
Public Health MPH/Asian American Studies MA
Public Health MPH/Law JD
Public Health MPH/Management MBA
Public Health MPH/Public Policy MPP
Public Health MPH/Social Welfare MSW

ADMISSION

Admission criteria established by the UCLA Graduate Division require a bachelor's degree from a regionally accredited institution comparable in standard and content to a bachelor's degree from the University of California. A scholastic average of B (3.0 on a 4.0 scale) or better is required—or its equivalent if the letter grade system is not used—for the last 60 semester units or last 90 quarter units of undergraduate study and in any postbaccalaureate study. Further requirements for international students are explained in the Graduate Study section. See <https://grad.ucla.edu/admissions/international-applicants>.

Applicants must also submit the application to the centralized Schools of Public Health Application Service (SOPHAS) at <http://www.sophas.org>. For additional admission requirements, see <http://ph.ucla.edu/prospective-students/application-checklist-and-submission-instructions>.

DEGREE REQUIREMENTS

Specific degree requirements vary according to the department and program. Refer to Program Requirements.

ments for UCLA Graduate Degrees at <https://grad.ucla.edu>.

RESEARCH CENTERS

The field of public health addresses a wide range of issues, making it a natural for interdisciplinary collaboration. UCLA faculty members and students reach beyond traditional academic boundaries to promote cooperative exchange across disciplines. The following is a list of interdisciplinary centers sponsored by or associated with the Fielding School of Public Health.

BIXBY CENTER ON POPULATION AND REPRODUCTIVE HEALTH

The Bixby Center on Population and Reproductive Health was established in 2001 at the Fielding School of Public Health as the result of a generous gift from the Fred H. Bixby Foundation. The center has grown since then with the support of several additional Bixby



The Jonathan and Karin Fielding School of Public Health is among the top public health schools in the country, offering superior public health training and real-world experience.

Foundation gifts and promotes and supports research, training, and applied public health in the areas of population, reproductive health, and family planning. The principal focus is on reproductive health issues in developing countries, where population growth rates remain high and reproductive health services are poor or inaccessible. The

center also works in reproductive health-related issues in the U.S. See <http://bixby.ucla.edu>.

CENTER FOR CANCER PREVENTION AND CONTROL RESEARCH

The Center for Cancer Prevention and Control Research (<http://ph.ucla.edu/research/centers/center-cancer-prevention-and-control-research>) is a joint program of the Fielding School of Public Health and the Geffen School of Medicine's Jonsson Comprehensive Cancer Center. Since its inception in 1976, the center has been recognized throughout the Los Angeles community, nationally, and internationally. It conducts rigorous peer-reviewed research in two major program areas—the Healthy and At-Risk Populations Program (<http://www.cancer.ucla.edu/research/research-programs/healthy-and-at-risk-populations>) and the Patients and Survivors Program (<http://www.cancer.ucla.edu/research/research-programs/patients-and-survivors>).

The Healthy and At-Risk Populations Program focuses on research in primary prevention and screening/early detection among healthy populations and persons at increased risk for developing cancer. The program's research portfolio includes cancer epidemiology, gene-environment interaction, tobacco control, nutrition and exercise, and breast, cervix, prostate, and colon cancer screenings, as well as risk counseling and genetic testing of high-risk populations. The Patients and Survivors

Program has as its major goal the reduction in avoidable morbidity and mortality among adult and pediatric patients with cancer and long-term survivors of cancer.

CENTER FOR ENVIRONMENTAL GENOMICS

The Center for Environmental Genomics was established in May 2003 in partnership with the Jonsson Comprehensive Cancer Center. The goal of the center is to bring together experts from a variety of fields, including cancer, environmental health, epidemiology, biostatistics, human genetics, pathology, and pharmacology, to investigate the molecular mechanisms by which environmental agents such as air pollutants and radiation interact with genetic predisposing factors to cause disease. A better understanding of these processes paves the way not only for targeted drug therapies, but also for targeted public health efforts to reduce environmental exposures in high-risk populations. Environmental genomics helps prevent diseases rather than waiting to cure them once they have occurred. See <http://ph.ucla.edu/research/centers/center-environmental-genomics>.

CENTER FOR GLOBAL AND IMMIGRANT HEALTH

The UCLA Center for Global and Immigrant Health was established in 2008 and includes faculty members from all the departments in the School of Public Health, as well as the Schools of Medicine, Dentistry, and Nursing and the California Center for Population Research, all of whom have research or teaching interests in global and/or immigrant health. Participating faculty members have active research collaborations in more than 50 countries throughout the world, and several work both with immigrant communities in California and in the countries of origin of these communities. The center offers a regular seminar series and a Certificate in Global Health available to students in any of UCLA's degree-granting graduate and professional programs. See <http://ph.ucla.edu/research/centers/ucla-center-global-and-immigrant-health>.

CENTER FOR GLOBAL INFECTIOUS DISEASES

Infectious diseases are a significant cause of death worldwide and a cause of concern in the U.S. One of the greatest challenges in public health and medicine is to understand the environmental and genetic factors that contribute to the emergence and re-emergence of infectious diseases and to develop the tools that will enable detecting and monitoring of how diseases spread, so that they can be identified and controlled before they become pandemics.

Driven by its core public health mission, the Center for Global Infectious Diseases is an intellectual collection of individuals who provide a home for sustaining and expanding research evaluating how infectious diseases evolve and how their spread can be forecast and in turn mitigated or prevented. The center will bring together in addition to those involved in infectious disease epidemiology and control from within public health an interdisciplinary group of faculty members from across the campus, including those who study microbiology, virology, immunology, molecular genetics, ecology, and the evolution of infectious diseases. See <http://ph.ucla.edu/research/centers/center-global-infectious-diseases>.

CENTER FOR HEALTH ADVANCEMENT

The UCLA Center for Health Advancement provides enhanced analysis and evidence-based information to help policymakers decide which policies and programs can best improve health and reduce health disparities. The center analyzes a wide range of timely health improvement opportunities, identifying those supported by strong evidence. It presents and disseminates the results of these analyses in plain language to those who make and influence public and private sector policies and programs and provides training and technical assistance to facilitate implementation of recommended approaches.

The center brings together faculty from multiple departments of the Fielding School of Public Health and other UCLA schools with a wide range of subject matter and methodological expertise, including expertise in nonhealth sectors, such as education, transportation, housing, environmental protection, community planning, agriculture, public welfare, and economics. It has strong collaborations with governmental public health agencies, foundations, academic institutions, and other not-for-profit organizations. Within the health sector, its work is focused on how alternative investments to wasteful expenditures in healthcare can yield greater returns. See <http://ph.ucla.edu/research/centers/ucla-center-health-advancement> or <http://uclacha.org>.

CENTER FOR HEALTH POLICY RESEARCH

The UCLA Center for Health Policy Research was established in 1994 to apply the expertise of UCLA faculty members and researchers to meet national, state, and local community needs for health policy-related research and information and to accomplish three missions: (1) to conduct research on national, state, and local health policy issues, (2) to provide public service to policymakers and community leaders, and (3) to offer educational opportunities for graduate students and postdoctoral fellows.

Sponsored by the Fielding School of Public Health and the Luskin School of Public Affairs, the center provides a collaborative health policy research environment for the leading professional schools and academic departments of UCLA. One major project is the California Health Interview Survey (CHIS), one of the largest health surveys in the nation. The center also sponsors major public service programs supported by extramural grants. See <http://www.healthpolicy.ucla.edu/Pages/home.aspx>.

CENTER FOR HEALTHIER CHILDREN, FAMILIES, AND COMMUNITIES

The Center for Healthier Children, Families, and Communities (CHCFC) was established at UCLA in 1995 to address some of the most challenging health and social problems facing children and families. The center's mission is to improve society's ability to provide children with the best opportunities for health, well-being, and the chance to assume productive roles within families and communities.

Through a unique interdisciplinary partnership between UCLA departments, schools, and affiliated institutions, including the Schools of Public Health, Medicine, Nursing, Education, Law, and Public Affairs and the Department of Psychology, as well as providers, community agencies, and affiliated institutions, a

critical mass of expertise has been assembled to conduct activities in five major areas: (1) child health and social services, (2) applied research, (3) training of health and social service providers, (4) public policy research and analysis, and (5) technical assistance and support to community providers, agencies, and policymakers. See <http://www.healthychild.ucla.edu>.

CENTER FOR OCCUPATIONAL AND ENVIRONMENTAL HEALTH

The California State Legislature mandated that the Center for Occupational and Environmental Health (COEH) be formed in 1978, when a group of chemical workers became sterile from exposure to the pesticide DBCP, a known carcinogen and reproductive toxin. With branches in the north and south of the state, COEH trains occupational and environmental health professionals and scientists, conducts research, and provides services through consultation, education, and outreach. The centers constitute the first state-supported institutions to develop new occupational and environmental health leadership in the U.S.

The COEH branch at UCLA is housed in the Center for the Health Sciences and involves the Schools of Public Health, Medicine, and Nursing. Specific COEH programs within the Fielding School of Public Health include environmental chemistry, occupational/environmental epidemiology, occupational/environmental medicine, occupational ergonomics, occupational hygiene, toxicology, gene-environment interactions, psychosocial factors in the work environment, occupational health education, and pollution prevention. See <http://coeh.ph.ucla.edu>.

CENTER FOR PUBLIC HEALTH AND DISASTERS

The Center for Public Health and Disasters was established in 1997 to address the critical issues faced when a disaster impacts a community. The center promotes interdisciplinary efforts to reduce the health impacts of domestic, international, natural, and human-induced disasters. It facilitates dialog between public health and medicine, engineering, physical and social sciences, and emergency management. This unique philosophy is applied to the education and training of practitioners and researchers, collaborative interdisciplinary research, and service to the community. The multidisciplinary center staff and participating faculty members have backgrounds that include emergency medicine, environmental health sciences, epidemiology, gerontology, health services, social work, sociology, urban planning, and public health.

The center is one of 15 Academic Centers for Public Health Preparedness funded by the Centers for Disease Control. The goal of these national centers is to improve competencies of front-line workers in public health to respond to public health threats. See <http://www.cphd.ucla.edu>.

GLOBAL MEDIA CENTER FOR SOCIAL IMPACT

The Fielding School of Public Health has established an innovative new center to increase awareness of important health issues and improve the well-being of people throughout the world by harnessing the storytelling power of television, film, music, and new media. By collaborating with the entertainment industry and news media, the Global Media Center for Social Impact (GMI) helps content creators and reporters

craft compelling stories that accurately address a full range of public health issues—from the social determinants of health to climate change and early childhood health—with the goal of impacting global health.

The center is ideally poised to engage the entertainment industry in creating storylines by linking filmmakers, writers, and other industry types with the experts and extensive resources of the school. The center also collaborates with media organizations and producers around the globe to promote exceptional storytelling, effective reporting, and interactive new media content that can help move research on population health from evidence to impact. See <http://www.gmimpact.org>.

UCLA KAISER PERMANENTE CENTER FOR HEALTH EQUITY

Academic studies and current events have converged to highlight the magnitude of potentially preventable health disparities among various population groups, and the urgency of addressing these disparities. The UCLA Kaiser Permanente Center for Health Equity identifies, investigates, and addresses these differences in health status and disease burden. A key feature of the center is its heavy focus on community-based intervention research to mitigate observed disparities.

The center aims to advance understanding of health disparities across the lifespan and to foster multidisciplinary research to improve the health of underserved communities. With focus on Los Angeles County, the center facilitates community and academic partnerships in research, trains new investigators in health disparities research, and assists community partners in implementing effective programs and advocating for effective policies to reduce disparities. The center also endeavors to erode the barriers preventing more effective collaboration with local health departments and other key community partners engaged in the practice of public health. It is a collaborative center without walls that includes associates from academia, government, foundations, and private/nonprofit organizations. See <http://healthequity.ucla.edu>.

UCLA/RAND PREVENTION RESEARCH CENTER

The UCLA/RAND Prevention Research Center conducts studies and develops programs to improve the health and well-being of adolescents, with special emphasis on projects that involve parents of adolescents. The center is a partnership of the Fielding School of Public Health, Department of Pediatrics, RAND (a nonpartisan, private, nonprofit research institute that conducts research to improve public policy), and local communities.

The center's multidisciplinary faculty and staff members represent the fields of public health, medicine, social and clinical psychology, sociology, economics, political science, anthropology, education, sampling, statistics, and survey design. It is innovative in its approach to community service, partnering with ethnically and economically diverse communities in Los Angeles County to identify opportunities for it to provide technical support to community groups for program implementation and assessment. In addition, the center has partnerships with the Los Angeles Unified School District, Los Angeles County Department of Health Services, and other local groups. See <http://prc.ph.ucla.edu>.

WORLD POLICY ANALYSIS CENTER

The World Policy Analysis Center aims to improve the quantity and quality of comparative data available to policymakers, citizens, civil society, and researchers around the world on policies affecting human health, development, well-being, and equity. To date, the research team has gathered detailed information on public policies in all UN member states, including labor laws, poverty reduction policies, education policies, and constitutional rights, with the goals of increasing access to this data and translating research findings into policies and programs at the global, national, and local levels. The center is committed to enhancing global health and public policy research and policy capacity across universities, governments, and international organizations. See <http://worldpolicycenter.org>.

MEYER AND RENEE LUSKIN SCHOOL OF PUBLIC AFFAIRS

Lois M. Takahashi, Interim Dean

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<http://luskin.ucla.edu>

Founded in 1994, the Meyer and Renee Luskin School of Public Affairs at UCLA incorporates best practices in scholarship, research, and teaching in the fields of policymaking, social work, and urban and regional planning. The unique intersection of these disciplines within one school allows for academic cross-collaboration and a graduate education that values perspectives at both the macroorganizational and microorganizational levels. Graduates of the master's and doctoral degree programs are well prepared to take leadership roles and effect change as practitioners, researchers, and policymakers in the public, private, and nongovernmental sectors. Faculty members are actively engaged in research that addresses pressing national and regional issues, including immigration, drug policy, prison reform, healthcare financing, transportation and the environment, national security, economic development, and an aging U.S. and world population.

DEPARTMENTS

The school combines three academic departments—Public Policy, Social Welfare, and Urban Planning—and faculty members from such diverse disciplines as economics, geography, history, law, management, and political science. The school trains policy professionals, planners, and social workers for public, private, and nongovernment service, conducts research on significant regional, national, and international issues with a strong interdisciplinary and cross-cultural focus, and acts as a convener and catalyst for public dialogue, engaging people locally, nationally, and internationally.

DEGREES AND PROGRAMS

The school offers the following degrees, in addition to undergraduate minors in Gerontology, Public Affairs, and Urban and Regional Studies:

Public Policy (MPP)
Social Welfare (MSW, PhD)
Urban and Regional Planning (MURP)
Urban Planning (PhD)

Concurrent Degree Programs

The school offers 13 concurrent degree programs:

Public Policy MPP/Law JD
Public Policy MPP/Management MBA
Public Policy MPP/Medicine MD
Public Policy MPP/Public Health MPH
Public Policy MPP/Social Welfare MSW
Social Welfare MSW/Asian American Studies MA
Social Welfare MSW/Law JD
Social Welfare MSW/Public Health MPH
Urban Planning MURP/Architecture MArch I
Urban Planning MURP/Latin American Studies MA
Urban Planning MURP/Law JD
Urban Planning MURP/Management MBA
Urban Planning MURP/Public Health MPH

Obtain brochures about the school's programs from the department offices, 3357 Public Affairs Building, or see <http://luskin.ucla.edu>.

The school also offers a wide array of undergraduate courses in gerontology, public policy, social welfare, and urban planning. Enrollment in these courses is open to all undergraduate students.

ADMISSION

In addition to requiring that applicants hold a bachelor's degree from an accredited U.S. institution or an equivalent degree or professional title from an international institution, each department in the school has limitations and additional requirements. Individuals interested in concurrent degrees must be admitted to both programs. Detailed information can be found in Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu>.

For information on the proficiency in English requirements for international graduate students, see Graduate Admission in the Graduate Study section of this catalog.

DEGREE REQUIREMENTS

Requirements to fulfill each degree objective vary according to the degree and the department. For complete degree requirements, see Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu>.

RESEARCH CENTERS

The school houses a number of research centers where faculty members from across the campus pursue issues of mutual interest. In addition to their focus on practical policy problems, the research centers also provide opportunities for student financial aid in the form of research assistant positions, grants, and fellowships.

CENTER FOR CIVIL SOCIETY

The Center for Civil Society (CCS) is the focal point for the school's programs and activities in nonprofit leadership and management, community organizations and advocacy, international nongovernmental organizations, and philanthropy. The center coordinates teaching of nonprofit and civil society aspects, conducts research, convenes meetings and seminars, offers executive education, and contributes to a policy dialogue about the current and future role of nonprofit organizations, philanthropy, and civil society. See <http://civilsociety.ucla.edu>.

MEYER AND RENEE
LUSKIN SCHOOL OF
PUBLIC AFFAIRS

CENTER FOR POLICY RESEARCH ON AGING

The Center for Policy Research on Aging (CPRA) was formed to address the significant issues of an aging society through policy analysis, dissemination of information, and technical assistance to the public and private sectors. The demographic challenges of a nation growing older and living longer force us to confront the roles of government and the private sector in serving the increasing number of elderly and their families. The center's mission is to conduct research, inform policymakers, link communities to local, state, and federal governments, and foster collaboration among UCLA faculty members. See <http://www.latinoeconomicsecurity.org/cpra.html>.



*The Meyer and
Renee Luskin
School of Public
Affairs trains
practitioners and
academic
researchers in the
problem-solving
professions of
public policy, social
welfare, and urban
planning.*

INSTITUTE ON INEQUALITY AND DEMOCRACY

The Institute on Inequality and Democracy advances radical democracy in an unequal world through research, critical thought, and alliances with social movements and racial justice activism. Faculty members and students analyze and transform the divides and dispossessions of our times, in the University and in our cities. See <https://challengeinequality.luskin.ucla.edu>.

INSTITUTE OF TRANSPORTATION STUDIES

The UCLA Institute of Transportation Studies (ITS), one of the leading transportation policy research centers in the U.S., was created in 1993 to conduct research and provide professional education on the social, economic, environmental, and cultural aspects of transportation policy. Each year ITS faculty members, students, and research staff collaborate on a wide array of transportation policy and planning studies, ranging from an analysis of the travel trends and transportation needs of immigrants and low-income workers to the testing and evaluation of innovative fare programs to increase public transit use. See <http://www.its.ucla.edu>.

RALPH AND GOLDY LEWIS CENTER FOR REGIONAL POLICY STUDIES

The Lewis Center for Regional Policy Studies was established in 1988 with a \$5-million endowment from Ralph and Goldy Lewis to promote the multidisciplinary study, understanding, and solution of regional

policy issues in California. Research projects include topics such as welfare reform, immigration, the environment, health insurance, labor and employment, and transportation. See <http://www.lewis.ucla.edu>.

LUSKIN CENTER FOR INNOVATION

The Luskin Center for Innovation serves as a point of intersection and interaction at UCLA, bringing together the brightest minds to concentrate on a specific urgent policy issue in Southern California. Los Angeles is at a critical juncture in many key areas of public policy. UCLA has the intellectual capital to bring together some of the top thinkers in the country, the most enterprising students, and relevant research to support innovative approaches to broad policy problems.

Strategically located within the Luskin School of Public Affairs, the Luskin Center was founded with a generous gift from the Luskins to engage the academic and public decision makers together in actively pursuing solutions to the Los Angeles region's most urgent threats. The center turns the conventional dividing lines between the academic and practical world into a meeting point—reaching across disciplines, sectors, and political points of view to actively pursue long-term solutions that can immediately be put into practice. The current funding cycle addresses environmental sustainability and pollution reduction in Los Angeles. See <http://innovation.luskin.ucla.edu>.

SCHOOL OF THE ARTS AND ARCHITECTURE

David J. Roussève, Interim Dean

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fax: 310-206-8504
<http://www.arts.ucla.edu>

The School of the Arts and Architecture at UCLA plays a vital role in the cultural and artistic life of the campus and community. Courses and degree programs in four departments (Architecture and Urban Design, Art, Design | Media Arts, and World Arts and Cultures/Dance) provide students with unparalleled opportunities to learn from faculty members who rank among the most innovative artists, designers, musicians, choreographers, architects, and arts scholars of our time.

The school is also home to one undergraduate minor. The Visual and Performing Arts Education minor is designed to introduce arts students to the issues and methodologies in the field of arts education.

Combining opportunities for the hands-on study of creative practice with the academic foundation of the liberal arts, the school offers students the chance to develop an integrated and encompassing understanding of human creativity, the arts, and architecture. The mission is to educate, empower, and inspire the next generation of citizens to serve as cultural and artistic leaders of the twenty-first century.

The School of the Arts and Architecture has an impressive array of public arts units, including the Center for the Art of Performance at UCLA, one of the largest and most diverse performing arts presenters in the nation, and two world-class museums—the UCLA Hammer Museum which focuses on contemporary and emerging artists and the Fowler Museum at UCLA which focuses on the traditional and contemporary arts of Africa, the Americas, Asia, and Oceania.

Seven interdisciplinary research centers—the Art and Global Health Center, Art | Sci Center, cityLAB, Experiential Technologies Center, Game Lab, Grunwald Center for the Graphic Arts, and NOW Institute—as well as the renowned Murphy Sculpture Garden are part of the school. All of these offer students the opportunity to broaden and deepen their experience of the arts and architecture while at UCLA.

In addition to providing a rich and diverse environment on campus, the school encourages students to participate in community outreach programs designed around concerts, exhibitions, symposia, and dance productions presented in cooperation with groups throughout the greater Los Angeles area.

DEPARTMENTS AND PROGRAMS

The four departments of the school are integral to the rich and varied cultural life of the UCLA campus. The Department of Architecture and Urban Design provides students with a unique opportunity to study buildings, cities, and their interdependence in one of the most structurally and ethnically diverse cities in the world. Students in the Department of Art learn to understand the broad panorama of the visual arts emphasizing experimentation. The Department of Design | Media Arts focuses on electronic and digital imagery in visual communication design. The Department of World Arts and Cultures/Dance offers innovative curricula focused on the interdisciplinary and intercultural investigation of performance, the arts, and dance, and on establishing connections between cultural theory and artistic practice.

Information regarding academic programs is available from the Office of Enrollment Management, 8260 Broad Art Center, UCLA, Box 951427, Los Angeles, CA 90095-1427, <http://www.arts.ucla.edu/resource/prospective-students/>, 310-825-8981.

Students interested in obtaining instructional credentials for California elementary and secondary schools should consult the Department of Education, 1009 Moore Hall, 310-825-8328.

DEGREES

The school offers the following degrees, in addition to an undergraduate interdisciplinary minor in Visual and Performing Arts Education:

Architectural Studies (BA)
Architecture (MArch I, MArch II, MA, PhD)
Art (BA, MFA)
Culture and Performance (MA, PhD)
Dance (BA, MFA)
Design | Media Arts (BA, MFA)
Individual Field (BA)
World Arts and Cultures (BA)

UNDERGRADUATE ADMISSION

In addition to the University of California undergraduate application, departments in the School of the Arts and Architecture require auditions, portfolios, or evidence of creativity. Information regarding departmental requirements is available on each department website; see <http://www.arts.ucla.edu/resource/prospective-students/undergraduate-admission/>. The annual deadline date for applications is November 30 for admission in the following fall quarter. After the UC application has been filed, applicants must submit supplemental application material and should consult the individual department website for details.

UNDERGRADUATE DEGREE REQUIREMENTS

School of the Arts and Architecture students must meet three types of requirements for the Bachelor of Arts degree:

1. University requirements
2. School requirements
3. Department requirements

UNIVERSITY REQUIREMENTS

The University of California has two requirements that undergraduate students must satisfy in order to graduate: (1) Entry-Level Writing or English as a Second Language and (2) American History and Institutions. See Degree Requirements in the Undergraduate Study section for details.

School of the Arts and Architecture students enrolled in English Composition 1A, 1B, and 2I must take each course for a letter grade.

School of the Arts and Architecture Structure of a Degree

University Requirements

1. Entry-Level Writing or English as a Second Language
2. American History and Institutions

School Requirements

1. Unit
2. Scholarship
3. Academic Residence
4. Writing Requirement
 - Writing I
 - Writing II
5. Quantitative Reasoning
6. Foreign Language
7. Upper Division Nonmajor Courses
8. Diversity
9. General Education
 - Foundations of Arts and Humanities
 - Foundations of Society and Culture
 - Foundations of Scientific Inquiry

Department Requirements

1. Preparation for the Major
2. The Major

Courses that do not satisfy specific University, school, or department requirements are referred to as electives and can be used to meet the minimum unit requirement for graduation.

SCHOOL REQUIREMENTS

The School of the Arts and Architecture has nine requirements that must be satisfied for the award of the degree: unit, scholarship, academic residence, writing, quantitative reasoning, foreign language, upper division nonmajor courses, diversity, and general education.

UNIT REQUIREMENT

Students must complete for credit, with a passing grade, no less than 180 units and no more than 216 units, of which at least 64 units must be upper division courses (numbered 100 through 199). Credit for upper division tutorials numbered 195 through 199 is limited to a maximum of 8 units in a single term and a maximum of 32 units total for a letter grade. Each major may have limitations on the number of upper division tutorials and/or units that may be applied toward degree requirements.



SCHOLARSHIP REQUIREMENT

A 2.0 (C) average is required in all work attempted at the University of California, exclusive of courses in UCLA Extension and those graded Passed/Not Passed. A 2.0 (C) average is also required in all upper division courses in the major taken at the University, as well as in all courses applied toward the general education and University requirements.

ACADEMIC RESIDENCE REQUIREMENT

Students are in residence while enrolled and attending classes at UCLA as a major in the School of the Arts and Architecture. Of the last 45 units completed for the bachelor's degree, 35 must be earned in residence in the school. No more than 18 of the 35 units may be completed in UCLA Summer Sessions.

Courses in UCLA Extension (either class or online) may not be applied toward any part of the residence requirements.

WRITING REQUIREMENT

Students must complete the University Entry-Level Writing or English as a Second Language (ESL) requirement prior to completing the school writing requirement.

Students admitted to the school are required to complete a two-term writing requirement—Writing I and Writing II. The courses must be taken for letter grades, and students must receive grades of C or better (C– grades are not acceptable).

Writing I. The Writing I requirement must be satisfied within the first three terms of enrollment by completing English Composition 3 or 3SL with a grade of C or better (C– or a Passed grade is not acceptable).

The Writing I requirement may also be satisfied by (1) scoring 4 or 5 on one of the College Board Advanced

The School of the Arts and Architecture balances practice and theory built on a liberal arts foundation, which assures the understanding and appreciation of both interdependence and integration of creativity, performance, and research.

Placement Examinations in English, (2) a combination of a score of 720 or better on the SAT Reasoning Test, Writing and superior performance on the English Composition 3 Proficiency Examination, (3) completing a course equivalent to English Composition 3 with a grade of C or better (C- or a Passed grade is not acceptable) taken at another institution, or (4) scoring 5, 6, or 7 on an International Baccalaureate Higher Level Examination.

Students whose native language is not English may need to take English Composition 1A, 1B, and 2I before enrolling in a Writing I course. All courses in the sequence must be passed with a grade of C or better (C- or a Passed grade is not acceptable).

Writing II. The Writing II requirement must be satisfied within the first six terms of enrollment by completing one course from a faculty-approved list of Writing II courses published at <http://www.registrar.ucla.edu/Academics/Writing-II-Requirement> and available on the student Degree Audit. The course must be completed with a grade of C or better (C- or a Passed grade is not acceptable).

A Writing II course also approved for general education may be applied toward the relevant general education foundational area.

QUANTITATIVE REASONING REQUIREMENT

In the School of the Arts and Architecture, students must demonstrate basic skills in quantitative reasoning. The requirement may be satisfied by completing one approved UCLA course (see list below) for a letter grade of C or better or Passed (C- or a Not Passed grade is not acceptable).

The quantitative reasoning requirement may also be satisfied by achieving an SAT Reasoning Test Mathematics Section score of 600 or higher or an SAT Subject Test in Mathematics score of 550 or higher.

Approved courses include Biostatistics 100A, 100B, Life Sciences 20, 30A, Mathematics 2 (or any higher numbered course except 19, 71SL, 72SL, 89, 89HC, 98XA, 98XB, 99, 103A, 103B, 103C, 105A, 105B, 105C, 189, 189HC, 195, 197, 199), Philosophy 31, Political Science 6, 6R, Program in Computing 10A, 10B, 10C, Statistics 10, 12, 13, and former courses 11 and 14.

FOREIGN LANGUAGE REQUIREMENT

Students may meet the foreign language requirement by (1) scoring 3, 4, or 5 on the College Board Advanced Placement (AP) foreign language examination in Chinese, French, German, Italian, Japanese, or Spanish, or scoring 4 or 5 on the AP foreign language examination in Latin, (2) presenting a UCLA foreign language proficiency examination score indicating competency through level three, or (3) completing one college-level foreign language course equivalent to level three or above at UCLA with a grade of Passed or C or better. The foreign language requirement must be completed within the first six terms of enrollment.

International students may petition to use an advanced course in their native language for this requirement. Students whose entire secondary education has been completed in a language other than English may petition to be exempt from the foreign language requirement.

UPPER DIVISION NONMAJOR REQUIREMENT

Students are required to complete a minimum of 12 units of upper division (100-level) nonmajor courses. Graduate (200-level) courses may not be applied toward this requirement.

DIVERSITY REQUIREMENT

The diversity requirement is predicated on the notion that students in the arts must be trained to understand the local, national, and global realities in which they make, understand, interpret, and teach the arts. Those realities include the multicultural, transnational, and global nature of contemporary society. The requirement may be satisfied by taking courses in any of three parts of the students' overall program: (1) general education courses, (2) courses in the major, or (3) upper division nonmajor elective courses. As such, students are not required to complete an additional course to satisfy the diversity requirement. Courses satisfying this requirement consider intergroup dynamics along with such social dimensions as race, ethnicity, gender, socioeconomic background, religion, sexual orientation, age, and disability and are relevant to the understanding of these dynamics in contemporary society and culture in the U.S. and around the world.

GENERAL EDUCATION REQUIREMENTS

General education (GE) is more than a checklist of required courses. It is a program of study that (1) reveals to students the ways that research scholars in the arts, humanities, social sciences, and natural sciences create and evaluate new knowledge, (2) introduces students to the important ideas and themes of human cultures, (3) fosters appreciation for the many perspectives and the diverse voices that may be heard in a democratic society, and (4) develops the intellectual skills that give students the dexterity they need to function in a rapidly changing world.

School of the Arts and Architecture General Education Requirements

Foundations of the Arts and Humanities

Literary and Cultural Analysis	1 Course
Philosophical and Linguistic Analysis	1 Course
Visual and Performance Arts Analysis	
and Practice	1 Course
Total = 15 units minimum	

Foundations of Society and Culture

Historical Analysis	1 Course
Social Analysis	1 Course
Third course from either subgroup	1 Course
Total = 15 units minimum	

Foundations of Scientific Inquiry

Life Sciences/Physical Sciences	2 Courses
Two courses from either subgroup. If both courses are selected from the same subgroup, they must be from different departments.	
Total = 8 units minimum	

Total GE 8 Courses/38 Units Minimum

A Writing II course also approved for general education may be applied toward the relevant general education foundational area.

This entails the ability to make critical and logical assessments of information, both traditional and digital; deliver reasoned and persuasive arguments; and identify, acquire, and use the knowledge necessary to solve problems.

FOUNDATIONS OF KNOWLEDGE

General education courses are grouped into three foundational areas: Foundations of the Arts and Humanities, Foundations of Society and Culture, and Foundations of Scientific Inquiry.

Eight courses (38 units minimum) are required. A Writing II course also approved for general education may be applied toward the relevant general education foundational area.

Students who complete a yearlong GE Cluster series fulfill the Writing II requirement and complete nearly 50 percent of their general education requirements. Students who do not complete the yearlong GE Cluster series must meet with a counselor in the Student Services Office to determine applicable GE credit.

Courses listed in more than one category can fulfill GE requirements in only one of the cross-listed categories.

Foundations of the Arts and Humanities. Three 5-unit courses, one from each subgroup. Courses required to satisfy the major or other courses taken in the major field may not be used to satisfy this GE requirement:

Literary and Cultural Analysis

Philosophical and Linguistic Analysis

Visual and Performance Arts Analysis and Practice

The aim of courses in this area is to provide perspectives and intellectual skills necessary to comprehend and think critically about our situation in the world as human beings. In particular, the courses provide the basic means to appreciate and evaluate the ongoing efforts of humans to explain, translate, and transform their diverse experiences of the world through such media as language, literature, philosophical systems, images, sounds, and performances. The courses introduce students to the historical development and fundamental intellectual and ethical issues associated with the arts and humanities and may also investigate the complex relations between artistic and humanistic expression and other facets of society and culture.

Foundations of Society and Culture. Three 5-unit courses, one from each subgroup and a third course from either subgroup:

Historical Analysis

Social Analysis

The aim of courses in this area is to introduce students to the ways in which humans organize, structure, rationalize, and govern their diverse societies and cultures over time. The courses focus on a particular historical question, societal problem, or topic of political and economic concern in an effort to demonstrate how issues are objectified for study, how data is collected and analyzed, and how new understandings of social phenomena are achieved and evaluated.

Foundations of Scientific Inquiry. Two courses from either subgroup. If both courses are selected from the same subgroup, they must be from different departments:

Life Sciences

Physical Sciences

The aim of courses in this area is to ensure that students gain a fundamental understanding of how scientists formulate and answer questions about the operation of both the physical and biological world. The courses also deal with some of the most important issues, developments, and methodologies in contemporary science, addressing such topics as the origin of the universe, environmental degradation, and the decoding of the human genome. Through lectures, laboratory experiences, writing, and intensive discussions, students consider the important roles played by the laws of physics and chemistry in society, biology, Earth and environmental sciences, and astrophysics and cosmology.

Foundations Course Lists. Creating and maintaining a general education curriculum is a dynamic process; consequently, courses are frequently added to the list. For the most current list of approved courses that satisfy the Foundations of Knowledge GE plan, consult an academic counselor or see <http://www.registrar.ucla.edu/Academics/GE-Requirement>.

RECIPROCITY WITH OTHER UC CAMPUSES

Students who transfer to UCLA from other UC campuses and have met all GE requirements prior to enrolling at UCLA are not required to complete the School of the Arts and Architecture GE requirements. Written verification from the dean at the other UC campus is required. Verification letters should be sent to the Student Services Office, School of the Arts and Architecture, 2200 Broad Art Center, UCLA, Box 951620, Los Angeles, CA 90095-1620.

INTERSEGMENTAL GENERAL EDUCATION TRANSFER CURRICULUM

Transfer students from California community colleges have the option to fulfill UCLA lower division GE requirements by completing the Intersegmental General Education Transfer Curriculum (IGETC) prior to transfer. The curriculum consists of a series of subject areas and types of courses which have been agreed on by the University of California and the California community colleges. Although GE or transfer core courses are degree requirements rather than admission requirements, students are advised to fulfill them prior to transfer. The IGETC significantly eases the transfer process, as all UCLA GE requirements are fulfilled when students complete the IGETC courses. Students who select the IGETC must complete it entirely before enrolling at UCLA. Otherwise, they must fulfill the School of the Arts and Architecture GE requirements.

DEPARTMENT REQUIREMENTS

School of the Arts and Architecture departments generally set two types of requirements that must be satisfied for the award of the degree: (1) Preparation for the Major (lower division courses) and (2) the Major (upper division courses). Preparation for the Major courses should be completed before beginning upper division work.

PREPARATION FOR THE MAJOR

A major requires completion of a set of courses known as Preparation for the Major. Each department sets its own Preparation for the Major requirements; see the Curricula and Courses section of this catalog.

THE MAJOR

A major is composed of no less than 56 units, including at least 36 units of upper division courses.

Students must complete their major with a scholarship average of at least a 2.0 (C) in all courses in order to remain in the major. Each course in the major department must be taken for a letter grade.

As changes in major requirements occur, students are expected to satisfy the new requirements insofar as possible. Hardship cases should be discussed with the department adviser, and petitions for adjustment should be submitted to the dean of the school when necessary.

Any department offering a major in the School of the Arts and Architecture may require a general final examination.

Individual Majors. Highly motivated students who believe that no single major accommodates their specific interests and goals may propose designing their own major. Proposals are prepared with faculty guidance and sponsorship and must explain the intent concerning the anticipated program of study and reasons why the academic goals cannot be achieved within an existing major. Proposals must be submitted no later than the end of the sophomore year. Transfer students must complete at least one term of residency at UCLA before proposing an individual major. Students interested in designing an individual major should consult the Director of Student Services, School of the Arts and Architecture, 2200 Broad Art Center, 310-206-3564.

Minors and Double Majors. Students may petition to be reviewed for a minor and/or double major on an individual basis. It is strongly recommended that students pursuing a minor or double major enroll in 15 to 20 units per term. Contact the Student Services Office for an outline of criteria required.

POLICIES AND REGULATIONS

Degree requirements are subject to policies and regulations, including the following:

STUDENT RESPONSIBILITY

Students should take advantage of academic support resources, but they are ultimately responsible for keeping informed of and complying with the rules, regulations, and policies affecting their academic standing.

STUDY LIST

Each term the student study list must include from 12 to 20 units. The school has no provision for part-time enrollment. After the first term, students may petition to carry more than 20 units if they have an overall grade-point average of 3.0 (B) or better and have attained at least a B average in the preceding term with all courses passed. Consult the Student Services Office no later than the end of the second week of instruction.

MINIMUM PROGRESS

Students are expected to complete satisfactorily at least 36 units during any three consecutive terms in residence; they are placed on probation if they fail to pass these units. They are subject to dismissal if they fail to pass at least 32 units in three consecutive regular terms in residence.

CHANGING A MAJOR

Students in good academic standing who wish to change their major may petition to do so provided they can complete the new major within the 216-unit limit and normal time to degree (12 terms for students who entered as freshmen; six terms for students who entered as transfers). Petitions must be submitted to and approved by the department or committee in charge of the new major. Admission to certain majors may be closed or restricted; changes are normally not permitted if students are on probation or have begun their last term.

CONCURRENT ENROLLMENT

Enrollment at a non-UC institution or at UCLA Extension while enrolled at UCLA is not permitted.

CREDIT LIMITATIONS

The following credit limitations apply to all undergraduate students enrolled in the school:

Advanced Placement Examinations. Credit earned through the College Board Advanced Placement (AP) Examinations may be applied toward certain University/school requirements. Consult a counselor in the Student Services Office to determine applicable credit. Portions of AP Examination credit may be evaluated by corresponding UCLA course numbers (e.g., French 4). If students take the equivalent UCLA course, unit credit for such duplication is deducted before graduation. See the AP table at <http://www.admission.ucla.edu/prospect/APCreditAA.htm> for UCLA course equivalents and credit allowed for GE requirements.

Graduate Courses. Undergraduate students who wish to take courses numbered in the 200 series for credit toward a specific degree requirement must petition for advance approval of the department chair and the dean of the school and must meet the specific qualifications. Courses numbered in the 400 and 500 series may not be applied toward the degree.

COUNSELING SERVICES

The School of the Arts and Architecture offers advising, program planning in the major and general education requirements, and individual meetings with school and departmental counselors. For counseling information, contact the Student Services Office, School of the Arts and Architecture, 2200 Broad Art Center, 310-206-3564.

HONORS

School of the Arts and Architecture undergraduate students who achieve scholastic distinction may qualify for the following honors and programs:

DEAN'S HONORS

To receive Dean's Honors, students must have at least 12 graded units per term with a grade-point average of 3.8 for less than 16 units of work (3.7 GPA for 16 or more units). The honor is posted on the transcript for the appropriate term. Students are not eligible for Dean's Honors in any given term if they receive an Incomplete or a Not Passed (NP) grade, change a grade, or repeat a course.

LATIN HONORS

Latin Honors are awarded at graduation to students with superior grade-point averages. To be eligible, students must have completed 90 or more units for a letter grade at the University of California. The levels of honors are *summa cum laude*, *magna cum laude*, and *cum laude*. The minimum GPAs required are subject to change on an annual basis. Required GPAs in effect in the graduating year determine student eligibility. Contact the Student Services Office or <http://www.registrar.ucla.edu/Registration-Classes/Graduation-Final-Degree-Audit/Latin-Honors> for the most current calculations of Latin honors.

DEPARTMENTAL SCHOLAR PROGRAM

Exceptionally promising juniors or seniors may be nominated as Departmental Scholars to pursue bachelor's and master's degree programs simultaneously. Qualifications include completion of 24 courses (96 quarter units) at UCLA or the equivalent at a similar institution and the requirements in preparation for the major. Students must also have at least one term of coursework remaining at UCLA. To obtain both the bachelor's and master's degrees students must be provisionally admitted to the Graduate Division, fulfill requirements for each program, and maintain a minimum B average. No course may be used to fulfill requirements for both degrees. Interested students should consult their department well in advance of application dates for graduate admission. Contact the Student Services Office in 2200 Broad Art Center for details.

GRADUATE STUDY

The advanced degree programs offered in the School of the Arts and Architecture provide graduate students with unique research opportunities when combined with special resources, such as the Young Research Library, the special collections of the Arts Library, and the University's exhibition halls.

Fellowships, grants, and assistantships are available through the departments and the dean of the Graduate Division.

ADMISSION

In addition to requiring that applicants hold a bachelor's degree from an accredited U.S. institution or an equivalent degree of professional title from an international institution, each department in the school has limitations and additional requirements. In general, samples of creative work (auditions, portfolios, computer programs, etc.) are required. Detailed information is available on individual department websites and in Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu>.

For information on the proficiency in English requirements for international graduate students, see Graduate Admission in the Graduate Study section of this catalog.

DEGREE REQUIREMENTS

Requirements to fulfill each degree objective vary according to the degree and the department. For complete degree requirements, see Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu>.

SCHOOL OF DENTISTRY

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SCHOOL OF
DENTISTRY

Paul H. Krebsbach, Dean

UCLA
53-038 Dentistry
Box 951668
Los Angeles, CA 90095-1668

310-206-6063
fax: 310-794-7734
<https://www.dentistry.ucla.edu>

The School of Dentistry at UCLA has a national and international reputation for its teaching, research activities, and public service that prepare dental students for professional careers dedicated to patient treatment, leadership, and service. The curriculum prepares students for changes in treatment modalities and health-care delivery systems. From the moment training begins, students actively participate in preventive and clinical dental care and soon make valuable contributions to the clinical health team. Clinical instruction emphasizes the comprehensive care of patients. Students interact with their colleagues, faculty members, and dental auxiliary personnel in much the same way as they later will interact in a private or group practice.

School of Dentistry students may undertake programs designed to meet their special interests; mandatory selectives encourage advanced training in an area of particular interest and service learning. In addition to basic and applied research programs within the school, students participate in community service programs such as the Wilson-Jennings-Bloomfield UCLA Venice Dental Center. The graduate programs and resident specialty programs foster new lines of research that lead to better treatment options. An active continuing education program directed by UCLA faculty members provides a variety of hands-on courses for members of the dental profession and their auxiliaries.

DEGREES AND PROGRAMS

The school offers the following degrees:

Dental Surgery (DDS)
Oral Biology (MS, PhD)

In addition, the school has a Professional Program for International Dentists (PPID) and a number of dental specialty residency programs. Articulated DDS, MS, PhD, and specialty programs are also available. One concurrent degree program (Dentistry DDS/Management MBA) is also offered. For information on the MS and PhD programs in Oral Biology, for which admission to the School of Dentistry is not required, see Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu>.

PREDENTAL CURRICULUM

For details on the three-year predental curriculum, see <http://career.ucla.edu/Pre-Health-Career-Services>.

DDS DEGREE

The UCLA dental curriculum leading to the degree of Doctor of Dental Surgery (DDS) is based on the quarter system. The course of study usually takes four academic years of approximately nine months each, with three required summer quarters between the first/second, second/third, and third/fourth years. The curric-

ulum is designed to provide students with clinical competence and broad experience in all phases of clinical dentistry within the four years.

The dental curriculum consists of three principal areas: basic health sciences courses, didactic dental courses, and clinical experience. The first two years of the curriculum are chiefly devoted to didactic, laboratory, and general clinical coursework. The final two years emphasize training and instruction in the clinical fields, including endodontics, fixed prosthodontics, operative dentistry, oral diagnosis and treatment planning, oral radiology, oral and maxillofacial surgery, anesthesiology, orthodontics, pediatric dentistry, periodontics, and removable prosthodontics.

For details on the DDS program and a listing of the courses offered, see <https://www.dentistry.ucla.edu/learning/doctor-dental-surgery-program> or

write to the Office of Student Affairs, School of Dentistry, A0-111 Dentistry, UCLA, Box 951762, Los Angeles, CA 90095-1762.

The School of Dentistry has an international reputation for its teaching and research activities, which prepare students for professional careers dedicated to patient treatment and service.



RESIDENT PROGRAMS

School of Dentistry opportunities for resident study include a one-year general practice residency program; a one-year advanced education in general dentistry program; a one-year residency in maxillofacial prosthodontics; a six-year oral and maxillofacial surgery residency training program; three-year prosthodontics, periodontics, orthodontics, and dental anesthesiology programs; two-year programs in the specialties of endodontics, oral radiology, and orofacial pain and dysfunction; and a 26-month program in pediatric dentistry.

Information on the resident programs can be obtained by writing directly to Residency Programs, School of Dentistry, A0-111 Dentistry, UCLA, Box 951762, Los Angeles, CA 90095-1762.

SCHOOL OF LAW

Jennifer L. Mnookin, Dean

UCLA
1242 Law Building
Box 951476
Los Angeles, CA 90095-1476

310-825-4841
fax: 310-206-7763
<http://www.law.ucla.edu>

By any standard, the School of Law at UCLA is recognized as one of the nation's great law schools. Each year a lively, talented, and diverse law student population assembles in a rigorous, innovative, and supportive environment. Members of the faculty frequently receive awards for teaching excellence and are highly regarded Universitywide and nationally. They also are recognized worldwide for their contributions to scholarship and law reform in a broad spectrum of

fascinating fields that dramatically affect our world—constitutional law, environmental law and policy, criminal law, corporate law, employment law, international law, and intellectual property, to name a few. The structure of our democracy, the underpinnings and regulation of business, families, communities, and individual liberties, the powerless and homeless, the many permutations of a race-conscious society—all are subjects of investigation and study. Faculty members are committed to being intellectually and professionally demanding of students and humane at the same time, encouraging and fostering a genuine spirit of collaboration and community.

Law students select courses from an intellectually rich curriculum in private or public law and theory. Courses are taught in both traditional and clinical settings, with some offered as part of coordinated concurrent degree programs or specializations in Business Law and Policy, Critical Race Studies, Entertainment, Media, and Intellectual Property Law, International and Comparative Law, Law and Philosophy, and Public Interest Law and Policy. Situated at a major gateway to the Pacific Rim, UCLA is a center of international programs; international and comparative law has become a dynamic, integral part of the law school curriculum, with courses addressing the European Union, modern Japan and China, Islam, international trade and business transactions, and a host of other related courses. Part of an outstanding research University, possessed of rich cultural resources, and located in a beautiful garden setting allowing year-round outdoor study and reflection, UCLA's extensive educational programs afford law students myriad interdisciplinary opportunities both in the classroom and through independent research.

The technologically advanced, spacious, and comfortable Hugh and Hazel Darling Law Library—replete with natural lighting and views—houses an extensive collection of legal materials. The school's nationally recognized clinical program offers sophisticated courses that help students develop applied lawyering skills, focus on solving client problems, and see in their education at UCLA more of what ultimately will face them as lawyers and policymakers. An entire wing of the Law Building is designed especially for clinical teaching and student practice and facilitates work and study in the ever-expanding clinical curriculum, which includes courses in interviewing, counseling, negotiation, business transactions, criminal and civil trial advocacy, community-based lawyering, environmental law, and international justice. The first-year lawyering skills course, taught by experienced lawyers who are full-time faculty members, is truly outstanding and features interviewing and counseling of clients and drafting of legal memoranda, contracts, and advice letters, thereby developing legal research capabilities and writing prowess.

Successful placement of UCLA law graduates reflects the school's excellent national ranking. Approximately 400 interviewers from across the country visit the campus annually, including law firms, corporations, government agencies, and public interest organizations. UCLA graduates (more than 16,000) work in coveted positions locally and around the world, not only serving in a wide variety of public and private law practices, but as judges, business executives, writers, journalists, law professors, and academic administrators.

DEGREES

The school offers the following degrees:

- Juris Doctor (JD)
- Master of Laws (LLM)
- Doctor of Juridical Science (SJD)

Concurrent Degree Programs

The school offers nine concurrent degree programs:

- Law JD/African American Studies MA
- Law JD/American Indian Studies MA
- Law JD/Education MEd, MA, EdD, or PhD
- Law JD/Management MBA
- Law JD/Philosophy PhD
- Law JD/Public Health MPH
- Law JD/Public Policy MPP
- Law JD/Social Welfare MSW
- Law JD/Urban Planning MURP

In addition to the concurrent programs above, students may design a tailored program from other disciplines in the UCLA curriculum or from another high-quality institution; this must be arranged in consultation with the School of Law and the other selected program.

Detailed information about the academic programs offered by the School of Law, course titles and descriptions, fees, and the semester-system calendar by which it operates are available at <http://www.law.ucla.edu/academics/degrees-and-specializations/>.

JURIS DOCTOR DEGREE

Admission

Students beginning their professional work are admitted only for Fall Semester. They must have received a bachelor's degree from a university or college of approved standing before beginning work in the school and are required to take the Law School Admission Test (LSAT).

The school seeks to admit students of outstanding intellectual ability who bring a wide range of backgrounds, experiences, and perspectives to the classroom and the legal profession. Through long experience the faculty has concluded that the quality of the education of each student is affected in significant ways by the presence of vital diverse viewpoints. Students of all backgrounds choose to come to UCLA in significant part because of the school's outstanding achievements in creating a highly diverse educational environment.

In evaluating each applicant the school places substantial weight on traditional measures of academic ability, namely grades and LSAT scores. It also recognizes in its evaluation that other factors and attributes contribute greatly to a person's ability to succeed as a law student and lawyer. When assessing academic promise and achievement, the applicant's entire file is considered, including letters of recommendation, whether economic, physical, or other challenges have been overcome, scholarly achievements such as graduate study, awards, or publications, and the rigor of the undergraduate educational program.

In addition, the school considers attributes that may contribute to assembling a diverse class. Special emphasis is placed on socioeconomic disadvantage in the evaluation. Also considered are work experience

and career achievement, community or public service, career goals (with particular attention to the likelihood of applicants representing underrepresented communities), significant hardships overcome, evidence of and potential for leadership, language ability, unusual life experiences, and any other factors (except those deemed inadmissible by The Regents or by other applicable law) that indicate the applicant may significantly diversify the student body or make a distinctive contribution to the school or the legal profession.

The UCLA School of Law has as one of its central purposes the training of attorneys who attain high levels of professional excellence and integrity and who exercise civic responsibility in myriad ways over long careers.

Residence and Unit Requirements

Candidates for the degree of Juris Doctor must pursue resident law school study for six semesters and successfully complete 87 units, at least 65 of which must be earned in regularly scheduled law class sessions. The residence requirements may be satisfied as follows: (1) six semesters in regular session in this school or (2) two semesters in regular session (or equivalent) in a school that is accredited by the American Bar Association, coupled with four semesters in regular session (or equivalent) in this school.

Every first-year student is required to take the full schedule of required courses; second- and third-year students are required to take a minimum of 12 units and may not take more than 16 units each semester. The second- and third-year curriculum is elective, except for a required course in professional responsibility and a substantial analytical writing requirement. In addition to the courses in the regular law school curriculum, students may take two courses for credit in other disciplines within the University. Graduate students may enroll in upper division law courses on a limited basis. Law courses are not open to non-UCLA students. Auditing of courses is not permitted.

Attendance and Grades. The right to take examinations and the privilege of continuing as a student in the school are conditioned on regular classroom attendance. Information on the grading system, which is based on a letter-grade scale of A+ to F, may be obtained from the Office of the Assistant Dean for Students. Standards for satisfactory performance and for graduation are prescribed by the faculty and are published separately. They may also be obtained from the above office.

Curriculum

The school offers courses of instruction within the school and supervised educational experiences outside it in an effort to enable its students to think intelligently and to prepare them for careers of practice and public service. To this end the school employs several instructional techniques in a variety of subject areas.

In the first year of their legal education students are exposed to an intensive study of legal reasoning in a series of fields that have historically dominated legal thought. Students begin with a pioneering week-long orientation program that immerses them in the funda-



The outstanding reputation of the School of Law is based on excellence in scholarship, rigorous education programs, and the quality of a faculty that includes eminent authorities in all major fields of law.

ments of the law school learning process. From there they embark on a formative first year that promotes optimal learning with an extensive course on lawyering skills, in addition to the traditional courses on common law and other foundational subjects. The year-long lawyering skills course provides students with the opportunity to explore the relationship between legal analysis and lawyering tasks, such as effective legal writing, oral advocacy, and legal research. The course is taught alongside courses that historically have laid the foundation for law of all kinds: civil procedure, constitutional law, contracts, criminal law, and property and torts. In addition, an elective on modes of legal inquiry in the second semester of the first year serves as a gateway to the upper division curriculum.

In the second and third years students have an opportunity to engage in a number of different fields of law and law-related study. All of the courses in the second- and third-year curriculum are elective, with the exception of the legal profession and substantial analytical writing requirements that are requisites for graduation.

MASTER OF LAWS DEGREE

The School of Law offers a Master of Laws (LLM) degree program for international and domestic law school graduates who wish to pursue a year of graduate legal education. The program allows students to specialize their studies in fields such as entertainment law, international and comparative law, and four separate business law subjects, or to design their own specialization in a field of their choice. For further information, see <http://www.law.ucla.edu/llm-sjd/llm-program/>.

DOCTOR OF JURIDICAL SCIENCE DEGREE

The Doctor of Juridical Science (SJD) degree program is designed for those seeking to pursue careers as teachers and scholars of law. The highly selective program is open only to applicants who possess a distinguished prior academic record in law, show promise of outstanding scholarship, and demonstrate a high potential for completing a scholarly dissertation of required quality. Applicants must hold a JD degree or foreign equivalent and an LLM degree (or be enrolled in a program leading to an LLM degree). For further information, see <http://www.law.ucla.edu/llm-sjd/sjd-program/>.

ACADEMIC SPECIALIZATIONS FOR JD DEGREE

BUSINESS LAW AND POLICY SPECIALIZATION

The Business Law and Policy specialization is designed for students who wish to focus their schooling in a particular area of business law and ultimately earn a certificate of completion with their JD degree. Students may choose from five tracks: business law, bankruptcy, mergers and acquisitions, securities regulation, and taxation. Approximately 70 courses and seminars are offered in the specialization. The five tracks are designed to provide additional guidance to students in course selection, as well as highlight the specialization's curricular strengths. Business law materials are integrated to varying degrees in the law school's first-year curriculum, typically in property, contracts, and torts. The second- and third-year curricula in the specialization include courses covering a wide variety of legal and business issues, ranging from regulation of markets to the design of business transactions.

CRITICAL RACE STUDIES SPECIALIZATION

The UCLA School of Law is the first American law school to offer an advanced curriculum that fosters students' systematic and rigorous study in the area of critical race studies. With many faculty members who have been instrumental in pioneering and advancing critical race theory, the Critical Race Studies specialization is essential to promoting insightful, intelligent public conversation about race relations. It is appropriate for law students who seek advanced study and/or practice in race and the law, critical race theory, civil rights, public policy, and other legal practice areas that are likely to involve working with racial minority clients and communities or working to combat racial inequality. The course of study emphasizes mastery of five areas: (1) history (centered on the Constitution but focused as well on a variety of other legal documents and experiences), (2) theory (critical race theory, jurisprudence, and theoretical advances outside the legal academy), (3) comparative subordination (understanding of the multiracial nature of American race relations, as well as how racial inequality is affected by discrimination based on gender, sexual orientation, and disability), (4) doctrine (case and statutory law and its interpretation), and (5) practice (including legal practice, community service, and lawyers' use of social science inquiries and methods).

ENTERTAINMENT, MEDIA, AND INTELLECTUAL PROPERTY LAW SPECIALIZATION

Los Angeles is the center of the entertainment industry, and recognizing the unique ability to offer a specific program in that arena, the school launched the Entertainment, Media, and Intellectual Property Law specialization in 2005. The specialization is the most comprehensive, advanced, and innovative approach to the study of entertainment and media law in the country. Students who fulfill the requirements have a solid grounding in the law, custom, theory, and policy in the motion picture, television, music, and other industries involved in creative and artistic matters. The program also prepares students who choose to work in non-profit institutions, government, or academia in the area of entertainment, media, and intellectual property law.

INTERNATIONAL AND COMPARATIVE LAW SPECIALIZATION

The school's International and Comparative Law Program is one of the best in the nation. An expansive law faculty, course offerings, colloquia and symposia, student-edited journals, externships, foreign exchange offerings, and a broad community of interested students from around the world constitute a rich milieu in which to learn about the field. The International and Comparative Law specialization builds on these strengths and directs students to coursework that may range from international business to comparative constitutional law to international human rights. Students may either select a range of international and comparative courses or pursue a specialization route that allows them to compare U.S. law with the laws of their home country.

LAW AND PHILOSOPHY SPECIALIZATION

The Law and Philosophy specialization is designed for students who want to supplement their legal studies by exploring more theoretical issues concerning the philosophical foundations of law. It is invaluable to stu-

dents, especially those interested in attending graduate programs or exploring a career in academia. The specialization exposes students to material on the nature of law and legal systems, legal methodologies, and the theoretical underpinnings and justifications of particular doctrinal areas such as constitutional law, criminal law, and contract. Students need not have any prior background in philosophy, but a strong interest in the subject is recommended.

PUBLIC INTEREST LAW AND POLICY SPECIALIZATION

Recognizing the considerable debate about the proper role of the law in creating and sustaining a just society and defining public interest broadly to include all interests underrepresented by the private market, the Public Interest Law and Policy specialization strives to provide its students with an innovative and intellectually ambitious curriculum that prepares them to engage in sophisticated representation of traditionally underserved clients and interests. The specialization, one of the nation's top such programs, has a competitive admissions process. Students represent a broad range of political and ideological perspectives and often pursue additional specializations and joint degrees. Graduates have received prestigious public interest law fellowships, and they work in a variety of settings, with focus on an array of social justice issues ranging from immigration, labor, and international human rights to healthcare, welfare and poverty, and civil rights. Faculty members are leaders in their respective fields and have distinguished themselves by the quality of their scholarship and teaching. They represent a broad cross-section of interests on social justice issues and bring to the classroom a depth of knowledge from a wide range of experiences and research perspectives.

ACADEMIC SPECIALIZATIONS FOR LLM DEGREE

BUSINESS LAW SPECIALIZATION

The Business Law specialization is designed to allow students to focus in one of four tracks: business law, bankruptcy, securities regulation, and taxation. Approximately 70 courses and seminars are offered in the specialization. The four tracks are designed to provide guidance to students in course selection, as well as highlight the specialization's curricular strengths. The advanced curricula in the specialization include courses covering a wide variety of legal and business issues, ranging from regulation of markets to the design of business transactions. The Lowell Milken Institute for Business Law and Policy prepares students for outstanding careers and leadership in business law as well as in business, the nonprofit sector, and philanthropy. The institute simultaneously serves as a dynamic hub of research and strategy for practitioners, scholars, and experts across a variety of disciplines.

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LAW AND SEXUALITY SPECIALIZATION

The Law and Sexuality specialization builds on the role of UCLA Law as a leader in the field of sexual orientation and gender identity law and scholarship. The goal of the specialization is to expand the quality and extent of legal knowledge and public discourse on issues related to sexuality and law. It is affiliated with the Williams Institute, a national think tank dedicated to conducting rigorous, independent research on sexual orientation and gender identity law and public policy. Students can take classes offered by faculty members and scholars associated with the institute, to be men-

tored by them, and to participate in a range of institute activities, including the speaker series and annual conference, moot court competition, and the Dukeminier Awards journal. Staff from the institute work with LLM students to secure internships in the Los Angeles area and to establish connections between LLM students and international experts and organizations working in their geographic or topic area. The specialization involves coursework on comparative and/or international law with focus on sexuality issues, including a course on law and sexuality and a Sexual Orientation Workshop seminar taught by Williams Institute teaching fellows.

PUBLIC INTEREST LAW AND POLICY SPECIALIZATION

Exploring the proper role of the law in creating and sustaining a just society and defining public interest broadly to include all interests underrepresented by the private market, the Public Interest Law and Policy specialization strives to provide its students with an innovative and intellectually ambitious curriculum that prepares them to engage in sophisticated representation of traditionally underserved clients and interests. The specialization, one of the nation's top such programs, has a competitive admissions process. Students represent a broad range of political and ideological perspectives. Graduates work in a variety of settings, with focus on an array of social justice issues ranging from immigration, labor, and international human rights to healthcare, welfare and poverty, and equality rights.

PROGRAMS AND CENTERS

CENTER FOR LAW AND ECONOMICS

The mission of the Center for Law and Economics is to foster academic scholarship exploring how economics can help us better understand and improve our laws. UCLA has one of the richest law and economics traditions in the world, and many of the founders of law and economics have made UCLA their academic home. The center, along with the Anderson Graduate School of Management and the law school's Lowell Milken Institute for Business Law and Policy, sponsors the UCLA Law, Economics, and Organization Workshop where speakers present their latest works-in-progress in the broad area of law and economics as it relates to business organizations.

CLINICAL AND EXPERIENTIAL PROGRAMS

The School of Law has long been recognized for its innovative approach to clinical teaching that transforms the classroom into a real-world laboratory through the integration of theory and practice. It has been a national leader in clinical teaching since the early 1970s and continues to offer rigorous practical training across a wide range of practice areas. Students gain crucial firsthand experience that prepares them for future careers, learning from faculty members whose knowledge and expertise place them at the forefront of clinical education.

From the first year, students have opportunities to receive training and hands-on experience by participating in the El Centro Legal Clinics. El Centro places students with public interest legal services organizations to provide legal assistance to underserved individuals, families, and communities. Second- and third-year students can participate in a broad array of clinical

courses that encompass all areas of legal practice—litigation, transactional, and public interest. In addition, second- and third-year students can do part-time and full-time externships, working for judges, government agencies, public interest law firms, and nonprofit organizations.

The clinical program is led by exceptional faculty members—visionary scholars who have contributed the cornerstone ideas that form the basis of clinical training, as well as a new generation of leaders who are bringing clinical education into areas of the legal profession that have long remained outside the scope of hands-on training.

CRITICAL RACE STUDIES PROGRAM

Throughout American history, race has profoundly affected the lives of individuals, growth of social institutions, substance of culture, and workings of our political economy. Not surprisingly, this impact has been substantially mediated through the law and legal institutions. To understand the deep interconnections between race and law and, particularly the ways in which race and law are mutually constitutive, is an extraordinary intellectual challenge with substantial practical implications. In a nation that is becoming more racially diverse and finds global issues at the forefront of political debate, these issues promise to remain central to the work of law practitioners and the research of legal scholars. The only one of its kind in the U.S., the Critical Race Studies Program is proud that some of the original architects of critical race theory are faculty members. It is the premier institutional setting for the study of the intersection between race and the law. Established in 2000, the program has quickly emerged as a training ground for a new generation of practitioners, scholars, and advocates committed to racial justice theory and practice and is a multifaceted program that augments a rigorous course of study with research colloquia, symposia, interdisciplinary collaborations, and community partnerships in order to integrate theory and practice.

DAVID J. EPSTEIN PROGRAM IN PUBLIC INTEREST LAW AND POLICY

The school's highly selective David J. Epstein Program in Public Interest Law and Policy was established in 1997 in response to the need to better train public interest lawyers. It quickly became one of the nation's most innovative and successful law school public interest programs, engaging students in an array of social justice issues. Recognizing the considerable debate about the proper role of the law in creating and sustaining a just society and defining public interest broadly to include all interests underrepresented by the private market, the program strives to ensure that its students pursue an innovative and intellectually ambitious curriculum and extracurricular involvement that best prepares them to engage in sophisticated representation of traditionally underserved clients and interests. Beyond the formal coursework, the program provides an array of opportunities for students to hear from leading public interest practitioners and scholars, work on current policy problems, and become involved in public interest activities within and outside the School of Law. The program also sponsors a series of forums, symposia, and activities that focus on social justice issues in which all students, faculty, alumni, and the broader community participate.

EMMETT INSTITUTE ON CLIMATE CHANGE AND THE ENVIRONMENT

The Emmett Institute on Climate Change and the Environment is the leading law school center focused on climate change and other critical environmental issues. Founded in 2008 with a generous gift from Dan A. Emmett and his family, the institute works across disciplines to develop and promote research and policy tools useful to decision makers locally, statewide, nationally, and beyond. The institute houses the school's leading environmental programs, including the Frank G. Wells Environmental Law Clinic, a vital training ground for environmental lawyering. It also works hand in hand with the UCLA Sustainable Technology and Policy Program, a collaboration between the School of Law and the Fielding School of Public Health. Taking advantage of its home at one of California's top law schools, the institute has particular expertise in the cutting-edge steps taken by California to lead the way toward meaningful reductions of greenhouse gas emissions. Lawmakers, the broader legal community, business leaders, academics, and the media rely on the institute as a trusted resource to analyze and answer questions about policy and law issues related to climate change and other environmental challenges.

EMPIRICAL RESEARCH GROUP

The UCLA School of Law is one of the only law schools in the country to provide its faculty members with the support of trained statisticians to further empirical research. The Empirical Research Group (ERG) is a methodology-oriented research center that specializes in the design and execution of quantitative research in law and public policy, and enables faculty members to include robust empirical analysis in their legal scholarship. Articles and reports published by faculty members working with ERG have covered topics as diverse as bankruptcy, legal aid, pollution prevention, tax policy, gay rights, the living wage, and campaign finance disclosure. Articles, reports, working papers, and supporting data are posted on the ERG website. In addition to faculty scholarship, ERG trains law students as research assistants in empirical methods such as sampling, data collection, and statistics, and works closely with law students who conduct their own empirical research. ERG has received or facilitated more than \$2.5 million in foundation support for specific projects, including a grant from the Pew Charitable Trusts to study state campaign finance disclosure.

EXTERNSHIPS AND FIELD PLACEMENTS

Through the School of Law's extensive and diversified externship program, students can work in a supervised environment with a wide variety of employers and in a diverse range of practice areas. Students are able to extern with judges, government agencies, nonprofit organizations or, in some circumstances, entertainment and other in-house placements. They also may participate in the UCDC Law Program, a full-time externship program in Washington, DC. The field placement program brings together faculty members, students, and practicing lawyers to collaborate and connect classroom learning with practice opportunities.

GLOBALIZATION AND LABOR STANDARDS PROGRAM

For students interested in labor and employment issues, UCLA has a Globalization and Labor Standards (GALS) Program that maintains a web-based library of law review articles on all issues of international labor rights and global labor standards. GALS also publishes a monthly newsletter, organizes conferences, and hosts regular speaker programs. Student contributors are involved in every stage of the project.

HEALTH AND HUMAN RIGHTS LAW PROJECT

The Health and Human Rights Law Project seeks to improve global health by using a framework grounded in international human rights law. Through multidisciplinary research, training, and mentorship, the project examines the relationship between health and human rights and fosters the next generation of leaders working in this area. With an emphasis on issues pertaining to sexuality, gender, and HIV/AIDS, the project focuses on health issues around which rights-claiming has particular salience.

INTERNATIONAL AND COMPARATIVE LAW PROGRAM

The International and Comparative Law Program is one of the best in the nation. Permanent faculty members who have built their reputations in the field offer numerous international and comparative law courses, such as international business transactions, national security law, human rights, international environmental law, international criminal law, European Union law, and Islamic law. The study of international and comparative law at UCLA is further strengthened by the opportunity to take courses in other UCLA departments. Some of the country's best work in international economics, politics, and business occurs at UCLA, and many law students find it valuable to complement their law school work with coursework in other departments. Students may also pursue joint degrees with other departments with the approval of the law school administration.

LAW AND PHILOSOPHY PROGRAM

The School of Law and the Department of Philosophy offer an exciting program in law and philosophy that takes advantage of the law faculty's strength and depth in the subject and the school's close relationship to the Philosophy Department. The program has many dimensions, including a wide range of courses at the intersection of law and philosophy and a legal theory workshop, open to all members of the law school and Philosophy Department, in which leading scholars present works in progress.

LOWELL MILKEN INSTITUTE FOR BUSINESS LAW AND POLICY

The central mission of the Lowell Milken Institute for Business Law and Policy is to influence the national legal and policy debate over the critical issues affecting the regulation and governance of business. The institute seeks to fulfill this mission by promoting innovative research at the intersection of law and business by a highly respected and widely recognized business law faculty, by offering a unique blend of policy and practice-oriented courses designed to prepare law students to be leaders in the new economy, and by hosting

timely conferences and scholarly events on matters that advance the public discussion.

NATIVE NATIONS LAW AND POLICY CENTER

The Native Nations Law and Policy Center supports Native Nations to enhance their governmental institutions and laws, strengthen their cultural resource protections, and address critical public policy issues by bringing together the University's academic resources and the knowledge and experience of tribal leaders and knowledge-holders. The center serves as the home for the Tribal Legal Development Clinic and Tribal Appellate Court Clinic that involve students in projects such as constitution drafting, code development, and law clerking for Indian nation clients.

NEGOTIATION AND CONFLICT RESOLUTION PROGRAM

The Negotiation and Conflict Resolution Program promotes an interdisciplinary approach to understanding and managing the competition for scarce resources in legal, business, and interpersonal contexts. The program's broad mission includes the study of private and public transactions and disputes in domestic and international arenas. It brings together a community of scholars and students from a variety of fields across UCLA and throughout Southern California with overlapping scholarly, teaching, and practice interests.

OFFICE OF PUBLIC INTEREST PROGRAMS

The UCLA School of Law has a long-standing commitment to public service and is committed to cultivating an environment that encourages all of its students and alumni to better serve society in myriad ways. Students gain significant exposure and experience in public service through clinical courses, a pro bono program, an externship program, extensive public interest advising and informational programming, and numerous student organizations. The Office of Public Interest Programs, the hub of the school's public interest efforts, hosts a variety of career-oriented programs and relevant public interest forums and events in which students, faculty, alumni, and the broader community participate. The office also hosts the annual Southern California Public Interest Career Day that attracts more than 110 public service employers and some 1,000 students from around the region. Additionally, the office provides support for the student-run Public Interest Law Fund (PILF) and its annual auction, which raises monies to help fund summer public service internships.

PROGRAM ON UNDERSTANDING LAW, SCIENCE, AND EVIDENCE

Founded in 2009, the Program on Understanding Law, Science, and Evidence (PULSE) explores the many connections between law and science, technology, and evidence. PULSE engages in interdisciplinary research, discussion, and programming to examine how basic facts about our world, provided through science and credited as evidence, influence various venues of law and policymaking.

RESNICK PROGRAM FOR FOOD LAW AND POLICY

The Resnick Program for Food Law and Policy is dedicated to studying and advancing law and policy solu-

tions to improve the modern food system. A national think tank at the school, the program develops key legal and policy research and tools to foster a food system, from farm to the fork, that is healthy both for consumers and the environment.

RICHARD S. ZIMAN CENTER FOR REAL ESTATE

Reflecting a growing interdisciplinary focus at UCLA, the School of Law formed a partnership in 2005 with the Anderson Graduate School of Management to create the Richard S. Ziman Center for Real Estate. The center is firmly grounded in the scholarship and teaching missions of both schools and offers practical application principles that help real estate industry professionals, public officials, and business people alike make critical policy and business decisions. The center truly bridges the divide between research and practice and offers students a full range of coursework that provides a holistic view of real estate issues.

SANELA DIANA JENKINS HUMAN RIGHTS PROJECT

The Sanelia Diana Jenkins Human Rights Project engages in a range of activities, continuously identifying and pursuing the most promising opportunities for addressing human rights issues around the globe, while at the same time advancing understanding about human rights through interdisciplinary studies. The project utilizes the best scholarship and analyses of human rights and international justice from the fields of law, politics, sociology, history, and economics to set its agenda and select human rights opportunities to pursue. And it uses its practical engagement in human rights advocacy to improve scholarly understanding. Typical activities have included the development and utilization of Web-based technologies to advance human rights; assistance to and support of prosecutors and judges in international criminal tribunals; and conferences, roundtable discussions, and speakers series focused on developing a breakthrough understanding of particular human rights challenges. The project also supports human rights and international justice by training the next generation of lawyers in the field.

TRANSNATIONAL PROGRAM ON CRIMINAL JUSTICE

The Transnational Program on Criminal Justice (TPCJ) fosters research and discussion on issues of domestic, comparative, international, and transnational criminal justice systems and sponsors events to engage students and the criminal justice and comparative and international law scholarly community. The TPCJ serves as a resource for producing timely collaborative research on diverse topics at the intersection of criminal justice, comparative and international law, and human rights law. The goal is to generate knowledge and analysis not only for the scholarly community, but also for both practitioners and policymakers.

UCLA-RAND CENTER FOR LAW AND PUBLIC POLICY

The UCLA-RAND Center for Law and Public Policy is a unique partnership of the UCLA School of Law and RAND Corporation. Its mission is to produce innovative legal scholarship that is grounded in multidisciplinary empirical analysis to guide legal and public policymakers in the twenty-first century. It was created

to support collaborative research and to evolve with the doctrinal, institutional, and professional changes in the law. The main activities of the center include research, conferences, and the Empirical Legal Scholars Program.

WILLIAMS INSTITUTE ON SEXUAL ORIENTATION AND GENDER IDENTITY LAW AND PUBLIC POLICY

The Charles R. Williams Institute on Sexual Orientation and Gender Identity Law and Public Policy is the only think tank of its kind dedicated to the field of sexual orientation law and public policy. The institute supports legal scholarship, legal research, policy analysis, and education regarding sexual orientation discrimination and other legal issues that affect lesbian and gay people. The institute began with the recognition that issues central to sexual orientation law have profound implications for the development of the law and public policy in general. Drawing on the intellectual and material resources of UCLA, the institute provides a national center for the interdisciplinary exploration of these issues by scholars, judges, practitioners, advocates, and students.

ZIFFREN CENTER FOR MEDIA, ENTERTAINMENT, TECHNOLOGY, AND SPORTS LAW

The Ziffren Center for Media, Entertainment, Technology, and Sports Law supports and expands the curricular offerings of the Entertainment, Media, and Intellectual Property Law specialization. For students interested in learning more about entertainment law, the program helps them earn externships with entertainment-related businesses, brings influential speakers to campus, and sponsors the industry's top legal conference on entertainment issues, the annual UCLA Entertainment Symposium. Students run an entertainment-related journal, the *UCLA Entertainment Law Review*, as well as the student organization, the Entertainment Law Association.

SCHOOL OF NURSING

Linda P. Sarna, Interim Dean

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The School of Nursing at UCLA enjoys a national and international reputation for excellence in teaching, research, and clinical practice.

A strong scientific basis underlies the teaching of nursing practice, leadership, and research. Related clinical experiences are arranged within the Ronald Reagan UCLA Medical Center, its affiliates, or in selected community sites.

At the bachelor's level, nurses are prepared as generalists with special skills in primary, secondary, and tertiary prevention and care within a population-based

context, leadership, and evidence-based practice. At the master's level, nurses are prepared as generalists in hospital-based care or for advanced nursing practice as nurse practitioners, clinical specialists, or administrators in a variety of settings and specialized areas of healthcare. The PhD program prepares scholars who conduct original research, generate new theories, and build the scientific basis for professional nursing practice. Research is both basic and applied.

The school has an exceptionally qualified faculty; many members have national and international reputations for excellence. The school is consistently ranked high for its teaching and research programs. The innovative curriculum is responsive to national needs in healthcare and the diversity of the patient population.

Graduates of the program are sought by healthcare institutions and educational programs, and many alumni have become leaders in the field. Education in this research University with its full range of academic disciplines provides a rich environment for preparation in the health sciences.



HISTORY AND ACCREDITATION

In 1949 The Regents of the University of California authorized the School of Nursing as one of the professional schools of the UCLA Center for the Health Sciences. This action paved the way in 1950 for the opening of an undergraduate traditional program in nursing leading to the Bachelor of Science (BS) degree. In 1997 the original traditional BS program curriculum was revised to meet the educational needs of students who are registered nurses with Associate Degrees or diplomas in nursing. In 2006 the school reinstated a traditional/prelicensure BS program with admission at the freshman level. In 2010 the BS (Generic/Prelicensure) program was renamed to the BS (Prelicensure) program.

In 1951 a graduate program leading to the Master of Science (MS) degree in Nursing was established to prepare baccalaureate graduates for advanced practice nursing roles. In 1966 the Master of Nursing (MN) degree was established as an alternate option to the MS degree, which was discontinued in 1969. In 1996 the Office of the President and The Regents approved the change in the master's degree designation from MN to Master of Science in Nursing (MSN), which is still awarded to graduates prepared as nurse practitioners and clinical nurse specialists. In 2006 the school launched the master's entry clinical nurse (MECN)/ prelicensure program option within the MSN degree program, which is designed for prelicensure students with bachelor's degrees or higher education in another discipline.

In 1986 The Regents approved the Doctor of Nursing Science (DNSc) degree program, and in 1987 the first doctoral students were admitted. In 1995 the change in doctoral degree designation from DNSc to PhD in Nursing was approved. In 2013 an en-route MS option was established within the existing PhD program. In 2015 UCLA approved conversion of the DNSc degree to a PhD for former DNSc graduates.

The School of Nursing is consistently ranked high for its teaching and research programs. The innovative curriculum is responsive to national needs in healthcare and the diversity of the patient population.

The prelicensure (BS and MECN) and advanced practice master's programs are approved by the California Board of Registered Nursing. In 2011 the Commission on Collegiate Nursing Education (CCNE) accredited the existing bachelor's and master's degree programs for a term of 10 years, the longest award period that can be granted.

DEGREES

The school offers the following degrees:

Bachelor of Science (BS)
Master of Science (MS)
Master of Science in Nursing (MSN)
Doctor of Philosophy (PhD)

Concurrent Degree Program

The school offers one concurrent degree program to which admission is currently suspended:

Nursing MSN/Management MBA

PHILOSOPHY OF THE SCHOOL

The UCLA School of Nursing is guided by a philosophy that embodies the mission and goals of the University of California. The philosophy addresses nursing, the clients of nursing, and nursing students. The school is committed to an interdisciplinary learning environment.

Nursing encompasses clinical practice, education, research, consultation, leadership, management, and service to the profession and the local and global community. It involves individuals, families, groups, organizations, and communities as clients. The profession must consider the human and physical environments that interact with these clients who may have health conditions that range from wellness to illness. Nursing activities must therefore include health promotion and maintenance, intervention and treatment, rehabilitation and restoration, and palliation. At an advanced practice level, nursing involves comprehensive healthcare that encompasses the responsibility and accountability for continuity of care across the health/illness spectrum.

Nursing research is both applied and basic and has as its core actual or potential human responses to illness and as its goal the development of nursing science. Guided by ethical standards that consider the perspectives of the client, the healthcare provider, and the larger society, nursing has a social mission that encompasses the right and responsibility to provide leadership in health policy and healthcare to all its clients regardless of disease status, gender, race, or culture.

People who receive client-centered nursing care are complex individuals who exist in relationship to others in their family and community. This complexity of person involves biological, behavioral, emotional, sociocultural, and spiritual dimensions. Each individual reflects a unique combination of these dimensions that interact dynamically with the environment. The clients of nursing are autonomous decision makers who have certain values and knowledge about themselves that not only are relevant but essential to successful healthcare outcomes. As a result, persons have a right and a responsibility to participate collaboratively in their care with the nurse and other health professionals.

Successful nursing students are active learners who bring unique gender, cultural, and ethnic life experiences to the professional practice of nursing. Students at all levels learn relevant theory, acquire practice skills, and are socialized into the profession of nursing. Increasing levels of complexity and sophistication of learning and socialization are expected of students in the different programs. Whether at the beginning practice, advanced practice, or scholar level, nursing students learn to apply knowledge, skills, and professional attitudes in their practice that may include educative, administrative, and research arenas. While students have the right and responsibility to participate in their own learning, faculty members have the right and responsibility to structure the teaching/learning environment to facilitate learning. Individual academic counseling and a variety of one-on-one, small-group, and interactive learning formats assist students to meet program and individual learning goals.

UNDERGRADUATE ADMISSION

The School of Nursing admits new undergraduate students in fall quarter only. BS (Prelicensure) students are admitted at the freshman and junior levels. See Nursing in the Curricula and Courses section for additional admission requirements.

UNDERGRADUATE DEGREE REQUIREMENTS

School of Nursing students must meet three types of requirements for the Bachelor of Science degree:

1. University requirements
2. School requirements
3. Major requirements

UNIVERSITY REQUIREMENTS

The University of California has two requirements that undergraduate students must satisfy in order to graduate: (1) Entry-Level Writing or English as a Second Language and (2) American History and Institutions. See Degree Requirements in the Undergraduate Study section for details.

School of Nursing students enrolled in English Composition 1A, 1B, and 2I must take each course for a letter grade.

SCHOOL REQUIREMENTS

The School of Nursing has six requirements that must be satisfied for the award of the degree: unit, scholarship, academic residence, writing, quantitative reasoning, and general education.

UNIT REQUIREMENT

Students must complete with a passing grade a minimum of 180 units. At least 83 of the 180 units must be upper division courses numbered 100 through 199. A maximum of 216 units is permitted. Students with advanced placement or international baccalaureate credit may exceed the unit maximum by the amount of that credit.

School of Nursing Structure of a Degree

University Requirements

1. Entry-Level Writing or English as a Second Language
2. American History and Institutions

School Requirements

1. Unit
2. Scholarship
3. Academic Residence
4. Writing Requirement
 - Writing I
 - Writing II
5. Quantitative Reasoning
6. General Education
 - Foundations of Arts and Humanities
 - Foundations of Society and Culture
 - Foundations of Scientific Inquiry

Major Requirements

1. Preparation for the Major
2. The Major

Courses that do not satisfy specific University, school, or department requirements are referred to as electives and can be used to meet the minimum unit requirement for graduation.

of a score of 720 or better on the SAT Reasoning Test, Writing and superior performance on the English Composition 3 Proficiency Examination, (3) completing a course equivalent to English Composition 3 with a grade of C or better (C- or a Passed grade is not acceptable) taken at another institution, or (4) scoring 5, 6, or 7 on an International Baccalaureate Higher Level Examination.

Students whose native language is not English may need to take English Composition 1A, 1B, and 2I before enrolling in a Writing I course. All courses in the sequence must be passed with a grade of C or better (C- or a Passed grade is not acceptable).

Qualifying examination scores and courses are determined by the school Faculty Executive Committee.

Writing II. The Writing II requirement must be satisfied within seven terms of enrollment by completing one course from a faculty-approved list of courses published at <http://www.registrar.ucla.edu/Academics/Writing-II-Requirement> and available in the Student Affairs Office. The course (Nursing 152W) must be completed with a grade of C or better (C- or a Passed grade is not acceptable).

If approved for general education (GE) credit, applicable Writing II courses may also fulfill a GE requirement.

Transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum (IGETC) will have satisfied the Writing I and Writing II requirements. No transfer student is admitted to the school without completing, with a grade of C or better (C- grade is not acceptable), a college-level writing course that Undergraduate Admission accepts as equivalent to English Composition 3.

QUANTITATIVE REASONING REQUIREMENT

Students must demonstrate basic skills in quantitative reasoning. The requirement may be satisfied by completing one approved UCLA course (see list below) or an equivalent course within the first seven terms of enrollment. The course must be taken for a letter grade, and students must receive a grade of C or better (C- grade is not acceptable).

The requirement may also be satisfied by achieving an SAT Reasoning Test Mathematics Section score of 600 or higher or an SAT Subject Test in Mathematics score of 550 or higher. Approved UCLA courses and examinations, and qualifying scores, are determined by the school Student Affairs Committee. Approved courses are listed below.

If approved for general education (GE) credit, applicable courses may also fulfill a GE requirement.

Transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum (IGETC) will have satisfied the quantitative reasoning requirement. No transfer student is admitted to the school without completing, with a grade of C or better (C- grade is not acceptable), a college-level quantitative reasoning course that Undergraduate Admission accepts as equivalent to those approved by the Faculty Executive Committee.

Approved courses include Biostatistics 100A, 100B, Life Sciences 20, 30A, Mathematics 2 (or any higher numbered course except 19, 71SL, 72SL, 89, 89HC, 98XA, 98XB, 99, 103A, 103B, 103C, 105A, 105B, 105C, 189, 189HC, 195, 197, 199), Philosophy 31,

SCHOLARSHIP REQUIREMENT

A 2.0 (C) average is required in all work attempted at the University of California, exclusive of courses in UCLA Extension and those graded Passed/Not Passed. A 2.0 (C) average is also required in all upper division courses in the major taken at the University, as well as in all courses applied toward the general education and University requirements. Each required nursing course in the school must be completed with a grade of C or better (C- grade is not acceptable). Elective courses may be taken on a Passed/Not Passed basis with prior approval, according to the policy listed in the Academic Policies section of this catalog.

ACADEMIC RESIDENCE REQUIREMENT

Students are in residence while enrolled and attending classes at UCLA as a major in the School of Nursing and must complete 77 of the last 97 nursing course units in residence.

WRITING REQUIREMENT

Students must complete the University Entry-Level Writing or English as a Second Language (ESL) requirement prior to completing the school writing requirement.

Students admitted to the school are required to complete a two-term writing requirement—Writing I and Writing II. Two courses in English composition are required for graduation. Both courses must be taken for letter grades, and students must receive grades of C or better (C- grades are not acceptable).

Writing I. The Writing I requirement must be satisfied within the first three terms of enrollment by completing English Composition 3 or 3SL with a grade of C or better (C- or a Passed grade is not acceptable).

The Writing I requirement may also be satisfied by (1) scoring 4 or 5 on one of the College Board Advanced Placement Examinations in English, (2) a combination

Political Science 6, 6R, Program in Computing 10A, 10B, 10C, Statistics 10, 12, 13, and former courses 11 and 14.

GENERAL EDUCATION REQUIREMENTS

General education (GE) is more than a checklist of required courses. It is a program of study that (1) reveals to students the ways that research scholars in the arts, humanities, social sciences, and natural sciences create and evaluate new knowledge, (2) introduces students to the important ideas and themes of human cultures, (3) fosters appreciation for the many perspectives and the diverse voices that may be heard in a democratic society, and (4) develops the intellectual skills that give students the dexterity they need to function in a rapidly changing world.

This entails the ability to make critical and logical assessments of information, both traditional and digital; deliver reasoned and persuasive arguments; and identify, acquire, and use the knowledge necessary to solve problems.

FOUNDATIONS OF KNOWLEDGE

General education courses are grouped into three foundational areas: Foundations of the Arts and Humanities, Foundations of Society and Culture, and Foundations of Scientific Inquiry.

Ten courses (48 units minimum) are required. A course taken to meet the Writing II requirement may also be applied toward a GE requirement. Preparation for the major courses may overlap with the foundation courses.

Students must meet with the prelicensure student support coordinator in the Student Affairs Office to determine the applicability of GE Cluster courses toward Writing II or GE requirements.

Courses listed in more than one category can fulfill GE requirements in only one of the cross-listed categories.

Foundations of the Arts and Humanities. Three 5-unit courses, one from each subgroup:

Literary and Cultural Analysis

Philosophical and Linguistic Analysis

Visual and Performance Arts Analysis and Practice

The aim of courses in this area is to provide perspectives and intellectual skills necessary to comprehend and think critically about our situation in the world as human beings. In particular, the courses provide the basic means to appreciate and evaluate the ongoing efforts of humans to explain, translate, and transform their diverse experiences of the world through such media as language, literature, philosophical systems, images, sounds, and performances. The courses introduce students to the historical development and fundamental intellectual and ethical issues associated with the arts and humanities and may also investigate the complex relations between artistic and humanistic expression and other facets of society and culture.

Foundations of Society and Culture. Three 5-unit courses, one from each subgroup and a third course from either subgroup:

Historical Analysis

Social Analysis

The aim of courses in this area is to introduce students to the ways in which humans organize, structure, rationalize, and govern their diverse societies and cultures

School of Nursing General Education Requirements

Foundations of the Arts and Humanities

Literary and Cultural Analysis	1 Course
Philosophical and Linguistic Analysis	1 Course
Visual and Performance Arts Analysis	
and Practice	1 Course
Total = 15 units minimum	

Foundations of Society and Culture

Historical Analysis	1 Course
Social Analysis	1 Course
Third course from either subgroup	1 Course
Total = 15 units minimum	

Foundations of Scientific Inquiry

Life Sciences	2 Courses
Physical Sciences	2 Courses
Total = 18 units minimum	

Total GE 10 Courses/48 Units Minimum

One of the 10 courses may be a GE-approved Writing II course in an appropriate foundational area selected from a list published in the *Schedule of Classes* and available in the Student Affairs Office.

Preparation for the major courses may overlap with GE foundation courses.

over time. The courses focus on a particular historical question, societal problem, or topic of political and economic concern in an effort to demonstrate how issues are objectified for study, how data is collected and analyzed, and how new understandings of social phenomena are achieved and evaluated. Because communication skills are essential in the nursing profession, Communication Studies 10 is recommended for this foundational area.

Foundations of Scientific Inquiry. Four courses, two from each subgroup:

Life Sciences

Physical Sciences

The aim of courses in this area is to ensure that students gain a fundamental understanding of how scientists formulate and answer questions about the operation of both the physical and biological world. The courses also deal with some of the most important issues, developments, and methodologies in contemporary science.

Foundations Course Lists. Creating and maintaining a general education curriculum is a dynamic process; consequently, courses are frequently added to the list. For the most current list of approved courses that satisfy the Foundations of Knowledge GE plan, consult an academic counselor or see <http://www.registrar.ucla.edu/Academics/GE-Requirement>.

Intersegmental General Education Transfer Curriculum

Transfer students from California community colleges must fulfill UCLA lower division GE requirements by completing the Intersegmental General Education Transfer Curriculum (IGETC) prior to transfer. The curriculum consists of a series of subject areas and types of courses that have been agreed on by the University of California and the California community colleges. Because of course sequencing and the rigor of

the program, students must fulfill the general education requirements prior to transfer.

Additional requirements are listed under Admission and Preparation for the Major in the Curricula and Courses section of this catalog.

MAJOR REQUIREMENTS

The School of Nursing sets two types of requirements that must be satisfied for the award of the degree: (1) Preparation for the Major and (2) the Major. See the Curricula and Courses section of this catalog for details.

POLICIES AND REGULATIONS

Degree requirements are subject to policies and regulations, including the following:

STUDENT RESPONSIBILITY

Students should take advantage of academic support resources, but they are ultimately responsible for keeping informed of and complying with the rules, regulations, and policies affecting their academic standing.

STUDY LIST

The presentation of study lists by the students and their acceptance by the school evidences an obligation on the part of the students to faithfully perform the designated work to the best of their ability. Withdrawal from, or neglect of, any course entered on the study list, or a change in program without the formal permission of the assistant dean of Student Affairs renders students liable to enforced withdrawal from the University or other appropriate disciplinary action.

Students are expected to follow the course sequence specified for their program. After the first term, they may petition to carry a program of study exceeding 20 units provided they have an overall grade-point average of 3.0 (B or better) and have attained at least a B average in the preceding term with all courses passed.

MINIMUM PROGRESS

Students are expected to complete satisfactorily at least 36 units during any three consecutive terms in residence; they are placed on probation if they fail to pass these units. They are subject to dismissal if they fail to pass at least 32 units in three consecutive regular terms in residence.

CONCURRENT ENROLLMENT

Enrollment at a non-UC institution or UCLA Extension while enrolled at UCLA is not permitted except in extraordinary circumstances. No credit is given for courses taken concurrently elsewhere without the approval of the school.

CREDIT LIMITATIONS

The following credit limitations apply to all undergraduate students enrolled in the school:

Advanced Placement Examinations. Credit earned through the College Board Advanced Placement (AP) Examinations may not be applied toward the general education requirements. Portions of AP Examination credit may be evaluated by corresponding UCLA course numbers (e.g., History 1C). If students take the equivalent UCLA course, unit credit for such duplication is deducted before graduation. See the AP table at

<http://www.admission.ucla.edu/prospect/APCreditNS.htm> for UCLA course equivalents and credit allowed for GE requirements.

COUNSELING SERVICES

The School of Nursing gives direction and provides information to interested potential applicants to the BS program through admissions information sessions. The schedule for these sessions, program information, and applications are available at <http://www.nursing.ucla.edu>. Applicants may write to the UCLA School of Nursing, Student Affairs Office, 2-137 Factor Building, Box 951702, Los Angeles, CA 90095-1702, call 310-825-7181, or contact the Student Affairs Office by e-mail at sonsaaff@sonnet.ucla.edu.

On entry, students are assigned a faculty adviser to aid in planning their total program. Advisers and student affairs officers continue meeting with students each term to evaluate progress, to identify academic and personal needs and match them with available school and University resources, to confirm University and course requirements, and to maximize the students' abilities to reach educational and professional goals. Due to the heavy course load that the school's programs require, students are advised against working full time.

HONORS

School of Nursing undergraduate students who achieve scholastic distinction may qualify for the following honors:

DEAN'S HONORS

To receive Dean's Honors, undergraduate students must have at least 12 graded units per term with a grade-point average of 3.75. The honor is posted on the transcript for the appropriate term. Students are not eligible for Dean's Honors in any given term if they receive an Incomplete or a Not Passed (NP) grade, change a grade, or repeat a course.

LATIN HONORS

Students who have achieved scholastic distinction may be awarded the bachelor's degree with Latin honors. To be eligible, students must have completed 98 or more units for a letter grade at the University of California and must have attained an overall grade-point average at graduation that places them in the top five percent of College graduates (GPA of 3.893 or better) for *summa cum laude*, the next five percent (GPA of 3.816 or better) for *magna cum laude*, and the next 10 percent (GPA of 3.700 or better) for *cum laude*. Coursework taken on the Education Abroad Program is applied toward Latin honors at graduation. The minimum GPAs required are subject to change on an annual basis. Required GPAs in effect in the graduating year (fall, winter, spring, summer) determine student eligibility. Students should consult their Degree Progress Reports, Degree Audits, or <http://www.registrar.ucla.edu/Registration-Classes/Graduation/Final-Degree-Audit/Latin-Honors> for the most current calculations of Latin honors.

GRADUATE STUDY

The Master of Science in Nursing (MSN) degree program offers prelicensure and postlicensure options.

The master's entry clinical nurse (MECN)/prelicensure program is designed for students with a bachelor's degree in another discipline who wish to become registered nurses. The advanced practice nurse (APN)/postlicensure program is for registered nurses with a bachelor's degree in nursing who wish to prepare for an advanced practice role, such as nurse practitioner, clinical nurse specialist, or nurse administrator. Advanced practice populations include adult/gerontology acute care (with oncology specialization option), adult/gerontology primary care (with coursework specific to occupational and environmental health and gerontology available), family, and pediatrics.

The PhD program, which includes an en route MS option, prepares scholars who do original research, generate new theories, and build the scientific basis for professional nursing practice. Research is both basic and applied.

ADMISSION

Detailed information about the graduate academic programs offered by the School of Nursing is included in the Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu>.

For information on the proficiency in English requirements for international graduate students, see Graduate Admission in the Graduate Study section of this catalog.

DEGREE REQUIREMENTS

For complete degree requirements, see Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu>.

SCHOOL OF THEATER, FILM, AND TELEVISION

Teri E. Schwartz, Dean

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<http://www.tft.ucla.edu>

The School of Theater, Film, and Television consists of the Department of Theater and the Department of Film, Television, and Digital Media, recognized national centers for higher education in production and performance as well as history, theory, and criticism.

Whether exploring the ancient and sacred roots of theater or the latest secular rituals enacted by popular film, creating a dramatic character for the bare stage or a dramatic narrative on screen, writing scripts or scholarly articles, or making digital movies or designing websites, all students in the school study both the aesthetics and cultural significance of theater, film, and television.

Through an intensive, multidiscipline curriculum, the school defines the inherent differences of theater, film, television, and new media, affirms their similarities, and encourages their interaction. As expressive art

forms, modes of communication, and cultural interventions, theater, film and television, and digital media have in common the ability and power to reflect and shape our perception of a complex, diverse, and ever-changing world. We believe—as artists and scholars—that we have an obligation to reflect on this power and to use it responsibly.

Situated in the diverse and culturally rich environment of Los Angeles and drawing on the many resources of the campus at large, including the Center for the Art of Performance at UCLA, Geffen Playhouse, and UCLA Film and Television Archive, the school provides the ideal setting for students to engage in the study and practice of art forms essential to a healthy and dynamic society.

DEPARTMENTS AND PROGRAMS

The Department of Theater and the Department of Film, Television, and Digital Media are essential components of the rich intellectual, cultural, and professional life of UCLA. Depending on the degree involved, the school's programs are either strongly professional in nature or oriented toward advanced scholarly study and research in an atmosphere that recognizes and often draws on studio practice.

Students in undergraduate courses receive a broadly based, liberal education within the context of either theater or film and television.

The Master of Fine Arts degree programs prepare talented and highly motivated students for careers in the worlds of theater, film, television, and digital production. The MA and PhD programs engage students in the critical study and research of these media, including their history, aesthetics, and theory, and prepare students for advanced research within the context of college and university teaching, as well as for writing and research in a variety of media-related professions.

In the Department of Theater, approximately 300 undergraduate and 83 graduate students interact with over 40 faculty members, outstanding guests of national and international standing, and a professional staff of 35 in an exciting artistic community of theater production and study. The theater and performance studies program offers CPhil and PhD degrees for the advanced scholarly study of theater and performance. Resources include the four theaters of the Macgowan Hall complex, with the latest technologies needed for the creation, control, and integration of scenery, lighting, and sound. Specializations in the Master of Fine Arts program include acting, design, directing, and playwriting.

The Department of Film, Television, and Digital Media includes both production and critical studies programs, with approximately 270 graduate and 100 undergraduate students. The 50 faculty members include leading scholars as well as members of the Los Angeles and international film and television professional communities. In production, graduate specializations are offered in the areas of film and television production, screenwriting, animation, and the producers program. The cinema and media studies program offers MA and PhD degrees for the advanced scholarly study of film and television. The department's resources in Melnitz Hall include three sound stages, three television studios, extensive editing, scoring, and viewing facilities, a complete animation laboratory for

School of Theater, Film, and Television Structure of a Degree

University Requirements

1. Entry-Level Writing or English as a Second Language
2. American History and Institutions

School Requirements

1. Unit
2. Scholarship
3. Academic Residence
4. Writing Requirement
 - Writing I
 - Writing II
5. Foreign Language
6. Literature
7. General Education
 - Foundations of Arts and Humanities
 - Foundations of Society and Culture
 - Foundations of Scientific Inquiry

Department Requirements

1. Preparation for the Major
2. The Major

Courses that do not satisfy specific University, school, or department requirements are referred to as electives and can be used to meet the minimum unit requirement for graduation.

both traditional and computer-generated animation, and a laboratory and research facility for digital media.

The MA and PhD programs are supported by the collections of the University's libraries and the UCLA Film and Television Archive, the largest in the U.S. outside the Library of Congress. This archive forms a unique and priceless resource for research and classroom instruction. MA and PhD faculty members and students also participate in various campus organized research units.

Students interested in obtaining instructional credentials for California elementary and secondary schools should consult the Department of Education, 1009 Moore Hall, 310-825-8328.

DEGREES

The school offers the following degrees, in addition to undergraduate minors in Film, Television, and Digital Media and in Theater:

- Film and Television (BA, MA, MFA, CPhil, PhD)
 Individual Field (BA)
 Theater (BA, MFA)
 Theater and Performance Studies (CPhil, PhD)

UNDERGRADUATE ADMISSION

In addition to the University of California undergraduate application, departments in the School of Theater, Film, and Television require applicants to submit additional supporting materials. Information on departmental requirements is available at <http://www.tft.ucla.edu>. The annual deadline date for applications is November 30 for admission in the following fall quarter.

UNDERGRADUATE DEGREE REQUIREMENTS

School of Theater, Film, and Television students must meet three types of requirements for the Bachelor of Arts degree:

1. University requirements
2. School requirements
3. Department requirements

UNIVERSITY REQUIREMENTS

The University of California has two requirements that undergraduate students must satisfy in order to graduate: (1) Entry-Level Writing or English as a Second Language and (2) American History and Institutions. See Degree Requirements in the Undergraduate Study section for details.

School of Theater, Film, and Television students enrolled in English Composition 1A, 1B, and 2I must take each course for a letter grade.

SCHOOL REQUIREMENTS

The School of Theater, Film, and Television has seven requirements that must be satisfied for the award of the degree: unit, scholarship, academic residence, writing, foreign language, literature, and general education.

UNIT REQUIREMENT

Students must complete for credit, with a passing grade, no less than 180 units and no more than 216 units, of which at least 64 units must be upper division courses (numbered 100 through 199). No more than 8 units of freshman seminars and/or 8 units of 300-level courses may be applied toward the degree. Credit for upper division tutorials numbered 195 through 199 is limited to a maximum of 8 units in a single term and a maximum of 32 units total for a letter grade.

SCHOLARSHIP REQUIREMENT

Students must earn at least a C (2.0) grade-point average in all courses undertaken at UCLA for receipt of the bachelor's degree, in all upper division courses in the major, and in all courses applied toward the general education requirements.

ACADEMIC RESIDENCE REQUIREMENT

Students are in residence while enrolled and attending classes at UCLA as a major in the School of Theater, Film, and Television. Of the last 45 units completed for the bachelor's degree, 35 must be earned in residence in the School of Theater, Film, and Television. No more than 18 of the 35 units may be completed in UCLA Summer Sessions.

Courses in UCLA Extension (either class or correspondence) may not be applied toward any part of the residence requirements.

WRITING REQUIREMENT

Students must complete the University's Entry-Level Writing or English as a Second Language (ESL) requirement prior to completing the school writing requirement.

Students admitted to the school are required to complete a two-term writing requirement—Writing I and Writing II. Two courses in English composition are required for graduation. Both courses must be taken for letter grades, and students must receive grades of C or better (C– grades are not acceptable).

Writing I. The Writing I requirement must be satisfied within the first three terms of enrollment by completing English Composition 3 or 3SL with a grade of C or better (C– or a Passed grade is not acceptable).

The Writing I requirement may also be satisfied by (1) scoring 4 or 5 on one of the College Board Advanced Placement Examinations in English, (2) a combination of a score of 720 or better on the SAT Reasoning Test, Writing and superior performance on the English Composition 3 Proficiency Examination, (3) completing a course equivalent to English Composition 3 with a grade of C or better (C– or a Passed grade is not acceptable) taken at another institution, or (4) scoring 5, 6, or 7 on an International Baccalaureate Higher Level Examination.

Students whose native language is not English may need to take English Composition 1A, 1B, and 2I before enrolling in a Writing I course. All courses in the sequence must be passed with a grade of C or better (C– or a Passed grade is not acceptable).

Writing II. The Writing II requirement must be satisfied within the first six terms of enrollment by completing one course from a faculty-approved list of Writing II courses published at <http://www.registrar.ucla.edu/Academics/Writing-II-Requirement>. The course must be completed with a grade of C or better (C– or a Passed grade is not acceptable).

A Writing II course used to meet this requirement may not be applied toward a foundational area under general education or toward the literature requirement.

Transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum (IGETC) will have satisfied the Writing I and Writing II requirements. No transfer student is admitted to the school without completing, with a grade of C or better (C– grade is not acceptable), a college-level writing course that Undergraduate Admission accepts as equivalent to English Composition 3.

FOREIGN LANGUAGE REQUIREMENT

Students may meet the foreign language requirement by (1) scoring 3, 4, or 5 on the College Board Advanced Placement (AP) foreign language examination in Chinese, French, German, Italian, Japanese, or Spanish, or scoring 4 or 5 on the AP foreign language examination in Latin, (2) presenting a UCLA foreign language proficiency examination score indicating competency through level three, or (3) completing one college-level foreign language course equivalent to level three or above at UCLA with a grade of Passed or C or better.

For transfer students from California community colleges, completion of the Intersegmental General Edu-



The School of Theater, Film, and Television is recognized for education in production and performance as well as history, theory, and criticism of both established and new digital media.

School of Theater, Film, and Television General Education Requirements

Foundations of the Arts and Humanities

Literary and Cultural Analysis	5 Courses
Philosophical and Linguistic Analysis	
Visual and Performance Arts Analysis and Practice	5 Courses
No more than two courses from any one subgroup.		

Total = 25 units minimum

Foundations of Society and Culture

Historical Analysis	1 Course
Social Analysis	1 Course
Third course from either subgroup	1 Course
Total = 15 units minimum		

Foundations of Scientific Inquiry

Life Sciences	1 Course
Physical Sciences	1 Course
Total = 8 units minimum		

Total GE 10 Courses/48 Units Minimum

A course taken to meet the Writing II requirement may not also be applied toward a GE requirement.

cation Transfer Curriculum (IGETC) does not fulfill the school foreign language requirement. Students need to complete level three or above of a foreign language course at the community college with a grade of Passed or C or better to complete the requirement.

International students may petition to use an advanced course in their native language for this requirement. Students whose entire secondary education has been completed in a language other than English may petition to be exempt from the foreign language requirement.

LITERATURE REQUIREMENT

Three courses (12 units minimum) in literature are required, at least one of which must be upper division. A school-approved literature course taken in the original language can fulfill this requirement. A list of courses that satisfy the requirement is available in the Student Services Office. A course taken to meet the Writing II requirement may not also be applied toward the literature requirement or toward a foundational area under general education.

GENERAL EDUCATION REQUIREMENTS

General education (GE) is more than a checklist of required courses. It is a program of study that (1) reveals to students the ways that research scholars in the arts, humanities, social sciences, and natural sciences create and evaluate new knowledge, (2) introduces students to the important ideas and themes of human cultures, (3) fosters appreciation for the many perspectives and the diverse voices that may be heard in a democratic society, and (4) develops the intellectual skills that give students the dexterity they need to function in a rapidly changing world.

This entails the ability to make critical and logical assessments of information, both traditional and digital; deliver reasoned and persuasive arguments; and identify, acquire, and use the knowledge necessary to solve problems.

FOUNDATIONS OF KNOWLEDGE

General education courses are grouped into three foundational areas: Foundations of the Arts and Humanities, Foundations of Society and Culture, and Foundations of Scientific Inquiry.

Ten courses (48 units minimum) are required. A course taken to meet the Writing II requirement may not also be applied toward a GE requirement.

Courses listed in more than one category can fulfill GE requirements in only one of the cross-listed categories. GE courses may not be applied toward major requirements.

Foundations of the Arts and Humanities. Five 5-unit courses, with no more than two from any one subgroup:

Literary and Cultural Analysis

Philosophical and Linguistic Analysis

Visual and Performance Arts Analysis and Practice

The aim of courses in this area is to provide perspectives and intellectual skills necessary to comprehend and think critically about our situation in the world as human beings. In particular, the courses provide the basic means to appreciate and evaluate the ongoing efforts of humans to explain, translate, and transform their diverse experiences of the world through such media as language, literature, philosophical systems, images, sounds, and performances. The courses introduce students to the historical development and fundamental intellectual and ethical issues associated with the arts and humanities and may also investigate the complex relations between artistic and humanistic expression and other facets of society and culture.

Foundations of Society and Culture. Three 5-unit courses, one from each subgroup and a third course from either subgroup:

Historical Analysis

Social Analysis

The aim of courses in this area is to introduce students to the ways in which humans organize, structure, rationalize, and govern their diverse societies and cultures over time. The courses focus on a particular historical question, societal problem, or topic of political and economic concern in an effort to demonstrate how issues are objectified for study, how data is collected and analyzed, and how new understandings of social phenomena are achieved and evaluated.

Foundations of Scientific Inquiry. Two courses (8 units minimum), one from each subgroup:

Life Sciences

Physical Sciences

The aim of courses in this area is to ensure that students gain a fundamental understanding of how scientists formulate and answer questions about the operation of both the physical and biological world. The courses also deal with some of the most important issues, developments, and methodologies in contemporary science, addressing such topics as the origin of the universe, environmental degradation, and the decoding of the human genome. Through lectures, laboratory experiences, writing, and intensive discussions, students consider the important roles played by the laws of physics and chemistry in society, biology, Earth and environmental sciences, and astrophysics and cosmology.

Foundations Course Lists. Creating and maintaining a general education curriculum is a dynamic process; consequently, courses are frequently added to the list. For the most current list of approved courses that satisfy the Foundations of Knowledge GE plan, consult an academic counselor or see <http://www.registrar.ucla.edu/Academics/GE-Requirement>.

Reciprocity with Other UC Campuses

Students who transfer to UCLA from other UC campuses or who change their major from another UCLA school or College and have met all GE requirements prior to attending UCLA or changing their UCLA major are not required to complete the School of Theater, Film, and Television GE requirements. Written verification from the dean at the other UC campus or UCLA College or school is required. Verification letters should be sent to Director of Student Services, School of Theater, Film, and Television, 103 East Melnitz Building, UCLA, Box 951622, Los Angeles, CA 90095-1622.

Intersegmental General Education Transfer Curriculum

Transfer students from California community colleges have the option to fulfill UCLA lower division GE requirements by completing the Intersegmental General Education Transfer Curriculum (IGETC) prior to transfer. The curriculum consists of a series of subject areas and types of courses which have been agreed on by the University of California and the California community colleges. Although GE courses are degree requirements rather than admission requirements, students are advised to fulfill them prior to transfer. The IGETC significantly eases the transfer process, as all UCLA GE requirements are fulfilled when students complete the IGETC courses. Students who select the IGETC must complete it entirely before enrolling at UCLA. Otherwise, they must fulfill the School of Theater, Film, and Television GE requirements.

DEPARTMENT REQUIREMENTS

School of Theater, Film, and Television departments generally set two types of requirements that must be satisfied for the award of the degree: (1) Preparation for the Major (lower division courses) and (2) the Major (upper division courses). Preparation for the Major courses should be completed before beginning upper division work.

PREPARATION FOR THE MAJOR

A major requires completion of a set of courses known as Preparation for the Major, which should be completed before upper division work is undertaken. Each department sets its own Preparation for the Major requirements; see the Curricula and Courses section of this catalog.

THE MAJOR

A major is composed of no less than 56 units, including at least 36 units of upper division courses.

Students must complete their major with a scholarship average of at least a 2.0 (C) in all courses in order to remain in the major. Each course in the school must be taken for a letter grade.

As changes in major requirements occur, students are expected to satisfy the new requirements insofar as possible. Hardship cases should be discussed with the

department adviser, and petitions for adjustment should be submitted to the dean of the school when necessary.

Any department offering a major in the School of Theater, Film, and Television may require a general final examination.

Double Majors. Double majors in the School of Theater, Film, and Television and other academic units are not permitted.

POLICIES AND REGULATIONS

Degree requirements are subject to policies and regulations, including the following:

STUDENT RESPONSIBILITY

Students should take advantage of academic support resources, but they are ultimately responsible for keeping informed of and complying with the rules, regulations, and policies affecting their academic standing.

STUDY LIST

The study list is a record of classes that a student is taking for a particular term. Each term the student study list must include from 12 to 19 units. The school has no provision for part-time enrollment. After the first term, students may petition to carry more than 19 units (up to 22 units maximum) if they have an overall grade-point average of 3.0 (B) or better and have attained at least a B average in the preceding term with all courses passed. The petitions must be filed and approved by the Student Services Office no later than the end of the third week of instruction.

First-term transfer students from any other campus of the University may carry excess units on the same basis as students who have completed one or more terms at UCLA; however, they are not encouraged to do so.

MINIMUM PROGRESS

Students are expected to complete satisfactorily at least 36 units during any three consecutive terms in residence; they are placed on probation if they fail to pass these units. They are subject to dismissal if they fail to pass at least 32 units in three consecutive regular terms in residence.

CHANGING A MAJOR

Students in good academic standing who wish to change their major may petition to do so provided they can complete the new major within the 216-unit limit. Petitions must be submitted to and approved by the department or committee in charge of the new major. Admission to certain majors may be closed or restricted; changes are normally not permitted if students are on probation or have begun their last term. Due to curriculum changes, students in the Theater major are no longer allowed to change their major to Film and Television at the end of their sophomore year.

CONCURRENT ENROLLMENT

Enrollment at another institution or UCLA Extension while enrolled at UCLA is not permitted except in extraordinary circumstances. No credit is given for courses taken concurrently elsewhere without the approval of the school.

CREDIT LIMITATIONS

The following credit limitations apply to all undergraduate students enrolled in the school:

Advanced Placement Examinations. Credit earned through the College Board Advanced Placement (AP) Examinations may be applied toward the school and general education requirements. If students take the equivalent UCLA course, unit credit for such duplication is deducted before graduation. See the AP table at <http://www.admission.ucla.edu/prospect/APCreditTF.htm> for UCLA course equivalents and credit allowed for GE requirements.

Graduate Courses. Undergraduate students who wish to take graduate courses (200 level) for credit toward the bachelor's degree must petition for advance approval of the department chair and the dean of the school and must meet the specific qualifications. Courses numbered in the 400 and 500 series are not open for credit to undergraduate students.

UCLA Extension. Extension courses with the prefix X on those numbered in the 1 through 199, 200, 300, 400, or 800 series may not be applied toward the degree.

Upper Division Tutorials. Credit for upper division tutorials numbered 195 through 199 is limited to a maximum of 8 units in a single term and a maximum of 32 units total for a letter grade.

COUNSELING SERVICES

The School of Theater, Film, and Television offers advising, program planning in the major and general education requirements, and individual meetings with departmental counselors, including a yearly degree check. Prior to registration and enrollment in classes, each new student is assigned to a counselor in the major department. For further counseling information, contact the Student Services Office, School of Theater, Film, and Television, 103 East Melnitz Building, 310-206-8441.

HONORS

School of Theater, Film, and Television undergraduate students who achieve scholastic distinction may qualify for the following honors and programs:

DEAN'S HONORS

Dean's Honors are awarded each term to students who complete their program of study with distinction according to criteria established by the dean of the school.

LATIN HONORS

Students who have achieved scholastic distinction may be awarded the bachelor's degree with Latin honors. To be eligible, students must have completed 90 or more units for a letter grade at the University of California and must have attained an overall grade-point average at graduation that places them in the top five percent of College graduates (GPA of 3.959 or better) for *summa cum laude*, the next five percent (GPA of 3.923 or better) for *magna cum laude*, and the next 10 percent (GPA of 3.850 or better) for *cum laude*. Coursework taken on the Education Abroad Program is applied toward Latin honors at graduation. The minimum GPAs required are subject to change on an annual

basis. Required GPAs in effect in the graduating year (fall, winter, spring, summer) determine student eligibility. Students should consult their Degree Progress Reports, Degree Audits, or <http://www.registrar.ucla.edu/Registration-Classes/Graduation/Final-Degree-Audit/Latin-Honors> for the most current calculations of Latin honors.

GRADUATE STUDY

The advanced degree programs offered in the School of Theater, Film, and Television provide graduate students with unique research opportunities when combined with special resources, such as the Young Research Library, UCLA Film and Television Archive, Geffen Playhouse, special collections of the Arts Library, and the University's exhibition and performance halls.

A program in teaching is offered by the Graduate School of Education and Information Studies in each of the areas.

Fellowships, grants, and assistantships are available through the dean of the Graduate Division. Donor awards are available through the School of Theater, Film, and Television.

ADMISSION

The Graduate Council of the UCLA Academic Senate voted to suspend admissions to the Theater CPhil and PhD degrees effective fall quarter 2014.

In addition to requiring that applicants hold a bachelor's degree from an accredited U.S. institution or an equivalent degree of professional title from an international institution, each department in the school has limitations and additional requirements. Detailed information can be found in Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu>.

For information on the proficiency in English requirements for international graduate students, see Graduate Admission in the Graduate Study section of this catalog.

DEGREE REQUIREMENTS

Requirements to fulfill each degree objective vary according to the degree and the department. For complete degree requirements, see Program Requirements for UCLA Graduate Degrees at <https://grad.ucla.edu>.

Curricula and Courses

COURSE LISTINGS

Departments and programs are listed alphabetically, with the College or school administering the program identified in the program heading. Curricula and courses are listed under each program. Every effort has been made to ensure the accuracy of the information presented. However, all courses, course descriptions, instructor designations, and curricular degree requirements described herein are subject to change or deletion without notice. Changes to course descriptions are available at <http://registrar.ucla.edu/Academics/Course-Descriptions>. For the most current course offerings by term, see the Schedule of Classes at <https://sa.ucla.edu/ro/public/soc>.

For a complete outline of graduate degree requirements, see Program Requirements for UCLA Graduate Degrees available on the Graduate Division website at <http://grad.ucla.edu>.

Undergraduate Course Numbering

Undergraduate courses are classified as lower division and upper division. **Lower division courses (numbered 1–99)** are often surveys offering preliminary introductions to the subject field. They are designed primarily for freshmen and sophomores, though upper division students may enroll for unit and grade credit. Lower division courses may not be applied toward graduate degrees.

Upper division courses (numbered 100–199) are open to all students who have met the requisites indicated in departmental requirements or the course description. Preparation generally includes at least one lower division course in the subject or two years of college work. With approval of the major department, graduate students may take 100-series courses toward satisfaction of master's degree requirements.

Undergraduate Seminars and Tutorials

Fiat Lux freshman seminars (numbered 19) are taught by faculty in areas of their expertise. They introduce freshmen to topics of intellectual importance and enable them to participate in critical discussion of these topics with a small group of peers. The seminar series takes its name from the motto of the University of California: *Fiat Lux—Let There be Light!*

Sophomore seminars (numbered 88) are departmentally sponsored courses designed to provide sophomores the opportunity to participate in small seminars to enhance writing, verbal, and analytical skills.

Honors seminars and tutorials (numbered 89/189 and 89HC/189HC) are primarily designed for students in the College Honors Program. They are adjunct to lecture courses and explore lecture topics in more depth

through supplemental readings, papers, or other activities.

Student Research Program tutorials (numbered 99) offer students entry-level research experiences. Students serve as apprentices working with an individual faculty member or in a research group. Students are graded P/NP based on the number of hours they participate in research.

Upper division seminars (numbered 190–194) are small seminars with between 15 and 20 students that focus on research practice or issues. Many are designed to be taken along with a tutorial course in the 195–199 series.

Upper division tutorials (numbered 195–199) offer advanced opportunities for research through faculty-supervised internships and apprenticeships as well as honors research, directed research, and senior projects. Courses are structured by the instructor and student at the time they are initiated and are open to juniors (with a minimum 3.0 grade-point average in the major field), seniors, and graduate students. To enroll, students submit a contract (available online through MyUCLA) and have it approved by both the instructor and department chair.

Note: Courses numbered 19, 89, 89HC, 99, 189, and 189HC are not listed in this catalog. For current course descriptions, see <http://registrar.ucla.edu/Academics/Course-Descriptions>.

Graduate Course Numbering

Graduate courses numbered 200–299 are generally open only to graduate students who have completed basic undergraduate courses in the subject. Courses and seminars in the 200 series can fulfill the minimum graduate course requirement for any advanced degree.

With departmental and instructor consent, and subject to requirements in the appropriate College or school, undergraduate students may enroll in 200-series courses for unit credit toward the bachelor's degree. If students take a graduate course as an undergraduate, they may not apply that same course later toward a higher degree.

Graduate courses numbered 300–399 are highly specialized teacher-training courses that are not applicable toward University minimum requirements for graduate degrees. They are acceptable toward the bachelor's degree only at the discretion of the individual College or school.

Graduate courses numbered 400–499 are designed for professional programs leading to graduate degrees other than the MA, MS, and PhD. These courses may not be used to satisfy minimum graduate course requirements for the MA or MS degree but may apply as electives.

Individual study and research courses (numbered 500–599) are reserved for advanced study and are not open to undergraduate students. Courses are numbered as

follows: 595/596, directed individual study or research; 597, preparation for master's comprehensive or doctoral qualifying examination; 598, master's thesis research and preparation; and 599, doctoral dissertation research and preparation. Courses numbered 501 are not individual study and research but are cooperative programs held in conjunction with USC. See individual departmental listings for specific limitations on 500-series courses.

Note: These definitions do not apply to the School of Law, which maintains its own course numbering system.

Temporary Course Offerings

Courses that are temporary in nature, such as one-term-only or one-year-only, are not listed in the catalog. Their descriptions can be found in the online Schedule of Classes.

Concurrent and Multiple Listings

Concurrently scheduled courses (identified by a capital C before the course number) are pairs of courses, usually within a single department or program, for which credit is given at two levels—undergraduate and graduate. Concurrently scheduled courses are offered at the same time and place with the same instructor, but work levels and performance standards are evaluated differently for students at each level. (Concurrently scheduled courses as described here should not be confused with concurrent courses offered through UCLA Extension.)

Multiple-listed courses (identified by a capital M before the course number) are courses offered jointly by more than one department. They need not have identical course numbers, but all other aspects of the course must be the same, such as title, units, requisites, format, and level. For example, Language in Culture is offered by the Department of Anthropology (Anthropology M140) and the Department of Linguistics (Linguistics M146). The course is listed under both departments.

UCLA Extension Courses

In general, students may not attend UCLA Extension for degree credit if they are enrolled in UCLA regular session at the same time. However, certain Extension courses (numbered 1–199), prefixed by XL or XLC in the Extension course listings, yield credit toward the bachelor's degree. Graduate students may petition to apply up to two XLC courses toward the master's degree. For more details, see Concurrent Enrollment in the Academic Policies section of this catalog.

AFRICAN AMERICAN STUDIES

College of Letters and Science

UCLA
1308 Rolfe Hall
Box 951545
Los Angeles, CA 90095-1545
310-825-9821, 825-3776
fax: 310-825-9276
e-mail: staff@afam.ucla.edu
<http://www.afam.ucla.edu>

Cheryl I. Harris, JD, *Interim Chair*

Professors

Walter R. Allen, PhD
Devon W. Carbado, JD (*Honorable Harry Pregerson Endowed Professor of Law*)
Cheryl I. Harris, JD (*Rosalinde and Arthur Gilbert Foundation Endowed Professor of Civil Rights and Civil Liberties*)
Darnell M. Hunt, PhD
Robin D. G. Kelley, PhD
Mark Q. Sawyer, PhD
Brenda Stevenson, PhD
Patricia A. Turner, PhD
Richard A. Yarborough, PhD

Associate Professors

Scot D. Brown, PhD
Aisha K. Finch, PhD
Yogita Goyal, PhD
Marcus A. Hunter, PhD
Uri G. McMillan, PhD
Mignon R. Moore, PhD
Jemima Pierre, PhD
Melvin L. Rogers, PhD (*Scott Waugh Endowed Professor in Division of Social Sciences*)

Assistant Professors

Bryonn R. Bain, JD, *in Residence*
Sarah Haley, PhD
Peter J. Hudson, PhD
Safiya U. Noble, PhD

Scope and Objectives

The Department of African American Studies offers a Bachelor of Arts degree, an undergraduate African American Studies minor, a Master of Arts degree, and a concurrent degree program (African American Studies MA/Law JD). A major or minor in this field provides a broadening of cultural experiences and perspectives for those seeking more information about African Americans and the African diaspora. Career-wise, all students profit from African American studies courses in an era when employers and academic institutions are actively seeking those with multicultural and interdisciplinary skills and backgrounds.

The fundamental goal of the African American Studies curriculum is to provide students with a comprehensive and multidisciplinary introduction to the crucial sociocultural and social justice issues facing African Americans and their counterparts in other areas of the African diaspora today. The curriculum is designed to meet this goal in two primary ways. First, it provides an interdisciplinary exposure to particular features of the African American experience. Core courses offer an in-depth understanding of historical, anthropological, sociological, psychological, economic, and political aspects of African America. The curriculum

also provides opportunities to study the literary, musical, and artistic heritage of peoples of African descent. Second, students analyze key issues through additional courses that bring to bear concepts, theories, and methods of traditional academic disciplines in areas such as cultural analysis and production, social justice, and public policy. Students may also do individualized study with a professor and/or an internship for course credit.

Undergraduate Study

African American Studies BA

Preparation for the Major

Required: Two courses from African American Studies M5, 6, M10A.

Transfer Students

Transfer applicants to the African American Studies major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one African American Studies or civilizations of Africa course or equivalent.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Twelve upper division courses as follows: (1) two *history and/or literature* courses selected from African American Studies M104A through M104D, M150D, M158A through M158E, M179A, (2) two upper division *breadth* courses from any of the following departments or programs: American Indian Studies, Asian American Studies, Chicana and Chicano Studies, or Gender Studies, and (3) a concentration of five courses in one of the following tracks and three courses in the other: (a) *humanities*—African American Studies M102, M103A, M103B, M103E, M104A through M104E, M107, M109, M110A, M110B, M111, CM112A, CM135A, CM135B, M150D, M158A through M158E, M179A, 188A, 188B, C191, and (b) *social sciences*—African American Studies M114C, M114D, M114E, M118, M120, M144, M150D, M154C, M158A through M158E, M159P, M164, M165, M167, M172, M173, M178, M179A, M182A, M182B, M182C, M183A, M183B, M183C, 188A, 188B, C191, M194A, M194B.

No more than 8 graded units of African American Studies 195, 197, 198, and 199 may be applied toward the major.

Students are encouraged to engage in a culminating activity, such as an internship, independent study, honors thesis, service learning course, Center for American Politics and Public Policy program, University of California Center Sacramento program, Education Abroad Program, or other African American studies-related project or performance course.

Honors Program

African American Studies majors with grade-point averages of 3.5 or better are eligible for the honors option that requires the completion of a senior thesis under the guidance of an African American Studies faculty member. Students must take African American Studies 198 (independent study course) with an approved professor who oversees the thesis requirement. For more information, contact the student affairs officer in the department.

African American Studies Minor

The African American Studies minor is designed for students who wish to augment their major program of study with courses from various disciplines germane to African American studies.

To enter the minor, students must be in good academic standing (2.0 grade-point average), have completed 45 units, and file a petition with the African American Studies student affairs officer.

Required Lower Division Courses (9 to 10 units): Two courses from African American Studies M5, 6, M10A.

Required Upper Division Courses (20 to 25 units): Five upper division African American studies courses.

No more than 4 graded units of African American Studies 195, 197, and 199 may be applied toward the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor, and at least 16 units applied toward the minor must be taken in residence at UCLA. Transfer credit for any of the above is subject to program approval; consult the student affairs officer before enrolling in any courses for the minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of African American Studies offers the Master of Arts (MA) degree in African American Studies. A concurrent degree program (African American Studies MA/Law JD) is also offered.

African American Studies

Lower Division Courses

M5. Social Organization of Black Communities. (5) (Same as Sociology M5.) Lecture, four hours; discussion, one hour; field trips. Analysis and interpretation of social organization of black communities, with focus on origins and development of black communities, competing theories and research findings, defining characteristics and contemporary issues. Letter grading.

6. Trends in Black Intellectual Thought. (5) Lecture, three hours; discussion, one hour. Overview of major intellectual trends that have shaped ways in which Afro-American thinkers have interpreted experiences of blacks in U.S., drawing from such fields as history, philosophy, and literature. Letter grading.

M10A. History of Africa to 1800. (5) (Same as History M10A.) Lecture, three hours; discussion, one hour. Exploration of development of African societies from earliest times to late 18th century. P/NP or letter grading.

M18. Leadership and Student-Initiated Retention. (2) (Same as American Indian Studies M18, Asian American Studies M18, and Chicana and Chicano Studies M18.) Seminar, two hours. Limited to freshmen/sophomores/first-year transfer students. Not open for credit to students with credit for course M118. Exploration of issues in retention at UCLA through lens of student-initiated and student-run programs, efforts, activities, and services. Focus on populations with historically low graduation rates targeted by Campus Retention Committee. May not be applied toward departmental major or minor elective requirements. May be repeated once for credit. Letter grading.

Upper Division Courses

M102. Culture, Media, and Los Angeles. (6) (Same as Asian American Studies M160 and Honors Collegium M102.) Lecture, four hours; screenings, two hours. Designed for juniors/seniors. Role of media in society and its influence on contemporary cultural environment, specifically in Los Angeles; issues of representation as they pertain to race, ethnicity, gender, and sexuality. P/NP or letter grading.

M103A. African American Theater History: Slavery to Mid-1800s. (4) (Same as Theater M103A.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from slavery to mid-1800s. Letter grading.

M103B. African American Theater History: Minstrel Stage to Rise of American Musical. (4) (Same as Theater M103B.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from minstrel stage to rise of American musical. Letter grading.

M103E. African American Theater History: Depression to Present. (4) (Same as Theater M103E.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from Depression to present. Letter grading.

M104A. Early African American Literature. (5) (Same as English M104A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introductory survey of African American literature from 18th century through World War I, including oral and written forms (folktales, spirituals, sermons; fiction, poetry, essays), by authors such as Phillis Wheatley, Frances Harper, Frederick Douglass, Harriet Jacobs, Charles Chesnutt, Booker T. Washington, and Pauline Hopkins. P/NP or letter grading.

M104B. African American Literature from Harlem Renaissance to 1960s. (5) (Same as English M104B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introductory survey of 20th-century African American literature from New Negro Movement of post-World War I period to 1960s, including oral materials (ballads, blues, speeches) and fiction, poetry, and essays by authors such as Jean Toomer, Claude McKay, Langston Hughes, Nella Larsen, Zora Neale Hurston, Richard Wright, Ann Petry, James Baldwin, Gwendolyn Brooks, and Ralph Ellison. P/NP or letter grading.

M104C. African American Literature of 1960s and 1970s. (5) (Same as English M104C.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introductory survey of African American literary expression from late 1950s through 1970s. Topics include rise of Black Arts Movement of 1960s and emergence of black women's writing in early 1970s, with focus on authors such as Lorraine Hansberry, Amiri Baraka, Nikki Giovanni, Alice Walker, Toni Morrison, Ishmael Reed, Audre Lorde, Paule Marshall, and Ernest Gaines. P/NP or letter grading.

M104D. Contemporary African American Literature. (5) (Same as English M104D.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introductory survey of African American literature from 1980s to present covering range of genres, with emphasis on diversity of perspectives and styles that have emerged over past 30 years or so. Authors may include Toni Morrison, August Wilson, Octavia Butler, Anna Deavere Smith, June Jordan, Charles Johnson, and Rita Dove. P/NP or letter grading.

M104E. Topics in African American Literature and Culture. (5) (Same as English M104E.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Variable topics lecture course that provides opportunity to cover African American literature from wide range of theoretical, historical, format, and thematic perspectives. Topics may include African American autobiography, 20th-century African American literature and film, black diaspora literature, postmodern African American fiction, Afro-Futurism, and African American satire. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M107. Cultural History of Rap. (5) (Same as Ethnomusicology M119.) Lecture, four hours; discussion, one hour. Introduction to development of rap music and hip-hop culture, with emphasis on musical and verbal qualities, philosophical and political ideologies, gender representation, and influences on cinema and popular culture. P/NP or letter grading.

M109. Women in Jazz. (4) (Same as Ethnomusicology M109 and Gender Studies M109.) Lecture, four hours; discussion, one hour. Sociocultural history of women in jazz and allied musical traditions from 1880s to present. Survey of women vocalists, instrumentalists, composers/arrangers, and producers and their impact on development of jazz. P/NP or letter grading.

M110A-M110B. African American Musical Heritage. (5-5) (Same as Ethnomusicology M110A-M110B.) Lecture, four hours; discussion, one hour. P/NP or letter grading. **M110A.** Sociocultural history and survey of African American music covering Africa and its impact on Americas; music of 17th through 19th centuries; minstrelsy and its impact on representation of blacks in film, television, and theater; religious music, including hymns, spirituals, and gospel; black music of Caribbean and Central and South America; and music of black Los Angeles. **M110B.** Sociocultural history and survey of African American music covering blues, pre-1947 jazz styles, rhythm 'n' blues, soul, funk, disco, hip-hop, and symbiotic relationship between recording industry and effects of cultural politics on black popular music productions.

M111. Ellingtonia. (4) (Formerly numbered M145.) (Same as Ethnomusicology M111.) Lecture, three hours. Music of Duke Ellington, his life, and far-

reaching influence of his efforts. Ellington's music, known as Ellingtonia, is one of largest and perhaps most important bodies of music ever produced in U.S. Covers many contributions of other artists who worked with Ellington, such as composer Billy Strayhorn and musicians Johnny Hodges, Cootie Williams, and Mercer Ellington. P/NP or letter grading.

CM112A. African American Music in California. (4) (Same as Ethnomusicology CM112.) Lecture, four hours. Historical and analytical examination of African American music in California, including history, migration patterns, and urbanism to determine their impact on development of African American music in California. Concurrently scheduled with course CM212A. P/NP or letter grading.

M114C. African American Political Thought. (4) (Same as Labor and Workplace Studies M114C and Political Science M180A.) Lecture, three or four hours; discussion, one hour (when scheduled). Intensive introduction to African American political thought, with focus on major ideological trends and political philosophies as they have been applied and interpreted by African Americans. Debates and conflicts in black political thought, historical contest of African American social movements, and relationship between black political thought and major trends in Western thought. P/NP or letter grading.

M114D. African American Freedom Narratives. (4) (Same as Political Science M180B.) Lecture, three or four hours; discussion, one hour (when scheduled). Historical, psychological, and thematic interpretation of selected narratives and storytelling in African American culture and politics. P/NP or letter grading.

M114E. Malcolm X and Black Liberation. (4) (Same as Political Science M180C.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Analysis of black radicalism in mid-20th century, with special attention to contribution of Malcolm X and black nationalism to African American liberation movement. P/NP or letter grading.

M118. Student-Initiated Retention and Outreach Issues in Higher Education. (4) (Same as American Indian Studies M118, Asian American Studies M168, and Chicana and Chicano Studies M118.) Lecture, four hours. Exploration of issues in outreach and retention of students in higher education, especially through student-initiated programs, efforts, activities, and services, with focus on UCLA as case. May be repeated twice for credit. Letter grading.

M120. Race, Inequality, and Public Policy. (4) (Same as Public Policy M120.) Lecture, three hours; discussion, one hour. Background in economics, sociology, or urban studies preferred but not required. Survey course to examine major debates and current controversies concerning public policy responses to social problems in urban America. Letter grading.

M124. Comparative Racialization and Indigeneity. (4) (Same as Asian American Studies M124.) Lecture, three hours. Examination of processes and histories of racialization and colonization in U.S. Discussions, film screenings, guest speakers, and reading assignments, with focus on issues of cultural survival, empire, indigeneity, migration, resistance, sovereignty, and war. P/NP or letter grading.

CM135A. African American Art before 1900. (4) (Formerly numbered CM112D.) (Same as Art History CM135A.) Lecture, three hours. Detailed inquiry into work to circa 1900 of African American artists whose works provide insightful and critical commentary about major features of American life and society. Concurrently scheduled with course CM235A. P/NP or letter grading.

CM135B. African American Art, 1900 to 1963. (4) (Formerly numbered CM112E.) (Same as Art History CM135B.) Lecture, three hours. Detailed inquiry into work of African American artists from Columbian Exposition to 1963 March on Washington within context of social, political, and cultural engagement, as well as in codification of modern black life in U.S. Concurrently scheduled with course CM235B. P/NP or letter grading.

140. Radical Black Imaginaries: Politics, Identity, and Struggle. (4) Lecture, four hours. Exploration of some more powerful visions for freedom, liberation, and racial justice in African diasporic world, with focus on political struggles, intellectual movements, and creative expressions that formed part of radical black imagination during last century. Following of black diasporic citizens from Accra to Harlem to Havana as they struggled for freedom within and beyond movements against colonialism and racial oppression, for Pan-Africanism, feminism, and Negritude, and through utopian art forms like Afro-Futurism. Consideration of how black activists, artists, and intellectuals in various parts of globe have worked to envision and enact real possibilities for sovereignty and liberation both at home and abroad. Letter grading.

M141. African American Women's History. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M141.) Lecture, four hours. Historical examination of black women's experiences in U.S. from antebellum era to present. By situating black women's experiences within major historical transitions in American history, exploration of key themes, including gender formation, sexuality, labor and class, collective action, gender and sexual violence, reproduction, and role of law. How have intersecting forms of oppression impacted black women's historical lives? How is difference constructed through interrelated and overlapping ideologies of race and gender? How do historians uncover black women's historical lives and what are challenges to such discoveries? Examination of black women's individual and collective struggles for freedom from racism, sexism, and heteropatriarchy, as well as black women's participation in and challenge to social movements, including suffrage, women's liberation, civil rights, and black power. Investigation of black women's intellectual history, including their cultural productions. Letter grading.

M142. Race, Gender, and Punishment. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M142.) Seminar, four hours. Interdisciplinary examination of historical and contemporary development of modern prison industrial complex in U.S., with attention to impact of prison industrial complex on immigrants, including undocumented residents, homeless populations, women, African Americans, and transgender nonconforming and lesbian, gay, bisexual, and transgender communities. Why does U.S. have largest prison population in world? What historical conditions and ideologies gave rise to this massive explosion in U.S. prisoner population? What policies have fueled mass imprisonment? Who is imprisoned? How have politicians used imprisonment as response to economic transformations and perceived social disorders? How is current crisis analogous to or distinct from regimes of racialized punishment in prior historical moments? Letter grading.

M144. Ethnic Politics: African American Politics. (4) (Same as Political Science M182.) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one 140-level political science course or one upper division course on race or ethnicity from history, psychology, or sociology. Requisite: Political Science 40. Designed for juniors/seniors. Emphasis on dynamics of minority group politics in U.S., touching on conditions facing racial and ethnic groups, with black Americans being primary case for analysis. Three primary objectives: (1) to provide descriptive information about social, political, and economic conditions of black community, (2) to analyze important political issues facing black Americans, (3) to sharpen students' analytical skills. P/NP or letter grading.

M148. Politics of Struggle: Race, Solidarity, and Resistance. (4) (Same as Chicana and Chicano Studies M148.) Lecture, four hours. Examination of Chicana/Chicano intergroup relations and political coalitions with other Latinos, African Americans, Asian and Pacific Islanders, and Euro-Americans, especially in communities undergoing rapid changes in demographic composition. Letter grading.

M150D. Recent African American Urban History: Funk Music and Politics of Black Popular Culture. (4) (Same as History M150D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of musical genre known as funk that emerged in its popular form during late 1960s and reached popular high point, in black culture, during 1970s. Funk, fusion of gospel, blues, jazz, rhythm and blues, soul, rock, and many other musical styles, offers students unique window into recent African American history. P/NP or letter grading.

M154C. Black Experience in Latin America and Caribbean I. (4) (Same as Political Science M184A.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Culture, history, politics, and identity of African Americans in Spanish and Lusophone Caribbean, South America, and Central America. Exploration of issues of identity in context of Afro/Latino migration to U.S. P/NP or letter grading.

M154D. Black Experience in Latin America and Caribbean II. (4) (Same as Political Science M184B.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of issues regarding race and ethnicity in Latin America, with emphasis on comparisons to U.S. and within Latin America. Covers populations of African and indigenous origins, with emphasis on former. P/NP or letter grading.

M158A. Comparative Slavery Systems. (4) (Same as History M150A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of slavery experiences in various New World slave societies, with emphasis on outlining similarities and differences among legal status, treatment, and slave cultures of North American, Caribbean, and Latin American slave societies. P/NP or letter grading.

M158B-M158C. Introduction to Afro-American History. (4-4) (Same as History M150B-M150C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of Afro-American experience, with emphasis on three great transitions of Afro-American life: transition from Africa to New World slavery, transition from slavery to freedom, and transition from rural to urban milieus. P/NP or letter grading.

M158E. African American Nationalism in First Half of 20th Century. (4) (Same as History M150E.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Critical examination of African American search in first half of 20th century for national/group cohesion through collectively built institutions, associations, organized protest movements, and ideological self-definition. P/NP or letter grading.

M159P. Constructing Race. (4) (Same as Anthropology M159P and Asian American Studies M169.) Lecture, three hours. Examination of race, socially constructed category, from anthropological perspective. Consideration of development of racial categories over time and in different regions, racial passing, multiracial identity in U.S., whiteness, race in popular culture, and race and identity. P/NP or letter grading.

M164. Afro-American Experience in U.S. (4) (Same as Anthropology M164.) Lecture, three hours. Promotes understanding of contemporary sociocultural forms among Afro-Americans in U.S. by presenting comparative and diachronic perspective on Afro-American experience in New World. Emphasis on utilization of anthropological concepts and methods in understanding origins and maintenance of particular patterns of adaptation among black Americans. P/NP or letter grading.

M165. Sociology of Race and Labor. (4) (Same as Labor and Workplace Studies M165 and Sociology M165.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Exploration of relationship between race/ethnicity, employment, and U.S. labor movement. Analysis of underlying racial divisions in workforce and how they evolved historically. Consideration of circumstances under which workers and unions have excluded people of color from jobs and

unions, as well as circumstances under which workers and unions have organized people of color into unions in efforts to improve their wages and working conditions. Impact of globalization on these dynamics. P/NP or letter grading.

M167. Worker Center Movement: Next Wave Organizing for Justice for Immigrant Workers. (4) (Same as Asian American Studies M166C, Chicana and Chicano Studies M130, and Labor and Workplace Studies M167.) Seminar, three hours. Development of theoretical and practical understanding of worker center movement, with focus on historical factors that have led to emergence and growth of worker centers. Role of worker centers in promoting multi-ethnic and multiracial campaigns for workplace and economic justice. Transnational cross-border solidarity issues and rights of undocumented workers. P/NP or letter grading.

M170A. Diasporic Nonfiction: Media Engagements with Memory and Displacement I. (4) (Same as Chicana and Chicano Studies M140A.) Seminar, three hours. Video production course, with emphasis on autobiographical, critical, and performance-based modes of nonfiction media making, drawing on practices of diasporic filmmakers who have grappled with suppressed collective memories of displacement, trauma, exile, and migration. What does it mean to make videos about memory in places where direct cues to remembering cannot be seen? Introduction to concepts from films and readings. Production assignments and screenings, with focus on questions of how to represent history, memory, family dynamics, and lived experience according to perspectives and interests of diasporic subjects. In Progress grading (credit to be given only on completion of course M170B).

M170B. Diasporic Nonfiction: Media Engagements with Memory and Displacement II. (4) (Same as Chicana and Chicano Studies M140B.) Seminar, three hours. Enforced requisite: course M170A. Students complete 20- to 30-minute video projects about issues or experiences central to everyday lives of collectives of diasporic peoples. They learn to propose, record, edit, and distribute one socially engaged nonfiction video and draw on their experiences from course M170A in writing voiceover, choreographing dances, designing public performances, interviewing, and recording everyday life. P/NP or letter grading.

M172. Afro-American Woman in U.S. (4) (Same as Gender Studies M172 and Psychology M172.) Lecture, two and one half hours. Designed for juniors/seniors. Impact of social, psychological, political, and economic forces which impact on interpersonal relationships of Afro-American women as members of large society and as members of their biological and ethnic group. P/NP or letter grading.

M173. Nonviolence and Social Movements. (4) (Same as Chicana and Chicano Studies M173 and Labor and Workplace Studies M173.) Lecture, three hours; discussion, one hour. Overview of nonviolence and its impact on social movements both historically and in its present context in contemporary society, featuring lectures, conversations, films, readings, and guest speakers. Exploration of some historic contributions of civil rights struggles and role of nonviolent action throughout recent U.S. history. Examination of particular lessons of nonviolent movements as they impact social change organizing in Los Angeles. P/NP or letter grading.

174. Intragrass Differences in 20th-Century Black America. (4) Lecture, four hours. Discussion of evolution of black divergence within African American community by focusing on evolution of differences—specifically class differences—that have minimized black progress when compared with other races and cultures like Asians and Jews. Examination of origins and plight of lower-class blacks in stark juxtaposition with black leadership and African Americans occupying higher socioeconomic levels. Letter grading.

175. Racial and Ethnic Disparities in Healthcare. (5) Lecture, four hours. Designed for students who are seeking to become healthcare professionals so they understand importance of how race and ethnicity im-

pact delivery of healthcare. Focus on need to increase diversity of health professions workforce as means to address health disparities. Letter grading.

176. Race, Racism, and Law. (4) Lecture, four hours. Throughout American history, race relations have been inextricably linked to law. Both perpetuation of racism and struggle against it have involved various legal institutions, especially U.S. Supreme Court. Lawyers on all sides have often played pivotal roles in establishing legal standards defining political, economic, social, and psychological status of African Americans (and other racial and ethnic minorities). Historical overview and in-depth examination of selected major highlights of these legal developments, including Constitutional sources of racism, legal foundations establishing and eliminating slavery, major Supreme Court decisions before and during civil rights era, and contemporary legal retreat from civil rights protections. Examination of legal processes and legal profession in broader historical and political context. Letter grading.

177. African Americans in Higher Education. (4) Lecture, four hours. Discussion and exploration of challenges facing black students at predominantly white institutions (PWIs), ways in which Proposition 209 has affected black student community, spaces on and off campus that empower students, and issues of access and equity in higher education. Critical discussions about student experiences/concerns/challenges at UCLA, addressing specific strategies for success, and notions of empowerment that provide context for students from underrepresented backgrounds at predominantly white universities. Letter grading.

M178. Sociology of Caribbean. (4) (Same as Sociology M178.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Historical sociology of Caribbean, with emphasis on colonialism and decolonization, development and underdevelopment, race-making institutions and evolution of race relations, nationalism and migration. P/NP or letter grading.

M179A. Topics in African American Literature. (5) (Same as English M191A.) Seminar, three or four hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in African American literature. Topics may include Harlem Renaissance, African American Literature in Nadir, Black Women's Writing, Contemporary African American Fiction, African American Poetry. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M182A. Language, Literacy, and Human Development Ethnography (2) (Same as Education M182A.) Fieldwork, three hours. Enforced corequisite: course M194A. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M182B. Culture, Gender, and Human Development Ethnography (2) (Same as Education M182B.) Fieldwork, three hours. Enforced corequisite: course M194B. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M182C. Culture, Communications, and Human Development Ethnography (2) (Same as Education M182C.) Fieldwork, three hours. Enforced corequisite: course M194C. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M183A. Language, Literacy, and Human Development Ethnography (3) (Same as Education M183A.) Fieldwork, six hours. Enforced corequisite: course M194A. Students visit after-school site on weekly basis and use ethnographic methods to document

learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M183B. Culture, Gender, and Human Development Ethnography (3) (Same as Education M183B.) Fieldwork, six hours. Enforced corequisite: course M194B. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M183C. Culture, Communications, and Human Development Ethnography (3) (Same as Education M183C.) Fieldwork, six hours. Enforced corequisite: course M194C. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

188A. Special Courses in Afro-American Studies. (4) Seminar, four hours. Program-sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

188B. Race and Public Policy. (5) Seminar, three hours. Exploration of range of public policies concerned with promoting civil rights of racial minorities, with focus on education, voting, and housing. Why did such policies initially arise? How have they since developed? How effective have they been in closing racial gap? Provides students with basic foundation of knowledge for thinking through contemporary debates surrounding policies that seek to redress racial discrimination in U.S. P/NP or letter grading.

C191. Variable Topics Research Seminars: Afro-American Studies. (4) Seminar, four hours. Research seminar on selected topics in Afro-American studies. Reading, discussion, and development of culminating project. May be repeated for credit. Concurrently scheduled with course C291. Letter grading.

M194A. Language, Literacy, and Human Development Research Group Seminars (5) (Same as Education M194A.) Seminar, three hours; laboratory, two hours (when scheduled). Enforced corequisite: course M182A or M183A. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and language. May be taken independently for credit. Letter grading.

M194B. Culture, Gender, and Human Development Research Group Seminars (5) (Same as Education M194B.) Seminar, three hours; laboratory, two hours (when scheduled). Enforced corequisite: course M182B or M183B. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and gender. May be taken independently for credit. Letter grading.

M194C. Culture, Communications, and Human Development Research Group Seminars (5) (Same as Education M194C.) Seminar, three hours; laboratory, two hours (when scheduled). Enforced corequisite: course M182C or M183C. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and technologies. May be taken independently for credit. Letter grading.

195. Community or Corporate Internships in Afro-American Studies. (4) Tutorial, four hours. Preparation: 3.0 grade-point average in major. Limited to junior/senior majors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. Eight units may be applied toward major requirements. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

M195CE. Comparative Approaches to Community and Corporate Internships. (4) (Same as American Indian Studies M195CE, Chicana and Chicano Studies M195CE, and Gender Studies M195CE.) Tutorial, one hour; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Comparative study of race, gender, and indigeneity in relation to contemporary workplace dynamics. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. Individual contract with supervising faculty member required. P/NP or letter grading.

196. Research Apprenticeship in Afro-American Studies. (4) Tutorial, three hours. Limited to juniors/seniors. Entry-level research apprenticeship under guidance of faculty mentor affiliated with Afro-American Studies major or minor. Short-term research project culminating in term paper in African American studies or related field required. Research may be in part or totally in relation to faculty member's research. May be repeated for credit. Individual contract required. Letter grading.

197. Individual Studies in Afro-American Studies. (2 to 8) Tutorial, four hours. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. Eight units may be applied toward major requirements. May be repeated for credit. Individual contract required. P/NP or letter grading.

198. Honors Research in Afro-American Studies. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Afro-American Studies. (2 to 4) Tutorial, to be arranged with faculty member who directs study. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors. Supervised individual research or investigation of large project under guidance of faculty mentor. Culminating paper or project required. Eight units may be applied toward major requirements. May be repeated for maximum of 16 units. Individual contract required. P/NP or letter grading.

Graduate Courses

M200A. Advanced Historiography: Afro-American. (4) (Same as History M200V.) Seminar, three hours. May be repeated for credit. S/U or letter grading.

M200C. Black Families and Relationships. (4) (Same as Sociology M262.) Seminar, three hours. Evaluation of social, cultural, and historical forces that affect socialization, stability, and interaction in black intimate relationships, beginning with theoretical framework from black feminism to analysis of economic and other expectations for partners in cohabiting and other types of unions. Examination of family life for both middle-class and low-income populations. Exploration of notions of black sexuality, including images of hyper-masculinity and femininity within black body and critical interrogation of notions of blackness and authenticity in racial identification. Contribution to greater understanding of black intimate relationships in different contexts, including lesbian and gay identities, Caribbean and other ethnic identities, and interracial intimacies. S/U or letter grading.

200D. African American Women's History. (4) Seminar, four hours. Historical examination of black women's experiences in U.S. from antebellum era to present. Exploration of key themes, including gender formation, sexuality, labor and class, collective action, gender and sexual violence, reproduction, and role of

law. How have intersecting forms of oppression impacted black women's historical lives? How is difference constructed through interrelated and overlapping ideologies of race and gender? How do historians uncover black women's historical lives and what are challenges to such discoveries? Examination of black women's individual and collective struggles for freedom from racism, sexism, and heteropatriarchy as well as black women's participation in and challenge to social movements, including suffrage, women's liberation, civil rights, and black power. Letter grading.

M200E. Studies in Afro-American Literature. (4) (Same as English M262.) Lecture, four hours. Intensive research and study of major themes, issues, and writers in Afro-American literature. Discussions and research on aesthetic, cultural, and social backgrounds of Afro-American writing. May be repeated for credit. S/U or letter grading.

M200G. Race, Class, and Gender: Constructing Black Womanhood and Black Manhood in America. (4) (Same as Sociology M231.) Seminar, four hours. Race, class, gender, and sexual identity are axes of stratification, identity, and experience. They are not merely identities but structural locations that are often taken for granted and rarely confronted, challenged, or contested. Many times one or more of these go unrecognized. Exploration of multiple and intersecting ways these concepts shape society, individual life chances, and daily social interactions for African Americans. Examination of race, class, and gender inequalities as individual aspects of social life. How race, class, gender, and sexual identity shape societies and individual experiences in interaction with each other. How these inequalities shape and are shaped by social institutions, including cultural institutions, economy, and family, within context of experiences of black women and black men in contemporary U.S. Letter grading.

200H. Social Politics of Recent African American Music and Popular Culture. (4) Seminar, four hours. Predominant trend in research in African American music highlights intersection of music with social and political movements, contextual socioeconomic realities, and cultural politics of identity. Civil rights, black power, feminism, sexual revolution, and anti-war were movements that shaped and were shaped by music of their respective historical contexts. Recent scholarship has also engaged questions pertaining to intra-African American politics of community: grappling with issues such as appropriation, economic exploitation, male privilege, and marginalization of creative artists. Examination of critical nexus between music and myriad of issues unearthed by this trend in scholarly study of black music. Letter grading.

M211. Seminar: African American Music. (4) (Same as Ethnomusicology M211.) Seminar, three hours. Requirements: Ethnomusicology M110A, M110B. Designed for graduate students. In-depth examination of intellectual history of African American music scholarship. Intensive investigation of problems, theories, interdisciplinary methods/schools of research, and bibliography related to study of African American music. Letter grading.

CM212A. African American Music in California. (4) (Same as Ethnomusicology CM212.) Lecture, four hours. Historical and analytical examination of African American music in California, including history, migration patterns, and urbanism to determine their impact on development of African American music in California. Concurrently scheduled with course CM112A. S/U or letter grading.

CM235A. African American Art before 1900. (4) (Formerly numbered CM212D.) (Same as Art History CM235A.) Lecture, three hours. Detailed inquiry into work to circa 1900 of African American artists whose works provide insightful and critical commentary about major features of American life and society. Concurrently scheduled with course CM135A. S/U or letter grading.

CM235B. African American Art, 1900 to 1963. (4) (Formerly numbered CM212E.) (Same as Art History CM235B.) Lecture, three hours. Detailed inquiry into work of African American artists from Columbian Ex-

position to 1963 March on Washington within context of social, political, and cultural engagement, as well as in codification of modern black life in U.S. Concurrently scheduled with course CM135B. S/U or letter grading.

M240. Assessment and Treatment of African American Families. (3) (Same as Psychiatry M240.) Seminar, two hours. Designed for graduate students. Course aids mental health professionals and trainees in evaluation and treatment of African American families in terms of their cultural milieu, historical background, and economic status. Didactic presentations by instructors and invited guests form basis for supervised evaluation and case management with African American children and families. Letter grading.

241. Special Topics in Afro-American Studies. (4) Lecture, four hours; discussion, one hour. Intensive research and study of major themes and issues in various areas of Afro-American studies. S/U or letter grading.

M256. Topics in African American Art. (4) (Same as Art History M236.) Seminar, three hours. Requisite: course CM235A or CM235B. Topics in African American art from 18th century to present. May be repeated for credit with consent of graduate adviser. S/U or letter grading.

270A. Survey of Afro-American Research. (4) Seminar, three hours. Overview of research methodologies in humanities and social sciences, with firsthand reports from faculty in various fields. Introduction to research in and related to Afro-American studies and application of such research. Letter grading.

C291. Variable Topics in Afro-American Studies. (4) Seminar, four hours. Research seminar on selected topics in Afro-American studies. Reading, discussion, and development of culminating project. May be repeated for credit. Concurrently scheduled with course C191. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Readings and Tutorials. (4) Tutorial, to be arranged. Provides students with umbrella under which they can pursue specialized interests from which there is insufficient demand to warrant offering formal courses. S/U or letter grading.

597. Preparation for MA Comprehensive Examination. (4 or 8) Tutorial, to be arranged. Limited to graduate students. May not be applied toward MA course requirements. S/U grading.

598. Research for and Preparation of MA Thesis. (4 or 8) Tutorial, to be arranged. Limited to graduate students. May not be applied toward MA course requirements. S/U grading.

AFRICAN STUDIES

*Interdepartmental Program
College of Letters and Science*

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Ghislaine E. Lydon, PhD, Chair

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Françoise Lionnet, PhD (*Comparative Literature, French and Francophone Studies, Gender Studies*)
Ghislaine E. Lydon, PhD (*History*)
Edith Mukudi Omwami, PhD (*Education*)
Jemima Pierre, PhD (*African American Studies*)
Allen F. Roberts, PhD (*French and Francophone Studies, World Arts and Cultures/Dance*)
Paula A. Tavrow, PhD (*Community Health Sciences*)
Dominic R. Thomas, PhD (*Comparative Literature, French and Francophone Studies*)
William H. Worger, PhD (*History*)

Scope and Objectives

The intellectual objective of the African Studies MA Program is to provide graduate students with the opportunity to engage in intensive study and research on Africa on an interdisciplinary basis. The program offers African area courses in a wide range of disciplines, including the fine arts, social sciences, humanities, and professional fields. A concurrent degree program is also offered where students can work for the MA in African Studies and the Master of Public Health (MPH) at the same time.

Academic flexibility draws many students to the program. Because there are more than 50 active faculty members on campus with African interest and experience in many disciplines, students have multiple options to design individualized programs suited to their specific interests.

Information on the undergraduate minor in African Studies can be found in the International and Area Studies section later in this catalog.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The African Studies Program offers the Master of Arts (MA) degree in African Studies. A concurrent degree program (African Studies MA/ Public Health MPH) is also offered.

African Studies

Graduate Courses

201A. Africa and Disciplines. (4) Seminar, four hours. Major intellectual trends and currents in development of African studies. Emphasis on appreciation of multidisciplinary background of African studies and relevant interpretive strategies. Central questions, critical issues, and current problems affecting Africa. Content varies each year. Letter grading.

201B. Africa and Professions. (4) Seminar, three hours. Exploration of key contributions and debates of academic disciplines in African studies, with emphasis on professional dimension. Review of discipline's literature, resources, career opportunities, and professionals themselves. Letter grading.

296. Africanist Working Group. (1) Research group meeting, one hour. Collaborative exploration and discussion of current research and literature on modern

Africa. Specific projects determined by research being conducted by working group participants. Activities include designing and refining research proposals, gathering and analyzing data, and interpreting and reporting results, as well as presenting research to receive critical feedback from other class participants. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Limited to graduate African studies students. May be repeated, but only 4 units may be applied toward minimum graduate course requirement. S/U or letter grading.

597. Preparation for MA Comprehensive Examination. (4) Tutorial, to be arranged. Limited to graduate African studies students. Normally taken only during term in which student is being examined. May not be applied toward minimum graduate course requirement. S/U grading.

598. Research for and Preparation of MA Thesis. (4) Tutorial, to be arranged. Limited to graduate African studies students. Normally taken only during term in which student intends to complete MA thesis. May not be applied toward minimum graduate course requirement. S/U grading.

AMERICAN INDIAN STUDIES

*Interdepartmental Program
College of Letters and Science*

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Paul V. Kroskrity, PhD, Chair

Faculty Committee

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Mishuania R. Goeman, PhD (*Gender Studies*)
Felicia S. Hodge, DrPH (*Health Policy and Management, Nursing*)
Paul V. Kroskrity, PhD (*Anthropology*)
Benjamin L. Madley, PhD (*History*)
Shannon E. Speed, PhD (*Anthropology, Gender Studies*)

Scope and Objectives

Because UCLA possesses a substantial number of faculty members in the humanities and social sciences engaged in teaching and conducting research on American Indians, the nation's first interdisciplinary MA program in American Indian Studies was established here.

The Bachelor of Arts degree and the undergraduate American Indian Studies minor provide a general introduction for students who anticipate advanced study at the graduate level in American Indian studies, ethnic studies, and the traditional disciplines or careers in research, administration, public service, and community service related to American Indian communities.

The Master of Arts program draws primarily on existing courses in the participating departments, where research and research methodologies are of primary concern. Students are exposed to Indian-related research in a number of different disciplines; demonstration of research skills is required. Students graduate with the training they need to teach Native American studies or to serve in an administrative capacity in Indian programs or organizations. The MA program ranks among the top Indian studies programs in the country.

Undergraduate Study

The American Indian Studies major is a designated capstone major. Seniors complete a research/service experience and participate in a tutorial where faculty members help them relate their course-derived academic experience to their original research/service efforts involving Native American communities. Through their capstone work, students demonstrate their skills at analyzing and synthesizing knowledge, show their capacity to work collaboratively with peers, and display their capacity to relate their academic research and discourse to Native American community needs and concerns. Students present their work at the academic year-end Research Symposium sponsored by the American Indian Studies Interdepartmental Program.

American Indian Studies BA

Capstone Major

The American Indian Studies BA program is designed to offer a coherent and comprehensive curriculum in American Indian cultures, societies, and contemporary issues in addition to valuable background in more traditional disciplines such as anthropology, art history, economics, education, history, law, linguistics, literature, sociology, and world arts and cultures. Students acquire a critical knowledge of the concepts, theories, and methods that have produced knowledge about American Indians in the traditional disciplines. Students are encouraged to develop a concentration—or special expertise—in these fields to accompany the major.

The curriculum encompasses the cultural, historical, political, and social experiences of Native Americans in the Americas. Through courses on Native American literature, languages, theater, and contemporary societies and through more culturally specific courses on California Indians, cultures of the Pueblo southwest, and so on, the major provides an in-depth and broad knowledge on the experience of Native Americans not only in the U.S. and Canada but in Mexico and elsewhere in Latin America as well.

Given the increasingly multicultural society of the U.S. and the economic revitalization of many Native American communities, a knowledge of American Indian studies greatly enhances the professional and scholarly contributions attainable for those seeking postgraduate degrees in various related disciplines and fields.

Preparation for the Major

Required: American Indian Studies M10 and two courses from Anthropology 9, Gender Studies 10, Political Science 40, Statistics 12. Each course must be completed with a grade of C or better.

Transfer Students

Transfer applicants to the American Indian Studies major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one introduction to American Indian studies course and two courses from culture and society, introduction to gender studies, introduction to American politics, or introduction to statistical methods.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Requirements are distributed according to certain categories to create a breadth of knowledge. Students are required to take a research methods course to become familiar with scholarly techniques of knowledge production and to critically regard academic research, as well as a course in either ethnic/race/gender relations or comparative indigenous studies. Additional courses are selected in the social sciences and humanities according to a distributional formula that encourages further specialization within either of these two broad areas while simultaneously adding additional breadth. Finally, American Indian Studies C122SL prioritizes the experiential dimension of involvement in Native American communities (either urban, reservation, or rancheria) through work that provides service experience and/or supervised internship opportunities.

The 12 courses must fit one of the following regional emphasis patterns: (1) Native North America—eight courses, including those mentioned below and additional electives on Native North American topics or (2) indigenous peoples of the Americas—eight courses, including at least four dealing with indigenous people in Central and/or South America.

Students must complete 12 upper division courses (48 units) as follows, with no more than 32 units from American Indian studies courses:

1. Ten core courses (40 units), including (a) American Indian Studies M161, (b) two *language* courses from Anthropology M140, C144, Linguistics 114, (c) two *history or law* courses from American Indian Studies 140, 158, C170, History 149A, 149B, 157B, (d) one *social sciences* course from American Indian Studies C120, C121, C130, C175, C178, Anthropology 172A, or 174P, (e) two *expressive culture* courses from American Indian Studies 180, Art History 137, C139A, C139B, English 106, Ethnomusicology 106A, 106B, Theater 103F, 107, (f) one *methodology* course from Anthropology 139, Art History 100, Community Health Sciences 181, Comparative Litera-

- ture 100, Ethnomusicology 180, Linguistics 160, Political Science 170A, Sociology 106A, 113, or World Arts and Cultures 195, and (g) either one *ethnic/race/gender relations* course (African American Studies M164, Anthropology M134, M154P, M154Q, Asian American Studies 130A, M130B, M130C, 131A, 132A, 133, 134, Chicana and Chicano Studies CM182, Film and Television 128, Gender Studies 130, 168, Sociology 154, 156, or M162) or one *comparative indigenous studies* course (Anthropology 153P, Geography M131, History 135A, or Sociology 157)
2. American Indian Studies C122SL (experiential service learning or supervised internship)
 3. American Indian Studies 199C (capstone course)

Each course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. No more than two independent studies courses (199s) may be applied toward the degree.

Honors Program

The honors program is designed for American Indian Studies majors who are interested in carrying out an independent research project that culminates in an interdepartmental honors thesis of approximately 30 pages. The program gives qualified students the opportunity to work closely with individual professors on an in-depth supervised research and writing project.

All junior and senior American Indian Studies majors who have a cumulative grade-point average of 3.0 or better and at least a cumulative GPA of 3.5 in coursework in the major are eligible to apply. Consult the student affairs officer for more information.

To qualify for graduation with honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average of 3.5 or better in the major course requirements and an overall GPA of 3.0 or better, and (3) complete American Indian Studies 198A-198B-198C, taken with a professor who agrees to mentor and guide them through the stages of senior essay design and development during their senior year. Completion of a senior thesis is required.

American Indian Studies Minor

The American Indian Studies minor is designed for students who wish to augment their major program of study in the College of Letters and Science with a group of related courses from various disciplines germane to American Indian studies. The minor exposes students to Indian-related research and literature in a number of different disciplines, such as American Indian studies, anthropology, economics, history, political science, sociology, and theater.

To enter the minor, students must be in good academic standing (2.0 grade-point average), have completed 45 units, and file a petition at the American Indian Studies Center, 3220

Campbell Hall. All degree requirements, including the specific requirements for this minor, must be fulfilled within the unit maximum set forth by the College of Letters and Science.

Required Lower Division Course (5 units): American Indian Studies M10 with a grade of C or better.

Required Upper Division Courses (28 units): Seven courses selected from the following: (1) one American Indian languages and communication systems course (Anthropology C144 or Linguistics 114); (2) three history and social sciences courses from American Indian Studies C120, C121, C122SL, C130, 140, 158, C170, C175, C178, Anthropology 113Q, 113R, 114P, 114R, 158, Gender Studies 130, History 149A, 149B, 157B, Sociology M161; (3) three humanistic perspectives on language and expressive culture courses from American Indian Studies 180, Art History 137, C139A, English 106, 180, Ethnomusicology 106A, 106B, Theater 103F.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor, and at least 16 units applied toward the minor must be taken in residence at UCLA. Transfer credit for any of the above is subject to program approval; consult the interdepartmental adviser before enrolling in any courses for the minor.

Each minor course must be taken for a letter grade, and students must have a minimum grade of C (2.0) in each and an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The American Indian Studies Program offers the Master of Arts (MA) degree in American Indian Studies. A concurrent degree program (American Indian Studies MA/Law JD) is also offered.

American Indian Studies

Lower Division Course

M10. Introduction to American Indian Studies. (5) (Same as World Arts and Cultures M23.) Lecture, three hours; discussion, one hour; activity, one hour. Survey of selected Native North American cultures from pre-Western contact to contemporary period, with particular emphasis on early cultural diversity and diverse patterns of political, linguistic, social, legal, and cultural change in postcontact period. P/NP or letter grading.

M18. Leadership and Student-Initiated Retention. (2) (Same as African American Studies M18, Asian American Studies M18, and Chicana and Chicano Studies M18.) Seminar, two hours. Limited to

freshmen/sophomores/first-year transfer students. Not open for credit to students with credit for course M118. Exploration of issues in retention at UCLA through lens of student-initiated and student-run programs, efforts, activities, and services. Focus on populations with historically low graduation rates targeted by Campus Retention Committee. May not be applied toward departmental major or minor elective requirements. May be repeated once for credit. Letter grading.

Upper Division Courses

M118. Student-Initiated Retention and Outreach Issues in Higher Education. (4) (Same as African American Studies M118, Asian American Studies M168, and Chicana and Chicano Studies M118.) Lecture, four hours. Exploration of issues in outreach and retention of students in higher education, especially through student-initiated programs, efforts, activities, and services, with focus on UCLA as case. May be repeated twice for credit. Letter grading.

C120. Working in Tribal Communities: Introduction. (4) Lecture, four hours. Through readings, discussion, and Native guest lecturers, students learn to participate within Native American communities engaged in political, social, and cultural processes of change and preservation. Development of proposal for Native nation-building project. Concurrently scheduled with course C220. Letter grading.

C121. Working in Tribal Communities: Preparing for Fieldwork. (4) Lecture, four hours. Through readings, discussion, Native guest lecturers, and project participation, introduction to rules of conduct and skills necessary to successfully work or carry out community service projects for Native American communities and organizations. Concurrently scheduled with course C221. Letter grading.

C122SL. Working in Tribal Communities: Service Learning. (4) Seminar, one hour; fieldwork, four hours. Enforced requisite: course C121. Recommended: course C120. Participation in community service learning project within Native American communities and organizations where students are monitored and supported by faculty members, other students, and project directors toward completing assigned service learning tasks and contributing to project activities. May be repeated with consent of instructor. Concurrently scheduled with course C222SL. Letter grading.

C130. California Indian Strategies for Contemporary Challenges. (4) Seminar, three hours. Through readings, discussion, and Native guest lecturers, introduction to contemporary issues and processes of self-directed social change and political, cultural, legal, and economic processes of nation building in contemporary California Native communities. Concurrently scheduled with course C230. Letter grading.

140. Federal Indian Law and Policy. (4) Lecture, four hours. Through readings, discussion, and Native guest lecturers, introduction to fundamental concepts and history of federal Indian law and policy. Investigation of contemporary policies and legal issues and exploration of Native responses to policy and law. Letter grading.

C145. Contemporary Indigenous Nations. (4) Seminar, three hours. Introduction to topics on contemporary indigenous nations, including social movements, social and cultural change and continuity, nation building, law and justice relations, economic development, education and socialization, international relations, comparative policy, colonialism, migration, national and social identities, and other issues and social cultural processes, seen as distinct from ethnicity, race, class, and nation, with focus on indigenous communities that have maintained self-government, territory, and culture. Investigation and search for analytic and policy patterns that give greater understanding and knowledge about current conditions and social and cultural processes of indigenous nations. Concurrently scheduled with course C245. Letter grading.

158. Nation Building. (4) Lecture, three hours; fieldwork/research, nine hours. Limited to junior/senior American Indian Studies majors. Examination of historical interplay of federal policies with tribal cultures that has shaped political development of American Indian tribal nations. Current developments within Indian nations, including restructuring government, developing economies, and asserting cultural sovereignty to be subject of research, study, and required community-based projects. Letter grading.

M161. Comparative American Indian Societies. (4) (Same as Sociology M161.) Lecture, three hours. Requisite: course M10 or Sociology 1. Comparative and historical study of political, economic, and cultural change in indigenous North American societies. Several theories of social change, applied to selected case studies. Letter grading.

M162. Language Endangerment and Linguistic Revitalization. (4) (Same as Anthropology M162.) Lecture, three hours; activity, one hour. Requisites: course M10, Anthropology 33. Examination of causes and consequences of current worldwide loss of linguistic diversity and revelation of kinds of efforts that members of threatened heritage language communities have produced in their attempt to revitalize these languages. Projected loss of as many as half of world's languages by end of 21st century can only be explained as outcome of such factors as nationalism, global economic forces, language ideological change, and language shift away from smaller indigenous and tribal languages. Since loss of such languages means both reduction of cultural as well as linguistic diversity, many affected communities have engaged in various language renewal practices. Examination of some diverse strategies that have been attempted, including immersion, language and culture classes, master-apprentice, interactive multimedia, mass media approaches, and language policy-reform approaches. Evaluation of effectiveness of these measures and of very imagery used to discuss language endangerment. P/NP or letter grading.

CM168. Healthcare for American Indians. (4) (Formerly numbered C168.) (Same as Health Policy M168.) Lecture, two hours; discussion, one hour. Identification of traditional health beliefs, health practices, and healthcare systems of American Indian tribes to understand role of U.S. government in healthcare services for Indian people. Description of health problems that have affected American Indian people and definition of contemporary health issues and measures taken to raise health status of American Indian people. Concurrently scheduled with course C268. Letter grading.

C170. California Indian History. (4) Lecture, four hours. Introduction to overview of California Indian history, specific tribal community histories, and/or contemporary California Indian history through readings, discussion, and Native guest lecturers. May be repeated for credit with topic change and consent of interdepartmental chair. Concurrently scheduled with course C270. Letter grading.

C175. Cultures of Native Southern California. (4) Lecture, three hours. Introduction to Southern California indigenous societies through readings, discussion, guest lecturers, and direct community participation. May be repeated for credit with topic and/or instructor change and consent of interdepartmental chair. Concurrently scheduled with course C275. Letter grading.

C178. California Experiences in Native Cultural Resource Management. (4) Seminar, three hours. Exploration of creation and implementation of laws that affect cultural resource management in California, such as California Environmental Quality Act (CEQA), Native American Graves Protection and Repatriation Act (NAGPRA), AB 978 (California NAGPRA), American Indian Religious Freedom Act, National Environmental Policy Act (NEPA), and National Historic Preservation Act (NHPA), from applied standpoint. To understand goals and challenges of these laws, examination of series of cases from California sites. Concurrently scheduled with course C278. Letter grading.

180. Introduction to and Practicum in Native American Languages. (4) Lecture, three hours; laboratory, one hour. Development of ability to converse, read, and write at elementary level in Native American languages. Introduction to both phonological and grammatical structures, vocabulary, and cultural patterns of using language as symbolic guide to culture. May be repeated with language change and approval of interdepartmental chair. Letter grading.

M186. Indigenous Film. (5) (Same as World Arts and Cultures M187.) Lecture, four hours; discussion, one hour. Introduction to study of indigenous filmic images and representations, with focus on selected ethnographic, documentary, animated, and feature films ranging from 1920 to present. P/NP or letter grading.

187. Special Topics in American Indian Studies. (4) Lecture, four hours. Variable topics selected from following: Myth and Folklore of Indian Societies; Contemporary American Indian Literature; Social Science Perspectives of American Indian Life; Law and American Indian; History of American Indians (cultural area); Dance and Music of American Indians (cultural area); American Indian Policy. Consult Schedule of Classes for topics and instructors. May be repeated twice for credit. Letter grading.

195. Community Internships in American Indian Studies. (4) Tutorial, two hours; fieldwork, eight hours. Requisite: course M10. Limited to juniors/seniors. Internship in supervised setting in community agency. Students meet on regular basis with instructor and provide periodic reports on their experience. Designed to integrate theory and practice through experiential learning to gain firsthand knowledge of diversity, complexity, and variety of needs of American Indian communities. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP grading.

M195CE. Comparative Approaches to Community and Corporate Internships. (4) (Same as African American Studies M195CE, Asian American Studies M195CE, Chicana and Chicano Studies M195CE, and Gender Studies M195CE.) Tutorial, one hour; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Comparative study of race, gender, and indigeneity in relation to contemporary workplace dynamics. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. Individual contract with supervising faculty member required. P/NP or letter grading.

197. Individual Studies in American Indian Studies. (2 to 4) Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned readings and tangible evidence of mastery of subject matter required. May be repeated for maximum of 16 units. Individual contract required. P/NP or letter grading.

198A-198B-198C. Honors Research in American Indian Studies. (4-4-4) Tutorial, one hour; activity, three hours. Course 198A is enforced requisite to 198B, which is enforced requisite to 198C. Limited to senior honors program students. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. Each course may be repeated for credit. Individual contract required. Letter grading.

199. Directed Research or Senior Project in American Indian Studies. (2 to 8) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199C. Individual Studies: Capstone Synthesis. (4) Tutorial, three hours. Preparation: successful completion of eight upper division major courses. Limited to senior American Indian Studies majors. Faculty mem-

bers help students relate their course-derived academic experience to their original research/service efforts involving Native American communities. Completion of research paper and presentation of student work at year-end Research Symposium required. Must be taken in conjunction with American Indian Studies C122SL or an alternative upper division course approved by program chair and academic coordinator. Individual contract required. Letter grading.

Graduate Courses

M200A. Advanced Historiography: American Indian Peoples. (4) (Same as History M200W.) Lecture, 90 minutes; seminar, 90 minutes. Introduction to culture-histories of North American Indians and review of Indian concepts of history. Stereotypical approach to content and methodologies related to Indian past that is interdisciplinary and multicultural in its scope. Letter grading.

M200B. Cultural World Views of Native America. (4) (Same as English M266.) Seminar, three hours. Exploration of written literary texts from oral cultures and other expressive cultural forms—dance, art, song, religious and medicinal ritual—in selected Native American societies, as these traditional and tribal contexts have been translated into contemporary literary texts (fiction, poetry, essay, and drama). Survey, from secondary sources, of interdisciplinary methodological approaches taken from literary analysis, structural anthropology, folklore, linguistics, and ethnomusicology. May be repeated for credit with instructor and/or topic change. Letter grading.

M200C. Contemporary Issues of American Indians. (4) (Same as Anthropology M269 and Sociology M275.) Seminar, three hours. Introduction to most important issues facing American Indians as individuals, communities, tribes, and organizations in contemporary world, building on historical background presented in course M200A and cultural and expressive experience of American Indians presented in course M200B. Letter grading.

M200D. Economic Principles and Economic Development in Indigenous Communities. (4) (Same as Public Policy M270.) Seminar, two hours; discussion, one hour. Limited to graduate students. Introduction to basic economic concepts and their application to issues of economic development in indigenous communities. Coverage of microeconomic and macroeconomic aspects of economic development using current and existing research. Letter grading.

201. Topics in American Indian Studies. (4) Discussion, three hours. S/U or letter grading.

M202. Qualitative Research Design and Methodology for Indigenous Communities. (5) (Same as Health Policy M202 and Nursing M221.) Seminar, three hours. Introduction to some key theoretical themes in American Indian studies and exploration of methods that can be used to incorporate them in research on American Indian cultures, societies, languages, and other issues. Quantitative methods (design, appropriate use), with emphasis on qualitative research methods, ethics, and special considerations in conducting research in American Indian country. Design of research and exploration of feasibility of researching topics. Letter grading.

C220. Working in Tribal Communities: Introduction. (4) Lecture, four hours. Through readings, discussion, and Native guest lecturers, students learn to participate within Native American communities engaged in political, social, and cultural processes of change and preservation. Development of proposal for Native nation-building project. Concurrently scheduled with course C120. S/U or letter grading.

C221. Working in Tribal Communities: Preparing for Fieldwork. (4) Lecture, four hours. Through readings, discussion, Native guest lecturers, and project participation, introduction to rules of conduct and skills necessary to successfully work or carry out community service projects for Native American communities and organizations. Concurrently scheduled with course C121. S/U or letter grading.

C222SL. Working in Tribal Communities: Service Learning. (4) Seminar, one hour; fieldwork, four hours. Enforced requisite: course C221. Recommended: course C220. Participation in community service learning project within Native American communities and organizations where students are mentored and supported by faculty members, other students, and project directors toward completing assigned service learning tasks and contributing to project activities. May be repeated with consent of instructor. Concurrently scheduled with course C122SL. S/U or letter grading.

228A-228B. Tribal Legal Systems. (228A: 3 or 4/228B: 1 or 2) (Formerly numbered M228A.) Seminar, two hours. Course 228A is enforced requisite to 228B. Study of traditional and contemporary legal systems of Native American tribal nations. Detailed examination of several different tribal systems, including Navajo, Cherokee, Iroquois, and Hopi, with emphasis on diversity of tribal legal regimes, comparisons with Anglo-American legal system, changes in tribal systems during period of contact with non-Indians, and relationship between tribes' legal systems and other aspects of their cultures, such as religion and social structure. Independent research paper with focus on contemporary or historic topic required. Concurrently scheduled with Law 267. In Progress (228A) and S/U or letter (228B) grading.

C230. California Indian Strategies for Contemporary Challenges. (4) Seminar, three hours. Through readings, discussion, and Native guest lecturers, introduction to contemporary issues and processes of self-directed social change and political, cultural, legal, and economic processes of nation building in contemporary California Native communities. Concurrently scheduled with course C130. S/U or letter grading.

238A-238B. Tribal Legal Development Clinic. (238A: 3 or 4/238B: 1 or 2) (Formerly numbered M238A.) Lecture, three hours. Course 238A is enforced requisite to 238B. Students provide nonlitigation legal assistance to Indian nations. Projects include development and modification of tribal legal codes and constitutional provisions, creation of tribal dispute resolution processes, and drafting of intergovernmental agreements. Legislative drafting and cross-cultural representation skills emphasized. Faculty members meet with tribal leaders to inform them of availability of clinic services and determine whether clinic could assist them with their legal development needs. Once students are assigned to particular projects, they meet with relevant tribal officials and community groups with travel funds supplied. Students learn about tribal governments and legal systems, including federal constraints on activities of tribal legal institutions, and culture of tribe they are representing to be able to craft legislation and other documents that meet tribal intentions and needs. Concurrently scheduled with Law 728. In Progress (238A) and S/U or letter (238B) grading.

C245. Contemporary Indigenous Nations. (4) Seminar, three hours. Introduction to topics on contemporary indigenous nations, including social movements, social and cultural change and continuity, nation building, law and justice relations, economic development, education and socialization, international relations, comparative policy, colonialism, migration, national and social identities, and other issues and social cultural processes, seen as distinct from ethnicity, race, class, and nation, with focus on indigenous communities that have maintained self-government, territory, and culture. Investigation and search for analytic and policy patterns that give greater understanding and knowledge about current conditions and social and cultural processes of indigenous nations. Concurrently scheduled with course C145. S/U or letter grading.

261. Comparative Indigenous Societies. (4) Lecture, two hours; discussion, two hours. Designed for graduate students. Investigation of detailed historical and contemporary ethnographic analyses of social change and cultural continuity within indigenous na-

tions, primarily of U.S., but elsewhere also. Discussion of theories of change, comparative methodologies, and case materials. Letter grading.

265. Federal Indian Law I. (4 or 6) (Formerly numbered M265.) Lecture, three to four hours. Overview of federal Indian law, including nature and history of tribal federal legal and political relationship; basic legal definitions within federal Indian law (such as what is Indian country); equal protection issues posed by federal Indian legislation; canons of construction unique to Indian law; tribal sovereignty and its protection; basic questions of federal and state authority within Indian country; and tribal, federal, and state jurisdiction in Indian country according to default rules as well as special statutory regimes. May be concurrently scheduled with Law 267. S/U or letter grading.

M265A-265B. Federal Indian Law I. (1 to 8 each) (Same as Law M267.) Lecture, three hours. Course M265A is enforced requisite to 265B. Overview of federal Indian law through study of cases and historical and contemporary materials. Basic conflicts among sovereign governments that dominate this area of law, especially conflicts over criminal, civil adjudicative, and regulatory jurisdiction. Special attention to status and sovereign powers of Indian nations as recognized under U.S. law, federal trust responsibility, and equal protection issues posed by federal and state legislation singling out Indian nations and tribal members. Federal statutory regimes regulating tribal gaming and child welfare included. Students gain critical understanding of basic tenets of Indian law, bases of tribal sovereignty, structure of federal-tribal relationship and its history, and sense of future directions courts, tribes, and Congress may take in addressing current legal issues in Indian country. In Progress (M265A) and S/U or letter (265B) grading.

M267. Federal Indian Law II. (1 to 8) (Same as Law M382.) Lecture, three hours. Requisites: courses 238A and 238B, or M265A and 265B. Examination in-depth of principles and doctrines of federal Indian law as applied to property rights in land, cultural resources, hunting and fishing rights, water rights, and economic development. Special jurisdictional regimes established by federal statutes, such as Indian Child Welfare Act and Indian Gaming Regulatory Act, addressed. S/U or letter grading.

M267A-267B. Federal Indian Law II. (1 to 8 each) (Same as Law M382.) Lecture, three hours. Requisites: courses 238A and 238B, or M265A and 265B. Course M267A is enforced requisite to 267B. Examination in-depth of principles and doctrines of federal Indian law as applied to property rights in land, cultural resources, hunting and fishing rights, water rights, and economic development. Special jurisdictional regimes established by federal statutes, such as Indian Child Welfare Act and Indian Gaming Regulatory Act, addressed. In Progress (M267A) and S/U or letter (267B) grading.

C268. Healthcare for American Indians. (4) Lecture, two hours; discussion, one hour. Identification of traditional health beliefs, health practices, and healthcare systems of American Indian tribes to understand role of U.S. government in healthcare services for Indian people. Survey of Federal Indian Health programs and development of Indian Healthcare System and Tribal/Urban Indian Health programs to understand health problems that have affected American Indian people and definition of contemporary health issues and measures taken to raise health status of American Indian people. Concurrently scheduled with course CM168. Letter grading.

C270. California Indian History. (4) Lecture, four hours. Introduction to overview of California Indian history, specific tribal community histories, and/or contemporary California Indian history through readings, discussion, and Native guest lecturers. May be repeated for credit with topic change and consent of interdepartmental chair. Concurrently scheduled with course C170. S/U or letter grading.

M272. Seminar: Cultural Property Law. (3 or 4) (Same as Law M514.) Seminar, three hours. Exploration of identity, ownership, appropriation, and repatriation of both tangible and intangible cultural prop-

erty—those items that are of great significance to cultural heritage and cultural survival of people. Consideration of importance of preservation of cultural property as means of maintaining group identity, self-determination, and collective rights. Examination of both international and domestic law governing these issues, addressing such questions as How should cultural property be defined? Can cultural property be protected under existing intellectual property and cultural property regimes? How can we balance protection of cultural property against need or desire for its use in creative expression or scientific advancement? Examination of cultural property of groups in general, with emphasis on cultural property of indigenous peoples, including folklore, traditional knowledge, burial grounds, sacred sites, and ancient ceremonies and traditions. S/U or letter grading.

274. Good Native Governance. (4 or 6) Seminar, three hours. Examination of legal issues integral to governance that Native American nations face in 21st century, including those that impact and shape political sovereignty, economic development, constitutional reform, membership criteria, cultural property protection, sacred sites, religious freedom, and safety and criminal law enforcement, among others. Emphasis on breadth of issues that lawyers working with and for Native nations must confront. Integration and highlighting of legal issues unique to Native nations within California. Materials from traditional law review articles, books, and case studies derived from field research to engage students in multidimensional settings that confront Native societies. May be concurrently scheduled with Law 637. S/U or letter grading.

C275. Cultures of Native Southern California. (4) Lecture, three hours. Introduction to Southern California indigenous societies through readings, discussion, guest lecturers, and direct community participation. May be repeated for credit with topic and/or instructor change and consent of interdepartmental chair. Concurrently scheduled with course C175. S/U or letter grading.

C278. California Experiences in Native Cultural Resource Management. (4) Seminar, three hours. Exploration of creation and implementation of laws that affect cultural resource management in California, such as California Environmental Quality Act (CEQA), Native American Graves Protection and Repatriation Act (NAGPRA), AB 978 (California NAGPRA), American Indian Religious Freedom Act, National Environmental Policy Act (NEPA), and National Historic Preservation Act (NHPA), from applied standpoint. To understand goals and challenges of these laws, examination of series of cases from California sites. Concurrently scheduled with course C178. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Studies. (4 to 8) Tutorial, to be arranged. S/U or letter grading.

598. Research for and Preparation of MA Thesis. (4 to 8) Tutorial, to be arranged. Preparation of research data and writing of MA thesis. S/U grading.

ANESTHESIOLOGY AND PERIOPERATIVE MEDICINE

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Chairs

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Endowed Professor of Anesthesiology*), Chair
Barbara M. Van de Wiele, MD, Executive Vice Chair
Randolph H. Steadman, MD, Vice Chair, Education
Yibin Wang, PhD, Vice Chair, Research

Scope and Objectives

The medical student program in the Department of Anesthesiology and Perioperative Medicine focuses on the delivery of perioperative care to surgical patients. During their training in the department, students develop clinical skills of medical management of surgical patients, techniques of monitoring and invasive line placement, and airway management skills. They are assigned to work with an attending anesthesiologist and/or anesthesia resident on a daily basis in one of the operating room locations and participate in the preoperative evaluation and preparation of their patients and development of an anesthetic plan. Students then observe how to prepare for and execute their anesthetic plan. They have opportunity to perform procedures as their abilities and the situation permit. In addition, the department's Human Patient Simulator provides students with a simulated operating room setting where a variety of clinical situations are initiated so they can practice their clinical skills. Students are also expected to attend clinically oriented lectures on a wide range of anesthesia topics, including physiology, pharmacology, and critical care.

For further details on the Department of Anesthesiology and Perioperative Medicine and a listing of the courses offered, see <http://www.anes.ucla.edu>.

Anesthesiology

Upper Division Course

199. Directed Research in Anesthesiology. (2 to 8)
Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

ANTHROPOLOGY

College of Letters and Science

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Scope and Objectives

Anthropology, the broadest of the social sciences, is the study of humankind. One of the strengths of anthropology as a discipline is its holistic or integrative approach; it links the life sciences and the humanities and has strong ties with disciplines ranging from biology and psychology to linguistics, political science, and the fine arts. Anthropological study is appropriate for people with a wide variety of interests: human cultures and civilizations both present and past, human and animal behavior, particular regions of the world such as Africa, Asia, Latin America, Oceania, etc.

The Department of Anthropology recognizes the following four fields in anthropology:

Archaeology is the study of human cultures and the natural, social, ideological, economic, and political environments in which they operated in the recent and distant past. The graduate and undergraduate programs focus on methods of discovery (field and laboratory courses), strategies of analysis pertaining to long-term cultural evolution (theory, analytic, and topical courses), and the unfolding of prehistory in many regions of the world, including North America, Mesoamerica, South America, and several parts of the Old World (regional courses). Faculty members have long-standing interests in the origins and evolution of complexity, including early human adaptations, the political organization of complex hunters/gatherers, the origins of early village life, and the emergence and florescence of ancient cities and states. Faculty members maintain programs of field research involving many students in North America, Mesoamerica, South America, and East and South Asia.

Biological anthropology is the study of humans and other primates from a Darwinian point of view. The program focuses on the evolutionary ecology of early hominids, extant primates, and contemporary humans and includes training in evolutionary theory, behavioral ecology, evolutionary psychology, paleoanthropology, paleoecology, primate behavior, and mathematical modeling. Faculty members associated with the program have engaged in fieldwork in Africa, Central America, and Southeast Asia where ongoing projects include work on primate behavior, hominid evolution, and evolutionary psychology.

Linguistic anthropology is an interdisciplinary field that addresses the manifold ways in which language, interaction, and culture mutually organize each other in different communali-

ties worldwide. Linguistic anthropologists at UCLA have a variety of backgrounds and research interests that include face-to-face communication, language contact and change, language and politics, language socialization across the lifespan, verbal art and performance, and the relation of language to ideology, mind, emotion, and identity. Courses are offered in ethnographic approaches to discourse analysis, field methods, language ideology, conversation analysis, language socialization, and communication in urban communities, as well as on cross-cultural language practices.

Sociocultural anthropology concerns the examination and understanding of social and cultural systems and processes, and the human capacities that enable them. Its goal is to understand their operation in specific settings and to understand the experience of individuals who live in these diverse systems. Faculty members have engaged in fieldwork in almost every area of the world, but most notably in Africa, Latin America, East and Southeast Asia, and Oceania. They have also engaged in ethnographic research among Americans with diverse ethnic identities and in various institutional settings.

Bridging the four primary subfields are several other dimensions of anthropological study, including psychocultural anthropology and medical anthropology. Courses are also offered in the history and theory of anthropology and a wide range of anthropological methods.

The department offers Bachelor of Arts and Bachelor of Science degrees and a minor in Anthropology for undergraduate students; the graduate program leads to the Master of Arts and PhD degrees. Studies in anthropology are particularly valuable for students planning careers in which an understanding of human behavior and cultural diversity is desirable, such as business, education, law, medicine, nursing, public health, social welfare, and urban planning. Because of its breadth of outlook, anthropology also offers an ideal basis for those seeking a general education in our increasingly interdependent world.

Undergraduate Study

Anthropology BA

Preparation for the Major

Required: Anthropology 7, 8, 9, 33. Each course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Transfer Students

Transfer applicants to the Anthropology BA major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one human evolution course, one archaeology course, one sociocultural anthropology course, and one culture and communication course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_

[tr/tradms.htm](#) for up-to-date information regarding transfer selection for admission.

The Major

The major is designed for students interested in an anthropological understanding of human behavior. One of the strengths of anthropology is its cross-cultural holistic and integrative approach with many fields, such as biology, history, linguistics, the social sciences, and many of the humanities.

To provide a comprehensive understanding of the discipline as a whole, students must take two courses in the sociocultural anthropology field and one course in each of the other three fields (see "Scope and Objectives"). Students may take any upper division course in the given area to fulfill this requirement. Each course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Students must complete 11 courses (44 to 52 units) as follows: (1) two upper division courses in the sociocultural anthropology field and one in each of the other three fields (archaeology, biological anthropology, and linguistic anthropology), (2) one upper division region and society course, (3) one upper division history/theory course, and (4) two additional upper division anthropology courses.

Students are strongly encouraged to enroll in 3 to 4 units of 89 and/or 189 courses to gain small seminar experience. Ideally, at least one of the units should be at the upper division level.

Anthropology BS

Preparation for the Major

Required: Anthropology 7, 8, 9, 33; Chemistry and Biochemistry 14A, 14B, 14BL, and 14C, or 20A, 20B, 20L, 30A, and 30AL; Mathematics 3A, 3B, 3C, and Statistics 12, or Mathematics 31A, 31B, and Statistics 12, or Life Sciences 30A, 30B, and Statistics 13; Physics 6A, 6B, and 6C, or 6AH, 6BH, and 6CH.

Students must also complete one of two life sciences sequences—either Life Sciences 1, 2, 3, 4, and 23L OR 7A, 7B, 7C, 23L, and 107. They may not substitute courses in either sequence.

Each course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Transfer Students

Transfer applicants to the Anthropology BS major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one human evolution course, one archaeology course, one sociocultural anthropology course, one culture and communication course, two general biology courses for majors, one year of calculus, one year of general chemistry with laboratory, one year of general physics with laboratory, and one lower division organic chemistry course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_

[tr/tradms.htm](#) for up-to-date information regarding transfer selection for admission.

The Major

The major provides an overview of human evolution and is designed to prepare students for careers in anthropology and the health sciences, including medicine, dentistry, public health, and nursing. Each course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Students must complete nine courses as follows: (1) two upper division courses in the sociocultural anthropology field and one in each of the other three fields (archaeology, biological anthropology, and linguistic anthropology), (2) one upper division region and society course, (3) one upper division history/theory course, and (4) two additional upper division anthropology courses.

Students are strongly encouraged to enroll in 3 to 4 units of 89 and/or 189 courses to gain small seminar experience. Ideally, at least one of the units should be at the upper division level.

Honors Program

The honors program provides research-oriented students with opportunity to engage in original research and analysis under the close supervision of faculty members and culminates in an honors thesis. To be admitted students should have a cumulative grade-point average of 3.0 overall and a 3.5 cumulative GPA in their upper division anthropology courses. The application for admission must be submitted during fall quarter. Ideal candidates should have junior or senior standing and have completed at least two upper division anthropology courses. The proposal, research, analysis, and writing of the paper take place over four terms via Anthropology 191HA through 191HD. Course 191HA is taken in winter quarter and 191HB in spring quarter. Research should be done in summer, and courses 191HC and 191HD are taken in fall and winter quarters of the graduation year. Students should contact the departmental honors adviser early in their studies for more information.

Anthropology Minor

Students who wish to take a series of courses in anthropology, but major in another discipline, may be interested in the Anthropology minor. Students select courses from the four fields within anthropology (archaeology, biological anthropology, linguistic anthropology, sociocultural anthropology), although they are encouraged to focus the body of their coursework within one field.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (10 units): Two courses from Anthropology 7, 8, 9, 33.

Required Upper Division Courses (20 units minimum): Core course (Anthropology 111, 120, 130, M140, or 150) from one of the four anthropology fields listed above; four addi-

tional courses. Students are encouraged to concentrate their upper division coursework within one field and are required to consult with the undergraduate adviser in planning their program of study.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Anthropology offers Master of Arts (MA) and Doctor of Philosophy (PhD) degrees in Anthropology.

Anthropology

Lower Division Courses

1. Welcome to America: American Culture for International Students. (4) Lecture, four hours. Designed for incoming international students. Introduction to American culture from anthropological perspective. Exploration of central aspects in American culture, including immigration, ethnic diversity, family, popular culture, and myths and realities about values at core of American society. Offered in summer only. P/NP or letter grading.

2. America through Lenses of Popular Culture. (4) Lecture, four hours. Designed for students interested in life and values in U.S. from anthropological perspective. Exploration of popular culture as experienced by Americans from various age groups, ethnic heritages and genders, and regional locations. Topics include music and art, film and television, sports, other entertainment, food, and technology. Employment of anthropological methods of inquiry and brief fieldwork. P/NP or letter grading.

7. Human Evolution. (5) Lecture, three hours; discussion, one hour. Required as preparation for both bachelor's degrees. Evolutionary processes and evolutionary past of human species. P/NP or letter grading.

8. Archaeology: Introduction. (5) Lecture, three hours; discussion, one hour; one field trip. Required as preparation for both bachelor's degrees. General survey of field and laboratory methods, theory, and major findings of anthropological archaeology, including case-study guest lectures presented by several campus archaeologists. P/NP or letter grading.

9. Culture and Society. (5) Lecture, three hours; discussion, one hour; fieldwork. Required as preparation for both bachelor's degrees. Introduction to study of culture and society in comparative perspective. Examples from societies around world to illustrate basic principles of formation, structure, and distribution of human institutions. Of special concern is contribution and knowledge that cultural diversity makes toward understanding problems of modern world. P/NP or letter grading.

33. Culture and Communication. (5) Lecture, three hours; discussion, one hour. Required as preparation for both bachelor's degrees. Introduction to study of communication from anthropological perspective. Formal linguistic methods compared with ethnographically oriented methods focused on context-bound temporal unfolding of communicative activities. Topics include language in everyday life and ritual events, socialization, literacy, multilingualism, miscommunication, political discourse, and art-making as cultural activity. P/NP or letter grading.

Upper Division Courses

Archaeology

110P. Principles of Archaeology. (4) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 8. Intended for students interested in conceptual structure of scientific archaeology. Archaeological method and theory with emphasis on what archaeologists do and how and why they do it. Consideration of field strategies, formation processes, chronological frameworks, and other crucial principles of archaeological analysis and interpretation. P/NP or letter grading.

CM110Q. Introduction to Archaeological Sciences. (4) (Same as Ancient Near East CM169.) Lecture, three hours. Basic understanding of newly introduced methods and techniques throughout field of archaeology to implement them and to appreciate and evaluate results of their use by others who have embedded them in their scholarly publications or theoretical models. Systematic instruction in digital data management and mining, scientific analysis of materials (including geological and biochemical techniques), and visual presentation of data and research results (ranging from simple graphs to virtual reality). Concurrently scheduled with course CM210Q. P/NP or letter grading.

111. Theory of Anthropological Archaeology. (4) Lecture, three hours. Requisite: course 8. Method and theory with emphasis on archaeology within context of anthropology. Themes include theoretical developments over last 50 years, structure of archaeological reasoning, and selective survey of work on problems of general anthropological interest. P/NP or letter grading.

112. Old Stone Age Archaeology. (4) Lecture, three hours. Requisite: course 8. Development of Paleolithic cultural traditions in Europe, Africa, Asia, and New World. Emphasis on ordering and interpretation of archaeological data, Pleistocene geology and chronology, and relationship between human cultural and biological evolution. P/NP or letter grading.

113P. Archaeology of North America. (4) Lecture, three hours. Prehistory of North American Indians; evolution of Indian societies from earliest times to (and including) contemporary Indians; approaches and methods of American archaeology. P/NP or letter grading.

113Q. California Archaeology. (4) Lecture, three hours. From earliest Californians through 10,000 years of history, study of diversity in California's original peoples. Aspects of technology, ideology, ecology, and social/political organization. Historic impacts on California Indians by Euro-Americans. P/NP or letter grading.

113R. Southwestern Archaeology. (4) Lecture, three hours. Examination of prehistory of American Southwest from 11,000 years ago to historic times. Emphasis on describing and explaining cultural variation and change, employing evolutionary perspective. Special attention to advent of farming and settled towns, large-scale interactive networks, abandonment of Four Corners area, and historic cultures. P/NP or letter grading.

114L. Archaeology of Chiefdoms. (4) Seminar, three hours. Enforced requisite: course 8. Examination of chiefdom societies in anthropological record, with readings focused on theory and data from archaeological, historical, and ethnographic literature. Illustration of how people in ranked non-state societies cre-

ated remarkably rich cultures over entire globe beginning several millennia ago in both Old World and Americas. Letter grading.

114P. Ancient Civilizations of Mesoamerica. (4) Lecture, three hours. Archaeology of pre-Hispanic native cultures of Mesoamerica from late Pleistocene through Spanish conquest, with emphasis on formative sociopolitical developments, classic period civilizations, and Aztec society as revealed by archaeology and early Spanish writing. P/NP or letter grading.

114R. Ancient Civilizations of Andean South America. (4) Lecture, three hours. Requisite: course 8 or 9. Pre-Hispanic and Conquest period native cultures of Andean South America, as revealed by archaeology and early Spanish writing. Incas and their predecessors in Peru, with emphasis on sociopolitical systems, economic patterns, religion, and aesthetic and intellectual achievements. P/NP or letter grading.

115Q. Politics of Past. (4) Seminar, three hours. Requisite: course 8. Examination of social and cultural context of modern archaeology. Topics include legal frameworks governing archaeological practice, relationships between archaeologists and descendant peoples, and role of archaeology in current politics. P/NP or letter grading.

116. Archaeology of South Asia. (4) Lecture, three hours. Archaeology of Harappan, early historic, and medieval periods in Indian subcontinent. Investigation of large-scale social movements such as Buddhism, as well as consideration of how past is interpreted in present. P/NP or letter grading.

116N. Archaeology of Ancient Civilizations: China. (4) Lecture, three hours. Examination of current developments and key issues in archaeology of early Chinese civilizations, with special focus on development of social complexity and interregional interaction networks, and emergence of early cities, states, and early civilizations. Contextualization of these issues in framework of world prehistory and comparative civilizations, addressing contemporary archaeological theories and methods, as well as major research projects and debates that contribute directly to current interpretations of social changes observed in archaeological record. Letter grading.

116P. Archaeology of Prehistoric China. (4) Lecture, three hours. Enforced requisite: course 8. Detailed survey of prehistoric archaeological sequence of China, ranging from early Pleistocene (about two million years ago) to initial rise of Chinese state (around 2100 B.C.). P/NP or letter grading.

M116S. Archaeological Landscapes of China. (4) (Same as Chinese M183.) Lecture, three hours; discussion, one hour. Declassified space images from Cold War era and open remote sensing data of 21st century provide new opportunities for studying landscape transformation in historical China. Combining lectures, library research, and hands-on analysis of archaeological sites on satellite images, investigation of changing historical and archaeological landscape in China during last 5,000 years. Social processes at various scales, from emergence of early cities to rise of metropolitan centers and formation of imperial landscapes. Letter grading.

117P. Selected Laboratory Topics in Archaeology. (4) Lecture, three hours. Requisite: course 8. How archaeological research is furthered by specialized analysis of particular classes of cultural remains. Topics may include animal bones, plants, ceramics, rock art. Hands-on experience working with collections and data. May be repeated for credit with topic change. P/NP or letter grading.

117Q. Intensive Laboratory Training in Archaeology. (6) Lecture, three hours; laboratory, three hours. Requisite: course 8. Archaeologists with special expertise in specific analytical techniques and topics oversee intensive laboratory training on one of following topics: zooarchaeology, ethnobotany, lithic analysis, ceramic analysis, etc. May be repeated for credit with topic change. P/NP or letter grading.

118. Selected Topics in Archaeology. (4) Lecture, three hours. Study of selected topics in archaeology. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

M119E. Archaeology of Egypt and Sudan. (4) (Same as Ancient Near East M105.) Lecture, two hours; laboratory, three hours. Ancient Egypt is well known for iconic archaeological sites such as Giza Pyramids and Tomb of Tutankhamun. From these and thousands of less well-known sites, enormous variety of archaeological information can be gained. Through discussion of particular archaeological themes, regions, or sites, examination of methods of prehistoric and historic archaeology and how archaeological information contributes to understanding of social, political, and religious history. Background provided for development of group research projects—finding resources, data gathering, analysis, interpretation, presentation, and training on how to embark on research in this field. Computer laboratory component included in which student research is performed and presented in time map. P/NP or letter grading.

119P. Cities Past and Present. (4) Lecture, three hours. Requisite: course 8 or 9. Examination of ancient and modern cities to evaluate how urban form developed and continues to thrive as human social phenomenon. Contemporary observations compared with archaeological case studies, including South America, Asia, Africa, and ancient Near East. Letter grading.

Biological Anthropology

120. Survey of Biological Anthropology. (4) Lecture, three hours. Requisite: course 7. Limited to majors and graduate anthropology students. Survey of biological anthropology including all major subareas. (Core course for biological field.) P/NP or letter grading.

121C. Evolution of Genus Homo. (5) Lecture, three hours; discussion, one hour. Requisite: course 7. Origin and evolution of genus *Homo*, including archaic sapiens and Neanderthals. Morphology, ecology, and behavior of these groups. Course ends with appearance of modern humans. May be taken independently for credit. P/NP or letter grading.

122P. Human Osteology. (4) Lecture, three hours; laboratory, four hours. Examination of human skeletal and muscular systems, concerned with both form and function. Students expected to recognize important anatomical landmarks on human skeleton, identify fragmentary bones, and know origins, insertions, and action of major muscles. How to sex and age skeletons and introduction to paleopathology. Letter grading.

124A. Human Behavioral Ecology. (4) Lecture, three hours. Recommended requisite: course 7 or Life Sciences 1. Survey of research in human behavioral ecology. Review of natural and sexual selection, kin selection, and reciprocal altruism. Emphasis on current empirical studies of modern human behavior from evolutionary perspective, including social organization, sexual division of labor, parenting strategies, conflict, and cooperation. P/NP or letter grading.

124B. Evolutionary Psychology. (4) Lecture, three hours. Recommended requisite: course 7 or Life Sciences 1. Survey of research in evolutionary psychology. Review of relevant theory in evolution and genetics. Emphasis on empirical studies of modern human behavior from evolutionary perspective, including social behavior, decision making, language, culture, and child development. P/NP or letter grading.

124P. Evolution of Human Sexual Behavior. (4) Lecture, three hours; discussion, one hour. Recommended requisite: course 7. Examination of human sexual relations and social behavior from evolutionary perspective. Emphasis on theories and evidence for differences between men and women in their patterns of growth, maturation, fertility, mortality, parenting, and relations with members of opposite sex. Letter grading.

M125A. Great Adaptations: Origins of Complexity in Nature. (4) (Same as Ecology and Evolutionary Biology M171.) Lecture, three hours. Enforced requisite: course 7 or Ecology and Evolutionary Biology 13 or 120 or Life Sciences 1. Evolution of complex adaptations in nature. Examination of fundamental processes underlying natural selection and evolution of adaptation: Darwin's postulates, constraints on adaptation, levels of explanation in biology, methods for identifying adaptations. Evaluation of examples of complex adaptations in nature. Letter grading.

126. Selected Topics in Biological Anthropology. (4) Lecture, three hours. Study of selected topics in biological anthropology. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

M127. Animal Communication. (5) (Same as Communication Studies M127.) Lecture, four hours. Designed for Anthropology and Communication Studies majors. Evolution, functions, design, and diversity of animal communication systems such as bird song, dolphin calls, whale song, primate social signals, and human language. Letter grading.

128A. Primate Behavior Nonhuman to Human. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Review of primate behavior as known from laboratory and field studies. Theoretical issues of animal behavior, with special reference to nonhuman primates. Discussion of human behavior as product of such evolutionary processes. P/NP or letter grading.

129Q. Paleopathology. (4) Lecture, three hours. Designed for juniors/seniors. Evidence of disease and trauma, as preserved in skeletal remains of ancient and modern human populations. Discussions of medical procedures (trepanation), health status, ethnic mutilation (cranial deformation, footbinding), cannibalism, and sacrifice and roles such activities have played in human societies. Letter grading.

Cultural Anthropology

130. Study of Culture. (4) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 9. Designed for juniors/seniors. Twentieth-century elaboration and development of concept of culture. Examination of five major paradigms: culture as human capacity, as patterns and products of behavior, as systems of meaning and cognition, as generative structure and semiotic system, as component in social action and reality construction. (Core course for cultural field.) P/NP or letter grading.

131. Culture: What Makes It All Work. (4) Lecture, three hours. Preparation: two lower division social sciences courses (may be from different departments). Examination of some basic questions addressed by anthropologists in their study of what is meant by culture. Consideration of theories of culture and evolutionary origins of culture. Review of new analytic methods that allow students to begin to do quasi-experimental research into nature of culture and introduction to multiagent simulation as framework for modeling how culture can be both supra-organic and embedded in minds of culture bearers. P/NP or letter grading.

133F. Anthropology of Food. (4) Lecture, three hours; discussion, one hour (when scheduled). Production, consumption, and distribution of food, with particular emphasis on culture of food. Exploration of ecological history, class, poverty, hunger, ethnicity, nationalism, capitalism, gender, race, and sexuality. Food that shapes identities, desires, and needs in contemporary world. P/NP or letter grading.

133P. Visual Anthropology: Documentary Photography. (4) Lecture, three hours. Photographs in anthropology serve many purposes: as primary data, illustrations of words in books, documentation for disappearing cultures, evidence of fieldwork, material objects for museum exhibitions, and even works of art. Topics include relationships between subject and treatment of image, between art photography and ethnographic documentation, role of museum photo-

graph and caption, social practice of taking pictures, and case study on photographing Middle East and North Africa. P/NP or letter grading.

133Q. Symbolic Systems. (4) Lecture, three hours. Designed for juniors/seniors. Analysis of anthropological research and theory on cultural systems of thought, behavior, and communication expressed in symbolic mode (as distinguished from discursive, instrumental, and causal modes). Methods for study of symbolic meaning, including experiential approach. P/NP or letter grading.

133R. Aesthetic Systems. (4) Lecture, three hours. Designed for juniors/seniors. Provides framework for cross-cultural understanding of aesthetic phenomena that meets requirements of anthropological research. Human capacities for aesthetic experience; sociocultural formation of aesthetic production; ethno-aesthetics; experiential dimension of aesthetic production. Letter grading.

133S. Ethnomathematics and Anthropology of Numeration. (4) Lecture, three hours. Counting systems such as one, two, three, many or modern equivalent of one, two, three, infinity are widespread in human societies. Counting things is important part of everyday life. But indigenous thinking goes far beyond pragmatics of counting, and conceptual systems underlying counting are integrated with concepts people have about themselves and their societies. Numeracy is product of social life and not just reflection of one's experience with physical world. Exploration of different ways that indigenous mathematical thinking is embedded in human societies and cultures, ranging from use of fractals in African art to algebra of kinship terminologies to cosmological systems formulated around concepts of numbers. P/NP or letter grading.

M134. Cultural Construction of Gender and Sexuality: Homosexualities. (4) (Same as Honors Collegium M129 and Lesbian, Gay, Bisexual, and Transgender Studies M134.) Seminar, three hours. Comparative analysis of role of environment, history, and culture in structuring of patterns of same-sex erotic behavior in Asia, Africa, Middle East, Pacific, Caribbean, and aboriginal America. P/NP or letter grading.

135A-135B. Introduction to Psychological Anthropology. (4-5) P/NP or letter grading:

135A. Historical Development. (4) Lecture, three hours; discussion, one hour (when scheduled). Enforced requisite: course 9. Limited to juniors/seniors. Survey of field of psychological anthropology, with emphasis on early foundations and historical development of field. Topics include study of personality, pathology and deviance, altered states of consciousness, cognition, motivation, and emotion in different cultural settings. P/NP or letter grading.

135B. Current Topics and Research. (5) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Survey of field of psychological anthropology, with emphasis on current topics and research. Topics include study of personality, pathology and deviance, altered states of consciousness, cognition, motivation, and emotion in different cultural settings. P/NP or letter grading.

135S. Anthropology of Deviance and Abnormality. (4) Lecture, three hours. Requisite: course 9. Relationship between culture and recognition of, responses toward, and forms of deviant and abnormal behavior. Letter grading.

135T. Psychoanalysis and Anthropology. (4) Lecture, three hours; discussion, one hour (when scheduled). Exploration of mutual relations between anthropology and psychoanalysis, considering both theory and method. History of and current developments in psychoanalysis; anthropological critiques of psychoanalytic theory and method, toward cross-cultural psychoanalytic approach. Letter grading.

136Q. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (4) Laboratory, three hours. Skill of observing and recording behavior in natural settings, with emphasis on field training and practice in observing behavior. Group and individual projects. Discussion of some uses of observations and their implications for research in social sciences. P/NP or letter grading.

137. Selected Topics in Cultural Anthropology. (4) Lecture, three hours; discussion, one hour (when scheduled). Study of selected topics in cultural anthropology. Consult Schedule of Classes for topics and instructors. May be repeated for credit. P/NP or letter grading.

139. Field Methods in Cultural Anthropology. (5) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Introduction to skills and tools of data ascertainment through fieldwork in cultural anthropology. Emphasis on techniques, methods, and concepts of ethnographical research and how basic observational information is systematized for presentation, analysis, and cross-cultural comparison. Letter grading.

M139P. Fieldwork in Asian American and Pacific Islander Communities. (4) (Same as Asian American Studies M143A.) Lecture, three hours; discussion, one hour. Introduction to qualitative research methods and application of techniques in data collection, analysis, and reporting. Critical reflection of issues related to identity, migration, multiculturalism, tourism, and indigenous rights. Field excursions and guest lecturers from local community included. Given in Hawai'i. P/NP or letter grading.

Linguistic Anthropology

M140. Language in Culture. (5) (Same as Linguistics M146.) Lecture, three hours; discussion, one hour; fieldwork, two hours. Requisite: course 33 or Linguistics 20. Study of language as aspect of culture; relation of habitual thought and behavior to language; and language and classification of experience. Holistic approach to study of language, with emphasis on relationship of linguistic anthropology to fields of biological, cultural, and social anthropology, as well as archaeology. (Core course for linguistics field.) P/NP or letter grading.

141. Ethnography of Everyday Speech. (5) Lecture, three hours; fieldwork. Requisite: course 33. Designed for juniors/seniors. Course has two interrelated objectives: (1) to introduce students to ethnography of communication—description and analysis of situated communicative behavior—and sociocultural knowledge that it reflects and (2) to train students to recognize, describe, and analyze relevant linguistic, proxemic, and kinesic aspects of face-to-face interaction. Letter grading.

M142R. Culture of Jazz Aesthetics. (4) (Same as Ethnomusicology M130 and World Arts and Cultures M136.) Lecture, three hours. Requisite: course 9 or 33 or Ethnomusicology 20A or 20B or 20C or World Arts and Cultures 20. Aesthetics of jazz from point of view of musicians who shaped jazz as art form in 20th century. Listening to and interacting with professional jazz musicians who answer questions and give musical demonstrations. Analytical resources and historical knowledge of musicians and ethnomusicologists combined with those interested in jazz as cultural tradition. P/NP or letter grading.

C144. Native American Languages and Cultures. (4) Lecture, three hours. Requisite: course 33 or American Indian Studies M10. Introduction and comparative analysis of sociocultural aspects of language use in Native North American Indian speech communities. Specific foci include both micro- and macro-sociolinguistic topics. Micro-sociolinguistic topics are comprised of such issues as multilingualism, cultural differences regarding appropriate communicative behavior and variation within speech communities (e.g., male and female speech, baby talk, ceremonial speech, etc.). Macro-sociolinguistic considerations include language contact and its relationship to language change and language in American Indian education. Concurrently scheduled with course C243P. P/NP or letter grading.

147. Selected Topics in Linguistic Anthropology. (4) Lecture, three hours. Study of selected topics in linguistic anthropology. Consult Schedule of Classes for topics and instructors. May be repeated for credit. P/NP or letter grading.

M148W. Talk and Body. (5) (Same as Communication Studies M123W.) Lecture, four hours; discussion, one hour. Enforced requisite: English Composition 3. Relationship between language and human body raises host of interesting topics. New approaches to phenomena such as embodiment become possible when body is analyzed, not as isolated entity, but as visible agent whose talk and action are lodged within both processes of human interaction and rich settings where people pursue courses of action that count in their lives. Satisfies Writing II requirement. Letter grading.

149A. Language and Identity. (4) Lecture, three hours. Requisite: course 33. Language as social phenomenon. Introduction to several angles from which language use can be critically examined as integral to interactions between individuals and between social groups. Letter grading.

149B. Gender and Language in Society. (4) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 33. Examination of role language plays in social construction of gender identities and ways in which gender impacts language use and ideologies. Letter grading.

149C. Multilingualism: Communities and Histories in Contact. (4) Lecture, three hours. Requisite: course 33. Examination of communicative, political, and poetic aspects of use of two or more languages (multilingualism) by individuals and by groups. Broader themes in social theory, anthropological inquiry, sociolinguistics, and literary studies in lectures to contextualize class readings. Letter grading.

149D. Language, Culture, and Education. (4) Lecture, three hours. Requisite: course 33. Examination of various ways in which culture, and language in particular, influence not only educational processes and outcomes, but also very conceptions of what normal development processes and desirable educational outcomes are. Letter grading.

149E. Language Socialization. (4) (Formerly numbered M149E.) Seminar, four hours. Exploration of process of socialization through language, and socialization to use language across lifespan, across communities of practice within single society, and across different ethnic and socioeconomic groups. Examination of ways in which verbal interaction between novices and experts is structured linguistically and culturally. P/NP or letter grading.

149F. Language and Social Organization through Life Cycle. (4) Lecture, three hours. Requisite: course 33. Examination of forms of participation and talk-in-interaction across various phases of life cycle from birth to old age, using videotaped interactions of naturally occurring activities. How language and interaction within specific contexts are used to constitute identity and how interaction order resulting from face-to-face interaction provides building blocks for larger formations that arise from such activities. Letter grading.

149SL. Gender and Language across Communities. (4) Lecture, three hours; discussion, one hour. Requisite: course 33. Examination of how language practices contribute to expression of gendered identities in different social groups and situations. Completion of 20 hours of service learning in community service program coordinated through Center for Community Learning required. Active participation in organized service that is conducted in and meets needs of communities. Letter grading.

Social Anthropology

150. Study of Social Systems. (4) Lecture, three hours; discussion, one hour (when scheduled). Enforced requisite: course 9. Introduction to more specialized social anthropology courses. Evaluation of variation in sociocultural systems, with special emphasis on forms of inequality. Basic frameworks of anthropological analysis; historical context and development of social anthropology discipline. Letter grading.

M151. Marriage, Family, and Kinship. (4) (Same as Gender Studies M151.) Lecture, three hours. Requisite: course 9. Examination of understandings of kin-

ship in cross-cultural perspective and impact of kinship on interpersonal relationships, gender roles, and sociocultural systems. Readings from popular materials and formal ethnographic accounts. P/NP or letter grading.

153P. Economic Anthropology. (4) Lecture, three hours. Requisite: course 9. Introduction to anthropological perspectives for interpretation of economic life and institutions. Economic facts to be placed in their larger social, political, and cultural contexts; examination of modes of production, distribution, and consumption of goods and services in their relation to social networks, power structures, and institutions of family, kinship, and class. P/NP or letter grading.

M154P. Gender Systems: North America. (4) (Same as Gender Studies M154P.) Lecture, three hours. Recommended preparation: prior anthropology or gender studies courses. Designed for junior/senior social sciences majors. Comparative study of women's lives and gender systems in North American cultures from anthropological perspective. Critical review of relevant theoretical and practical issues using ethnography, case study, and presentations. P/NP or letter grading.

M154Q. Gender Systems: Global. (4) (Same as Gender Studies M154Q.) Lecture, three hours. Recommended preparation: prior anthropology or gender studies courses. Designed for junior/senior social sciences majors. Comparative study of gender systems globally from anthropological perspective. Outline of material conditions of women's lives in world—gender division of labor, relationship of gender to state, and colonialism and resistance movements. P/NP or letter grading.

M155. Women's Voices: Their Critique of Anthropology of Japan. (4) (Same as Gender Studies M155.) Lecture, three hours. Preparation: introductory sociocultural anthropology course. Anthropology of Japan has long viewed Japan as homogeneous whole. Restoration of diversity and contradiction in it by listening to voices of Japanese women in various historical contexts. P/NP or letter grading.

M155Q. Women and Social Movements. (4) (Same as Gender Studies M155Q.) Lecture/discussion, three hours. Recommended preparation: prior gender studies or anthropology courses. Comparative studies of social movements (e.g., nationalist, socialist, liberal/reform), beginning with Russia and China and including Cuba, Algeria, Guinea-Bissau, Mozambique, Nicaragua, and Iran. Analysis of women's participation in social transformations and centrality of gender interests. P/NP or letter grading.

156. Anthropology of Religion. (4) Lecture, three hours. Survey of various methodologies in comparative study of religious ideologies and action systems, including understanding particular religions through descriptive and structural approaches, and identification of social and psychological factors that may account for variation in religious systems cross-culturally. P/NP or letter grading.

157. Selected Topics in Social Anthropology. (4) Lecture, three hours. Study of selected topics in social anthropology. Consult Schedule of Classes for topics and instructors. May be repeated for credit. P/NP or letter grading.

158. Hunting and Gathering Societies. (4) Lecture, three hours. Requisite: course 9. Survey of hunting and gathering societies. Examination of their distinctive features from both ecological and cultural viewpoints. Discussion of possibility of developing general framework for synthesizing these two viewpoints. Use of this synthesis as basis for illustrating relevance of hunting and gathering societies as understanding of complex societies. P/NP or letter grading.

M158Q. Past People and Their Lessons for Our Own Future. (5) (Same as Geography M153 and Honors Collegium M152.) Lecture, two hours; discussion, two hours. Examination of modern and past people that met varying fates, as background to examination of how other modern people are coping or failing to cope with similar issues. Letter grading.

159. Warfare and Conflict. (4) Lecture, three hours. Examination of conflict and violent confrontation as these have been treated in anthropological literature. Cross-cultural comparison of institutions such as raids, feuds, ritual warfare. Consideration of application of anthropology to study of militaries, modern warfare, and large-scale ethnic conflict. Letter grading.

M159P. Constructing Race. (4) (Same as African American Studies M159P and Asian American Studies M169.) Lecture, three hours. Examination of race, socially constructed category, from anthropological perspective. Consideration of development of racial categories over time and in different regions, racial passing, multiracial identity in U.S., whiteness, race in popular culture, and race and identity. P/NP or letter grading.

Applied Anthropology

161. Development Anthropology. (4) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 9. Designed for juniors/seniors. Comparative study of planned and unplanned development, in particular as it affects rural societies. Emphasis on impact of capital, technological change and gender differences, economic differentiation and class, urban/rural relations, and migration. Discussion of theoretical issues in light of case studies. P/NP or letter grading.

M162. Language Endangerment and Linguistic Revitalization. (4) (Same as American Indian Studies M162.) Lecture, three hours; activity, one hour. Requisites: course 33, American Indian Studies M10. Examination of causes and consequences of current worldwide loss of linguistic diversity and revelation of kinds of efforts that members of threatened heritage language communities have produced in their attempt to revitalize these languages. Projected loss of as many as half of world's languages by end of 21st century can only be explained as outcome of such factors as nationalism, global economic forces, language ideological change, and language shift away from smaller indigenous and tribal languages. Since loss of such languages means both reduction of cultural as well as linguistic diversity, many affected communities have engaged in various language renewal practices. Examination of some diverse strategies that have been attempted, including immersion, language and culture classes, master-apprentice, interactive multimedia, mass media approaches, and language policy-reform approaches. Evaluation of effectiveness of these measures and of very imagery used to discuss language endangerment. P/NP or letter grading.

163. Selected Topics in Applied Anthropology. (4) Lecture, three hours. Study of selected topics in applied anthropology. Consult Schedule of Classes for topics and instructors. May be repeated for credit. P/NP or letter grading.

M164. Afro-American Experience in U.S. (4) (Same as African American Studies M164.) Lecture, three hours. Promotes understanding of contemporary sociocultural forms among Afro-Americans in U.S. by presenting comparative and diachronic perspective on Afro-American experience in New World. Emphasis on utilization of anthropological concepts and methods in understanding origins and maintenance of particular patterns of adaptation among black Americans. P/NP or letter grading.

167. Urban Anthropology. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for junior/senior social sciences majors. Introduction to modern industrial cities and urban life. Examination of notion of urban space in context of social relations by drawing from historical and cross-cultural urban ethnographies. Urban space is created according to needs of capital and actions of urban subjects. Exploration of ways in which class, gender, race, and geography shape or contest perspectives and priorities on urban issues. P/NP or letter grading.

C169R. Repatriation of Native American Human Remains and Cultural Objects. (4) Lecture, two hours; discussion, one hour. Native Americans have recently been successful in obtaining passage of fed-

eral and state laws repatriating human remains and cultural objects to them. Examination of this phenomenon. Concurrently scheduled with course C269R. Letter grading.

Regional Cultures

Africa

171. Sub-Saharan Africa. (4) Lecture, three hours. Issues of ecology and political economy; continuing impacts of colonialism, nationalism, and current challenges for development; changes in social relations. Examination of Africa's significance to development of anthropology. Cultural background for understanding events in contemporary Africa provided. Letter grading.

M171P. Culture Area of Maghrib (North Africa). (4) (Same as Arabic M171 and History M108C.) Lecture, three hours. Designed for juniors/seniors. Introduction to North Africa, especially Morocco, Algeria, Tunisia, and Libya, also known as Maghrib or Tamazgha. Topics include changing notions of personal, tribal, ethnic, linguistic and religious identities; colonialism; gender and legal rights, changing representations of Islam, and religions in region's public spaces. P/NP or letter grading.

North America

172A. Native North Americans. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Consideration of diversity of Native American societies north of Mexico, including their origins, formation, and development. Particular attention to subsistence systems and their relationship to social institutions and cultural practices, especially religion. Letter grading.

172B. Change and Continuity among Native North Americans. (4) Lecture, three hours. Requisite: course 172A. Consideration of tremendous change Native American societies and cultures have undergone since European contact. Emphasis on patterns of adaptation and continuity as Native Americans confronted colonization and its implications. Letter grading.

Middle America

173Q. Latin American Communities. (4) Lecture, three hours. Overview of social and cultural anthropology of small communities in Latin America. Similarities and contrasts in social organization and interpersonal relations described in context of economic, political, and cultural environments. P/NP or letter grading.

South America

174P. Ethnography of South American Indians. (4) Lecture, three hours. Introduction to ethnography of South American Indians, with special emphasis on Lowland South America. Survey of history and development of man and society in this world area and examination of exemplary cultures symptomatic of various levels of cultural achievement. P/NP or letter grading.

Asia

175Q. Ideology and Social Change in Contemporary China. (4) Lecture, three hours. Introduction to sociocultural changes in China from 1949 to present. Topics include ideology and politics in everyday life, social stratification and mobility, cultural construction of socialist person, changes in courtship, marriage, and family, and political economy of reforms in post-Mao era. P/NP or letter grading.

175R. Societies of Central Asia. (4) Lecture, three hours. Overview of culture and society among diverse peoples of Inner Asia, including Mongolia, Tibet, and Soviet Central Asia. Topics include environment and economic adaptation, politics in traditional isolation and within framework of recent national integration, kinship, forms of marriage and status of women, religion and social order in Hindu/Buddhist culture contact zone, and current problems of modernization. P/NP or letter grading.

175S. Japan. (4) Lecture, three hours. Overview of contemporary Japanese society. General introduction, kinship, marriage and family life, social mobility and education, norms and values, religions, patterns of interpersonal relations, social deviance. P/NP or letter grading.

Middle East

176. Culture Area of Middle East. (4) Lecture, three hours. Study of Middle East has suggested many theories as to developmental history of humankind, evolution of human society, birth of monotheism, and origin of agriculture, trade, and cities. Presentation of anthropological material relevant to understanding Middle East as culture area, and Islam as basis of its shared tradition. Letter grading.

Pacific

177. Cultures of Pacific. (4) Lecture, three hours. Four major culture areas of Australia, Melanesia, Polynesia, and Micronesia. General geographical features, prehistory, and language distribution of whole region. Distinctive sociocultural features of each culture area presented in context of their adaptive significance. P/NP or letter grading.

M177P. Ethnic Identity and Ethnic Relations in Hawai'i. (4) (Same as Asian American Studies M143A.) Lecture, three hours; discussion, one hour. Continuing construction and expression of ethnic identity in various cultural forms and social contexts in Hawai'i. Overview of theoretical approaches to and basic concepts in study of ethnic identity and ethnic relations. Discussion of historical and contemporary aspects of ethnic identity and ethnic relations in Hawai'i. Given in Hawai'i. P/NP or letter grading.

Regional Cultures

179. Selected Topics in Regional Cultures. (4) Lecture, three hours. Study of selected topics in regional cultures. Consult Schedule of Classes for topics and instructors. May be repeated for credit. P/NP or letter grading.

History, Theory, and Method

181. Critical Social Theory. (4) Seminar, three hours. Requisite: course 9. Limited to juniors/seniors. In-depth introduction to work of classic social theorists, Karl Marx and Max Weber. Examination of their influence on anthropology. Exploration of recent attempts to synthesize both perspectives. Letter grading.

182. History of Anthropology. (4) Lecture, three hours. Brief survey of development of Western social science, particularly anthropology, from Greek and Roman thought to emergence of evolutionary theory and concept of culture in late 19th century. "Root paradigm" of Western social science and its influence on such notables as Durkheim, Freud, Hall, Lombroso, Marx, Piaget, Terman, and others. Consideration of how this influences ethnocentrism and Eurocentrism, sexism, racism, perception of deviance, and view of culture in general. P/NP or letter grading.

185A. Theoretical Behavioral Ecology. (4) Lecture, three hours. Preparation: one upper division introduction to behavioral ecology course, one university-level mathematics course (preferably calculus or probability and statistics). Students expected to do simple algebra, elementary calculus, and probability. Rich body of mathematical theory describing evolution of animal behavior exists. Introduction to this body of theory at pace and mathematical level that allows students to grasp this information. Within each area of theory (e.g., kin selection, optimal foraging theory, etc.), presentation of basic corpus of models so that students understand assumptions that underlie models, and how main results are derived. Presentations supplemented by survey of results printed in literature, especially those derived using more advanced methods. Letter grading.

186P. Models of Cultural Evolution. (4) Lecture, two hours; discussion, one hour. Requisite: course 7. Introduction to Darwinian models of cultural evolution. How organic evolution has shaped capacity for cul-

ture. How processes of cultural transmission and modification explain cultural variation in space and time. P/NP or letter grading.

Special Studies

191. Variable Topics Research Seminars: Anthropology. (4) Seminar, three hours. Research seminar on selected topics in anthropology. Reading, discussion, and development of culminating project. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

191HA. Beginning Seminar. (4) Seminar, three hours. Limited to anthropology honors program students. Survey of major research strategies in anthropology to aid honors students in developing research proposals. Letter grading.

191HB. Field Methods. (4) Seminar, three hours. Limited to anthropology honors program students. Survey of major field methods in anthropology to prepare students to conduct their own field research. Letter grading.

191HC. Data Analysis. (4) Seminar, three hours. Limited to anthropology honors program students. Survey of major forms of data analysis in anthropology to aid honors students in analysis of their own research data. Letter grading.

191HD. Writing for Anthropology. (4) Seminar, three hours. Limited to anthropology honors program students. Teaching of writing skills, with focus on how to write honors theses. Letter grading.

191HE. Writing for Publication and Conference Presentations. (4) Seminar, three hours. Limited to anthropology honors program students. Preparation of honors theses for publication and for conference presentations and posters. Letter grading.

193. Journal Club Seminars: Anthropology. (1) Seminar, one hour. Limited to undergraduate students. Discussion of current readings in discipline. May be linked with speaker series. May be repeated for credit with topic change. P/NP grading.

194. Research Group Seminars: Anthropology. (1) Seminar, one hour. Limited to undergraduate students who are part of research group or internship. Discussion of research methods and current literature in discipline or of research of faculty members or students. May meet concurrently with graduate research seminar. May be repeated for credit with topic change. P/NP grading.

195CE. Community and Corporate Internships in Anthropology. (4) Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. May be repeated for credit with consent of Center for Community Learning. No more than 4 units may be applied toward major; units applied must be taken for letter grade. Individual contract with supervising faculty member required. P/NP or letter grading.

197. Individual Studies in Anthropology. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned readings and tangible evidence of mastery of subject matter (e.g., paper or other product) required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research in Anthropology. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Conceptualizing Anthropological Research. (4) Seminar, three hours. Introduction to process of conceptualizing research projects, including formulating and theorizing research questions and developing appropriate methodology to carry out research. Preparation of proposals and presentation to group for critique. S/U or letter grading.

M201A-M201B. Graduate Core Seminars: Archaeology. (4-4) (Same as Archaeology M201A-M201B.) Seminar, three hours. Course M201A is required of anthropology students in archaeology field. Seminar discussions based on carefully selected list of 25 major works related to development of archaeology in social sciences (M201A) and humanities (M201B). Core seminars provide students with foundation in breadth of knowledge required of professional archaeologists. Archaeological historiography, survey of world archaeology, and archaeological techniques. Emphasis on appreciation of multidisciplinary background of modern archaeology and relevant interpretive strategies. May be repeated for credit with consent of adviser. S/U or letter grading.

202. Biological Anthropology Colloquium. (4) Seminar, three hours. Selected topics on status of current research in biological anthropology. May be repeated for credit. S/U or letter grading.

203A-203B-203C. Core Seminars: Sociocultural Anthropology. (4-4-4) Seminar, three hours. Letter grading:

203A. Historical and Philosophical Foundations of Anthropology. (4) Seminar, three hours. Preparation: two courses from 130, 135A, 150. Examination of theoretical writings that shaped foundations of anthropology as scholarly discipline. Consideration of writings of Durkheim, Weber, Marx, and others. Letter grading.

203B. Sociocultural Systems and Ethnography: Anthropology at Mid-Century. (4) Seminar, three hours. Recommended requisite: course 203A. Examination of development of major schools of sociocultural thought during middle decades of 20th century. Emphasis on formation of sociocultural theories, concepts, and methodologies found in contemporary anthropology. Letter grading.

203C. Scientific and Interpretive Frameworks in Contemporary Anthropology. (4) Seminar, three hours. Recommended requisite: course 203B. Examination of selected contemporary works and issues in field of sociocultural anthropology. Letter grading.

204. Core Seminar: Linguistic Anthropology. (4) Seminar, three hours. Theoretical and methodological foundations of study of language structure and language use from sociocultural perspective. Discussion of linguistic, philosophical, psychological, and anthropological contributions to understanding of verbal communication as social activity embedded in culture. S/U or letter grading.

Archaeology

210. Analytical Methods in Archaeological Studies. (4) Lecture, three hours. Preparation: one term of statistics. Data analysis procedures in archaeology. Emphasis on conceptual framework for analysis of archaeological data, beginning at level of attribute and ending at level of region. S/U or letter grading.

CM210Q. Introduction to Archaeological Sciences. (4) (Same as Ancient Near East CM269.) Lecture, three hours. Basic understanding of newly introduced methods and techniques throughout field of archaeology to implement them and to appreciate and evaluate results of their use by others who have embedded them in their scholarly publications or theoretical models. Systematic instruction in digital data management and mining, scientific analysis of materials (including geological and biochemical techniques), and visual presentation of data and research results (ranging from simple graphs to virtual reality). Concurrently scheduled with course CM110Q. S/U or letter grading.

211. Classification in Archaeology: Method and Theory. (4) Seminar, three hours. Limited to graduate anthropology and archaeology students. Discussion of issues that have guided arguments about how archaeological classification of artifacts should be conducted, with focus on ceramic classification and discovery of cultural types. Methods for implementing discovery approach to classification illustrated with lithic and pottery examples. Review of relationship between classification, style, and function. S/U or letter grading.

M212S. Selected Laboratory Topics in Archaeology. (4) (Same as Archaeology M205A.) Lecture, three hours. Designed for graduate students in archaeology or in other departments. Specialized analysis of particular classes of cultural remains. Topic may be one of following: zooarchaeology, paleoethnobotany, ceramics, lithic analysis, rock art. Laboratory experience with collections and data. May be repeated for credit with topic change. S/U or letter grading.

M212T. Intensive Laboratory Training in Archaeology. (6) (Same as Archaeology M205B.) Lecture, three hours; laboratory, two hours minimum. Advanced laboratory training for graduate students with extended laboratory hours. Special laboratory-based topics, including but not limited to lithic analysis, ceramic analysis, zooarchaeology, and paleoethnobotany. May be repeated for credit with topic change. S/U or letter grading.

214. Selected Topics in Prehistoric Civilizations of New World. (4) Lecture, three hours. Mesoamerican and Andean civilizations normally constitute major focus of seminar. May be repeated for credit. S/U or letter grading.

M216. Topics in Asian Archaeology. (4) (Same as Art History M258B.) Lecture, three hours. Designed for graduate students. Topics may include identification of ethnic groups in archaeology, archaeology of religion, archaeological reflections of commerce and trade and their influence on social development, archaeology of language dispersal, cultural contact and nature of cultural influence. Letter grading.

217. Explanation of Societal Change. (4) Lecture, three hours. Examination of processes of societal evolution, emphasizing usefulness of variety of explanatory models from general systems theory, ecology, anthropology, and other sources. Specific research questions vary with each course offering. May be repeated for credit. S/U or letter grading.

217A. Archaeology of Urbanism. (4) Seminar, three hours. Evaluation of cities as most complex form of human population center, using both archaeological and modern examples. Observations about material culture and space enable assessment of social dynamics as cities are constructed and lived in by variety of different ethnic, economic, ritual, and political groups. Letter grading.

Biological Anthropology

220. Current Problems in Biological Anthropology. (4) Seminar, three hours. Detailed examination of current research in biological anthropology (specific topics to be announced). Emphasis on nature of hypotheses and their testing in ongoing student and faculty research. May be repeated for credit. S/U or letter grading.

221A. Fossil Evidence for Human Evolution. (4) Seminar, four hours. Examination and analysis of fossil evidence for human evolution. S/U or letter grading.

222. Graduate Core Seminar: Biological Anthropology in Review. (4) Seminar, three hours. Graduate core course in biological anthropology. Topics include evolutionary theory, behavior of nonhuman primates, hominid evolutionary history, and contemporary human variation. Letter grading.

Cultural Anthropology

230P. Practice Theory and Beyond. (4) Seminar, three hours. Requisites: courses 203A, 203B, 203C. Background in classic social theory—Marx, Weber, Durkheim—assumed. Designed for graduate anthro-

pology students. Basic texts in practice theory by Pierre Bourdieu and Anthony Giddents. Series of upgrades on basic practice theory framework, with greater attention to issues of power and need to historicize anthropological work, and new perspectives on concept of culture. S/U or letter grading.

233R. Anthropology and Media Theory. (4) Seminar, three hours. Limited to graduate students. Examination of theoretical assumptions and debates that animate visual anthropology very broadly defined, including issues of interpretation, production, and reception of visual media, which includes ethnographic, documentary, and feature films, as well as television programming. S/U or letter grading.

233T. Ethnographies of Information Technology. (4) Seminar, three hours. Emerging work on new information economy, with emphasis on ethnography. Reading of anthropological work and materials from range of disciplines, including sociology, geography, urban studies, and management studies. S/U or letter grading.

234. Seminar: Psychocultural Studies and Medical Anthropology. (4) Seminar, three hours. Devoted to present state of research in psychocultural studies. Survey of work in child development and socialization, personality, psychobiology, transcultural psychiatry, deviance, learning, perception, cognition, and psychocultural perspectives on change. S/U or letter grading.

M234Q. Psychological Anthropology. (4) (Same as Psychiatry M272.) Lecture, three hours. Various psychological issues in anthropology, both theoretical and methodological. Areas of interest include such things as culture and theory, culture and personality, and culture psychiatry. Discussion of questions relating to symbolic and unconsciousness process as they relate to culture. Topics vary from term to term. May be repeated for credit. S/U or letter grading.

M234T. Anthropological Perspectives on Human Body. (2 to 4) (Same as Psychiatry M282.) Seminar, three hours. Exploration of how sociocultural and political dynamics shape perceptions of and understandings about human body, and how, reciprocally, those perceptions and understandings influence social processes. Includes materials from both non-Western and Western societies. Letter grading.

235. Individual in Culture. (4) Seminar, three hours. Designed for graduate students. Letter grading.

M236P. Cross-Cultural Studies of Socialization and Children. (4) (Same as Psychiatry M214.) Lecture, three hours. Selected topics in cross-cultural study of socialization and child training. Methods, ethnographic data, and theoretical orientations. Emphasis on current research. S/U or letter grading.

M238. Native American Revitalization Movements. (4) (Same as History M260C.) Lecture, two hours; discussion, one hour. Examination of revitalization movements among native peoples of North America (north of Mexico). Specific revitalization includes Handsome Lake, 1870 and 1890 Ghost Dances, and Peyote Religion. Letter grading.

239P. Selected Topics in Field Ethnography. (4 to 8) Seminar, three hours. Discussion and practicum in various techniques for collecting and analyzing ethnographic field data. S/U or letter grading.

Linguistic Anthropology

M241. Topics in Linguistic Anthropology. (4) (Same as Linguistics M246C.) Lecture, three hours. Problems in relations of language, culture, and society. May be repeated for credit. S/U or letter grading.

M242. Ethnography of Communication. (4) (Same as Applied Linguistics M207.) Lecture, three hours. Designed for graduate students. Seminar devoted to examining representative scholarship from fields of sociolinguistics and ethnography of communication. Particular attention to theoretical developments including relationship of ethnography of communication to such disciplines as anthropology, linguistics, and sociology. Topical foci include style and strategy,

speech variation, varieties of noncasual speech genres, languages and ethnicity, and nonverbal communication behavior. S/U or letter grading.

243A. Language Ideologies: Political Economy of Language Beliefs and Practices. (4) Lecture, three hours. Language ideological research problematizes fundamental assumptions about speakers' use of language and communicative practices: (1) speakers' awareness of these structures and processes and (2) relationship of this consciousness to speakers' political economic perspectives and to actual communicative conduct. Letter grading.

C243P. Native American Languages and Cultures. (4) Lecture, three hours; seminar, two hours. Preparation: prior coursework in either anthropology, linguistics, or American Indian studies. Introduction and comparative analysis of sociocultural aspects of language use in Native North American Indian speech communities. Specific foci include both micro- and macro-sociolinguistic topics. Micro-sociolinguistic topics are comprised of such issues as multilingualism, cultural differences regarding appropriate communicative behavior and variation within speech communities (e.g., male and female speech, baby talk, ceremonial speech, etc.). Macro-sociolinguistic considerations include language contact and its relationship to language change and language in American Indian education. Concurrently scheduled with course C144. S/U or letter grading.

M247. Topics in Semantics and Pragmatics. (4) (Same as Applied Linguistics M266.) Seminar, four hours. Requisite: Applied Linguistics C201. Detailed examination of specialized topics in semantics and pragmatics. Topics vary from year to year and may include metaphor, theories of reference and denotation, honorific speech, evidentiality, reported speech, etc. May be repeated for credit with topic change. Letter grading.

M248. Language Socialization. (4) (Same as Applied Linguistics M224.) Seminar, four hours. Requisite: Applied Linguistics M206. Exploration of process of socialization through language and socialization to use language across lifespan, across communities of practice within single society, and across different ethnic and socioeconomic groups. Ways in which verbal interaction between novices and experts is structured linguistically and culturally. S/U or letter grading.

M249A. Ethnographic Methods in Language, Interaction, and Culture I. (4) (Same as Applied Linguistics M270A.) Seminar, three hours. Requisite: course M242 or Sociology 244A. Ethnographic approaches to recording and analyzing communicative events and practices in their sociocultural context, involving student-initiated fieldwork in community setting. Emphasis on hands-on activities within theoretical frameworks that consider language as social and cultural practice. Devoted to skills related to collecting socially and culturally meaningful data. Letter grading.

Social Anthropology

250. Selected Topics in Social Anthropology. (4) Seminar, three hours. Intensive examination of current theoretical views and literature. S/U or letter grading.

Applied Anthropology

260. Urban Anthropology. (4) Seminar, three hours. Requisite: course 167. Intensive anthropological examination of urban setting as human environment. S/U or letter grading.

M263P. Gender Systems. (4) (Same as Gender Studies M263P.) Seminar, three hours. Current theoretical developments in understanding gender systems cross-culturally, with emphasis on relationships between systems of gender, economy, ideational systems, and social inequality. Selection of ethnographic cases from recent literature. S/U or letter grading.

M263Q. Advanced Seminar: Medical Anthropology. (2 to 4) (Same as Community Health Sciences M244, Nursing M273, and Psychiatry M273.) Seminar, three hours. Limited to 15 students. Examination of interrelationships between society, culture, ecology,

health, and illness. Bases for written critical analysis and class discussion provided through key theoretical works. S/U or letter grading.

M264. Latin America: Traditional Medicine, Shamanism, and Folk Illness. (4) (Same as Community Health Sciences M264 and Latin American Studies M264.) Lecture, three hours. Recommended preparation: Community Health Sciences 132, bilingual English/Spanish skills. Examination of role of traditional medicine and shamanism in Latin America and exploration of how indigenous and mestizo groups diagnose and treat folk illness and Western-defined diseases with variety of health-seeking methods. Examination of art, music, and ritual and case examples of religion and healing practices via lecture, film, and audiotape. Letter grading.

M266. Health and Culture in Americas. (4) (Same as Community Health Sciences M260 and Latin American Studies M260.) Lecture, three hours. Recommended requisite: Community Health Sciences 132. Health issues throughout Americas, especially indigenous/Mestizo Latin American populations. Holistic approach covering politics, economics, history, geography, human rights, maternal/child health, culture. Letter grading.

266N. Narrative and Times of Trouble. (4) Seminar, three hours. Recommended requisite: one course from 203A, 203B, 203C, 204, or M242. Exploration of how linguistic and psychological/medical anthropology inform each other in relation to narrative and times of trouble. Topics include narrative sense-making in response to illness and misfortune; phenomenology of time; narrative, healing, and experience; remembering through narrative; narrative subjectivity; and narrative and selves in motion. Letter grading.

M269. Contemporary Issues of American Indians. (4) (Same as American Indian Studies M200C and Sociology M275.) Seminar, three hours. Introduction to most important issues facing American Indians as individuals, communities, tribes, and organizations in contemporary world, building on historical background presented in American Indian Studies M200A and cultural and expressive experience of American Indians presented in American Indian Studies M200B. Letter grading.

C269R. Repatriation of Native American Human Remains and Cultural Objects. (4) Lecture, two hours; discussion, one hour. Native Americans have recently been successful in obtaining passage of federal and state laws repatriating human remains and cultural objects to them. Examination of this phenomenon. Concurrently scheduled with course C169R. Letter grading.

Regional Cultures

271. Contemporary Problems in Africa. (4) Seminar, three hours. Problematic issues in Africa in light of classical anthropological literature and recent work by anthropologists and other fieldworkers in Africa, with cases from eastern and southern Africa. S/U or letter grading.

M276. Japan in Age of Empire. (4) (Same as Asian M292 and History M286.) Seminar, three hours. Designed for graduate students. Since late 19th century, Japan expanded its empire into East and Southeast Asia. Coverage of that period and array of anthropological studies conducted in Japan's colonies and occupied areas in this hardly explored area of study of colonialism. S/U or letter grading.

History, Theory, and Method

282. Research Design in Cultural Anthropology. (4) Lecture, three hours. Primarily designed for graduate students preparing for fieldwork. Unique position of anthropology among sciences and resulting problems for scientific research design. Review of typical research problems and appropriate methods. Students prepare their own research designs and present them for class discussion. S/U or letter grading.

M284. Qualitative Research Methodology. (4) (Same as Community Health Sciences M216.) Discussion, three hours; laboratory, one hour. Intensive seminar/field course in qualitative research methodology. Emphasis on using qualitative methods and techniques in research and evaluation related to healthcare. Letter grading.

284P. Anthropological Methods and Data Analysis. (4) Seminar, three hours. Limited to graduate students. Recommended preparation: research design course. Hands-on approach to qualitative methods used in anthropological research and techniques for analysis of qualitative data. Particular methods depend on and are appropriate to research questions and designs students bring to class. S/U or letter grading.

285P. Selected Topics in Anthropological/Archaeological Theory. (4) Seminar, three hours. Designed for graduate students. Variable topics course on important theoretical subjects in anthropological archaeology. Topics include early village societies, specialization and cultural complexity, ethnography for archaeologists, power and hierarchy in intermediate societies, materialist/idealist debates, urbanism, and exchange systems. May be repeated for credit. S/U or letter grading.

M287R. Central Asian Studies: Discipline, Methods, Debates. (2) (Same as History M287.) Seminar, two hours. Introduction to study of central Asia as practiced in humanities and social sciences disciplines. S/U grading.

288. Relational Models Theory and Research Design. (4) Seminar, three hours. Relational models theory (RMT) posits that people in all cultures use combinations of just four relational models (RMs) to organize most aspects of most social coordination: communal sharing, authority ranking, equality matching, and market pricing. Exploration of how people use these RMs to motivate, generate, constitute, coordinate, judge, and sanction social interaction. RMT aims to account for what is universal and what varies across cultures, positing necessity for cultural complements that specify how and with whom each relational model operates. Readings may include RMT research in social anthropology, archaeology, social theory, semiotics, linguistics, developmental, cognitive, social, political, moral, clinical, and cultural psychology, neuroscience, evolution, sociology, family studies, philosophy, management, marketing, and consumer psychology, economics, justice, public health, public policy, and international development. Letter grading.

M293. Culture, Brain, and Development Forum. (1) (Same as Education M285, Neuroscience M293, and Psychology M248.) Seminar, 90 minutes every other week. Interdisciplinary seminar series to provide students with exposure to current research in understanding complex relationship between culture, brain, and development. S/U grading.

M293S. Culture, Brain, and Development. (4) (Same as Education M286, Neuroscience M294, and Psychology M247.) Seminar, three hours. Designed for graduate students. Integration of knowledge across different disciplines to understand interrelations of culture, brain, and development, where development includes both human ontogeny and human phylogeny. S/U or letter grading.

294. Human Complex Systems Forum. (1) Seminar, 90 minutes every other week. Interdisciplinary seminar series to provide students with exposure to current research in understanding nature of human societies from complexity and multiagent perspective. May be repeated for credit. S/U grading.

295. Culture of Intersubjectivity. (4) Seminar, three hours. Enforced requisites: courses 203A, 203B, and 203C, or 204. Introduction to notion of intersubjectivity and its relevance for anthropological research. Exploration of problem of intersubjectivity in its existential, semiotic, and linguistic dimensions. Key topics include intentionality, consciousness, empathy, temporality, agency, experience, and embodiment. S/U or letter grading.

M295A-M295B-M295C. Relationship Science Forums. (2-2-2) (Same as Education M298A-M298B-M298C, Psychology M237A-M237B-M237C, and Sociology M269A-M269B-M269C.) Seminar, 90 minutes. Limited to graduate students. Current research and theory about personal relationships presented by members of seminar, faculty members, and guest speakers from diverse fields, including anthropology, education, psychology, and sociology. May be repeated for credit. S/U grading.

M295S. Interdisciplinary Relationship Science. (4) (Same as Education M297, Psychology M236, and Sociology M270.) Lecture, three hours. Limited to graduate students. Diverse approaches to relationship science in fields of anthropology, education, psychology, and sociology. Focus on theme of understanding biological, behavioral, and cultural aspects of relationships through diverse theoretical and methodological approaches. Use of broad definition of interpersonal relationships, including relationships such as parent-child, teacher-student, sibling, peer, kin, romantic relationships, marriages, and friendships. S/U or letter grading.

297. Selected Topics in Anthropology. (2 to 4) Seminar, three hours. Designed for graduate students. Study of selected topics of anthropological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

Special Studies

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Anthropology. (2 to 4) Seminar/workshop, three hours. Designed for graduate students. Required of all new teaching assistants. Workshop/seminar in teaching techniques, including evaluation of each student's own performance as teaching assistant. Four-day workshop precedes beginning of term, followed by 10-week seminar during term designed to deal with problems and techniques of teaching anthropology. Unit credit may be applied toward full-time equivalence but not toward nine-course requirement for MA. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Individual Studies for Graduate Students. (2 to 8) Tutorial, to be arranged. Directed individual studies. S/U or letter grading.

597. Preparation for PhD Qualifying Examinations. (2 to 12) Tutorial, to be arranged. S/U grading.

598. Research for and Preparation of MA Thesis. (2 to 8) Tutorial, to be arranged. Preparation of research data and writing of MA thesis. S/U grading.

599. Research for PhD Dissertation. (2 to 12) Tutorial, to be arranged. PhD dissertation research or writing. Students must have completed qualifying examinations and ordinarily take no other coursework. S/U grading.

APPLIED LINGUISTICS

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Russell G. Schuh, PhD, *Chair*

The UCLA Academic Senate approved the disestablishment of the Department of Applied Linguistics, the discontinuance of the graduate degree and certificate programs, the Language Teaching minor, and African Languages BA, and the transfer of the Applied Linguistics BA to the Department of Linguistics effective winter quarter 2015. Students currently enrolled in any of the programs may complete them under current requirements.

Undergraduate Study

Applied Linguistics BA

The Applied Linguistics BA was transferred to the Linguistics Department effective winter quarter 2015.

Language Teaching Minor

The Language Teaching minor was discontinued effective winter quarter 2015.

Graduate Study

The Department of Applied Linguistics offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Applied Linguistics. However, the UCLA Academic Senate approved the discontinuance of the graduate degree and certificate programs effective winter quarter 2015. Students currently enrolled in any of the programs may complete them under current requirements.

Applied Linguistics

Lower Division Courses

30W. Language and Social Interaction. (5) Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 30. Exploration of range of topics related to study of language and social interaction in both mundane and professional settings, particularly how language affects social lives and how social organization affects use of language. Topics include different approaches to study of language in social interaction (theories and research methodologies), issues regarding language and social identity (such as socioeconomic status, race, gender, and situational identity), and issues concerning language and culture (such as cross-cultural misunderstanding and language socialization). Satisfies Writing II requirement. Letter grading.

40. Language and Gender: Introduction to Gender Differences and Stereotypes. (5) Lecture, four hours; discussion, one hour. Not open for credit to students with credit for course 40W. Introduction to language from sociological perspective of gender. Use of re-

search and examples in English and other languages to explore nature of male and female "genderlects" and gendered language, as reflected in lexicon, language behavior, phonetics and intonation, and language acquisition and linguistic change. Fieldwork to be carried out in language of student choice. Letter grading.

40W. Language and Gender: Introduction to Gender and Stereotypes. (5) Lecture, four hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 40. Prior knowledge of foreign languages not required. Introduction to language from sociological perspective of gender. Use of research and examples in English and other languages to explore nature of male and female "genderlects" and gendered language, as reflected in lexicon, language behavior, phonetics and intonation, and language acquisition and linguistic change. Satisfies Writing II requirement. Letter grading.

Upper Division Courses

101W. Introduction to Language Learning and Language Teaching. (5) Lecture, four hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 101. Exploration of skills and conditions involved in successful second and foreign language learning; application of this knowledge in development of framework for teaching second and foreign languages. Satisfies Writing II requirement. Letter grading.

102W. Nature of Learning. (5) Lecture, four hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Exploration of learning via examination of second language acquisition. All normal children acquire language of their family and community (i.e., first language acquisition is ubiquitous). Success in second language acquisition is radically variable, and many learners, in spite of substantial opportunity and ability, achieve proficiencies that fall far below that of native speakers. Examination of interaction of emotion and cognition and nature of aptitude and motivation in learning. Primary vehicle for investigation to be autobiographies of second language learners. Satisfies Writing II requirement. Letter grading.

153. Functional Foundations of Language. (4) (Formerly numbered C153.) Seminar, four hours. Requisite: Linguistics 20. Introduction to analysis and description of form, meaning, and function of structures (morphological and syntactic), lexical items, and linguistic features of discourse. Exploration of variety of approaches integrating form, meaning, and function. Letter grading.

155. Foundations of Language Acquisition. (4) (Formerly numbered C155.) Seminar, four hours. Requisite: Linguistics 20. Introduction to theoretical and empirical research in language acquisition and second language acquisition. Linguistic nature of learners, interlanguage systems, and underlying cognitive mechanisms posited to explain them, as well as various social, affective, cognitive, and neurobiological factors that affect ultimate success of learner. Letter grading.

M179. Language Politics and Policies in U.S.: Comparative History. (4) (Same as Chicana and Chicano Studies CM179.) Lecture, four hours. Historical overview of national and institutional language policies, especially schooling, in U.S. as context to understanding social, legal, and political constraints on bilingualism. Definitions and development of language policy and planning, history of general and educational language policies in U.S., demographic profile of language diversity, and current language and educational policy issues in U.S. Comparisons with selected international cases. P/NP or letter grading.

198. Honors Research in Applied Linguistics. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Development and completion of honors thesis or research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research in Applied Linguistics. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. Letter grading.

Graduate Courses

M207. Ethnography of Communication. (4) (Same as Anthropology M242.) Lecture, three hours. Designed for graduate students. Seminar devoted to examining representative scholarship from fields of sociolinguistics and ethnography of communication. Particular attention to theoretical developments including relationship of ethnography of communication to such disciplines as anthropology, linguistics, and sociology. Topical foci include style and strategy, speech variation, varieties of noncasual speech genres, languages and ethnicity, and nonverbal communication behavior. S/U or letter grading.

M224. Language Socialization. (4) (Same as Anthropology M248.) Seminar, four hours. Requisite: course M206. Exploration of process of socialization through language and socialization to use language across lifespan, across communities of practice within single society, and across different ethnic and socioeconomic groups. Ways in which verbal interaction between novices and experts is structured linguistically and culturally. S/U or letter grading.

M225A-M225B. Seminars: Corpus Linguistics. (4-4) (Same as Asian M222A-M222B.) Seminar, three hours. Construction and exploitation of computerized language corpora for studying issues in areas such as lexicology, discourse grammar, language change and variation, language learning, and teaching. Discussion of special issues in working with East Asian language corpora. In Progress (M225A) and S/U or letter (M225B) grading.

M232. Culture, Brain, and Development Forum. (1) (Same as Anthropology M293, Education M285, Neuroscience M293, and Psychology M248.) Seminar, 90 minutes every other week. Interdisciplinary seminar series to provide students with exposure to current research in understanding complex relationship between culture, brain, and development. S/U grading.

M233. Culture, Brain, and Development. (4) (Same as Anthropology M293S, Education M286, Neuroscience M294, and Psychology M247.) Seminar, three hours. Designed for graduate students. Integration of knowledge across different disciplines to understand interrelations of culture, brain, and development, where development includes both human ontogeny and human phylogeny. S/U or letter grading.

M266. Topics in Semantics and Pragmatics. (4) (Same as Anthropology M247.) Seminar, four hours. Requisite: course C201. Detailed examination of specialized topics in semantics and pragmatics. Topics vary from year to year and may include metaphor, theories of reference and denotation, honorific speech, evidentiality, reported speech, etc. May be repeated for credit with topic change. Letter grading.

M270A. Ethnographic Methods in Language, Interaction, and Culture I. (4) (Same as Anthropology M249A.) Seminar, three hours. Requisite: course M207 or Sociology 244A. Ethnographic approaches to recording and analyzing communicative events and practices in their sociocultural context, involving student-initiated fieldwork in community setting. Emphasis on hands-on activities within theoretical frameworks that consider language as social and cultural practice. Devoted to skills related to collecting socially and culturally meaningful data. Letter grading.

278. Discourse Laboratory. (4) Laboratory, four hours. Requisite: course M206. Designed for Applied Linguistics PhD students. Advanced procedures in data analysis in field of discourse analysis, including devel-

opment of large-scale research project and critical review of current research. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Study. (2 to 12) Tutorial, to be arranged. Limited to MA and PhD students. Independent study in one area of applied linguistics. May not be applied toward MA course requirements. Up to 8 units may be applied toward PhD course requirements. May be repeated for credit. S/U or letter grading.

597. Preparation for PhD Candidacy Examination. (4 to 8) Tutorial, to be arranged. Preparation: completion of at least six courses of 32-unit requirement for PhD. May not be applied toward 32-unit requirement. May be repeated for credit. S/U grading.

599. Research for and Preparation of PhD Dissertation. (4 to 16) Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Required of all PhD candidates each term they are registered and engaged in dissertation preparation. May be repeated for credit but may not be applied toward PhD course requirements. S/U grading.

ARCHAEOLOGY

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Willeke Z. Wendrich, PhD (Near Eastern Languages and Cultures)

Scope and Objectives

The interdisciplinary Archaeology Program offers MA and PhD degrees in Archaeology. It brings together interests and specialties represented by those departments offering courses in archaeology, as well as others offering courses relevant to archaeology.

The primary purpose of the program is to train scholars in archaeology for university-level teaching and research and other professional aims. Its resources are intended for those archaeology students whose academic goals cannot be met within any single department and who, consequently, require an individually designed plan of study combining academic preparation in two or more departments. Applications are especially encouraged from students whose interests may form bridges with disciplines and departments not offering archaeology (e.g., botany, chemistry, geology, mathematics, statistics, and zoology). There are opportunities for participation in a variety of field, laboratory, and computer studies.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Archaeology Program offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Archaeology but does not encourage applicants who seek only an MA degree.

Archaeology

Lower Division Course

30. Science in Archaeology. (4) (Formerly numbered Ancient Near East 30.) Lecture, three hours; discussion, one hour. Archaeology is rapidly developing due to ongoing introduction of new hardware, software, and information dissemination technology. It is multidisciplinary field of study, combining its own research methods and technologies with elements from geology, history, ethnography, geography, material science, statistics, biology, biochemistry, medicine, and others, presenting opportunities not only to obtain new scholarly insights, but also to provide integrated instruction in science, technology, engineering, and mathematics (STEM) skills. Use of archaeological data as paradigm in STEM education. Instant practical application of mathematics during surveying, geology during ceramic analysis or geophysical research, biochemistry during archaeological residue analysis, or biology during zooarchaeological or paleoethnobotanical research offers point of departure for instructors as well as motivation to students. P/NP or letter grading.

Upper Division Courses

C110. Archaeological Materials Identification and Characterization. (4) Lecture, one hour; laboratory, two hours. Laboratory-oriented introduction for archaeologists to identification and quantitative description of solid materials, especially metals, ce-

ramics, and other inorganic and some organic substances. Concurrently scheduled with course C210. P/NP or letter grading.

M112. Archaeology and Art of Christian and Islamic Egypt. (4) (Same as Art History M119D, Islamic Studies M112, and Middle Eastern Studies M112.) Lecture, three hours. Culture of Egypt transformed gradually after Muslim conquest in mid-7th century C.E. According to material evidence such as ceramics, textiles, architectural forms, and building techniques, it is functionally impossible to separate pre-Islamic Christian Egypt from early Islamic Egypt. Although population may have become largely Muslim by 10th century, Egypt remained Coptic in many senses even to 14th century and retains sizeable Christian minority to present. Survey of archaeological remains and standing architecture of Egypt from 6th to 19th century, charting changes and continuities in material culture and shifts in human geography and land use. P/NP or letter grading.

C120. Special Topics in Archaeology. (2 or 4) Lecture, three hours. Designed for juniors/seniors. Special topics on theoretical subjects in archaeology such as new strategies, regional synthesis, or current work by core program faculty or special visiting scholars. May be repeated for credit with topic change. Concurrently scheduled with course C220. Final project or paper required if taken for 4 units (P/NP or letter grading); 2-unit course has P/NP grading.

C159. Fieldwork in Archaeology. (2 to 12) Fieldwork, to be arranged. Participation in archaeological field excavations or museum research under supervision of staff archaeologists at UCLA. Minimum of one month of field time away from campus required. May be repeated for credit with consent of adviser. Concurrently scheduled with course C259. P/NP or letter grading.

C180. Ancient and Historic Metals: Corrosion, Technology, and Microstructure. (6) Seminar, four hours; laboratory, four hours. Overview of technology of ancient metals, aspects of extraction and alloying, corrosion that ancient metals undergo, and how this impacts their preservation. Exploration of knowledge and research work of last two decades that has substantially advanced understanding of processes of extraction, alloying, surface patination, metallic coatings, corrosion, and microstructure. Laboratory work in preparation and examination of metallic samples under microscope, as well as lectures on technology of metallic works of art. Discussion of phase and stability diagrams of common alloying systems and environments. Metallographic study samples represent Bronze Age Europe, Renaissance Europe, China from Warring States to Tang dynasty, Japanese sword-making, Indian high-tin bronze alloys, bronzes, Peruvian, Colombian, Costa Rican, and Panamanian copper and gold-copper alloys. Concurrently scheduled with course C280. Letter grading.

Graduate Courses

M201A-M201B. Graduate Core Seminars: Archaeology. (4-4) (Same as Anthropology M201A-M201B.) Seminar, three hours. Required of all students. Seminar discussions based on carefully selected list of 25 major works related to development of archaeology in social sciences (M201A) and humanities (M201B). Compulsory core seminars provide students with foundation in breadth of knowledge required of professional archaeologists. Archaeological historiography, survey of world archaeology, and archaeological techniques. Emphasis on appreciation of multidisciplinary background of modern archaeology and relevant interpretative strategies. May be repeated for credit with consent of adviser. S/U or letter grading.

M201C. Archaeological Research Design. (4) (Same as Ancient Near East M201.) Seminar, three hours. Requirements: courses M201A, M201B. How to design archaeological projects in preparation for MA thesis or PhD phase. Students do exploratory research to select subject, then write research design that could form basis for extensive paper, grant application, or oral examination. Students work closely with faculty members and report weekly on their

progress. Preparation of at least two oral progress-report presentations, one on theoretical framework and one on practical aspects of project. Final written research design that incorporates theoretical and practical aspects of research and formulates bridging arguments required. S/U or letter grading.

M205A. Selected Laboratory Topics in Archaeology. (4) (Same as Anthropology M212S.) Lecture, three hours. Designed for graduate students in archaeology or in other departments. Specialized analysis of particular classes of cultural remains. Topic may be one of following: zooarchaeology, paleoethnobotany, ceramics, lithic analysis, rock art. Laboratory experience with collections and data. May be repeated for credit with topic change. S/U or letter grading.

M205B. Intensive Laboratory Training in Archaeology. (6) (Same as Anthropology M212T.) Lecture, three hours; laboratory, two hours minimum. Advanced laboratory training for graduate students with extended laboratory hours. Special laboratory-based topics, including but not limited to lithic analysis, ceramic analysis, zooarchaeology, and paleoethnobotany. May be repeated for credit with topic change. S/U or letter grading.

C210. Archaeological Materials Identification and Characterization. (4) Lecture, one hour; laboratory, two hours. Laboratory-oriented introduction for archaeologists to identification and quantitative description of solid materials, especially metals, ceramics, and other inorganic and some organic substances. Concurrently scheduled with course C110. S/U or letter grading.

C220. Special Topics in Archaeology. (2 or 4) Lecture, three hours. Special topics on theoretical subjects in archaeology such as new strategies, regional synthesis, or current work by core program faculty or special visiting scholars. May be repeated for credit with topic change. Concurrently scheduled with course C120. Final project or paper required if taken for 4 units (S/U or letter grading); 2-unit course has S/U grading.

C259. Fieldwork in Archaeology. (2 to 12) Fieldwork, to be arranged. Participation in archaeological field excavations or museum research under supervision of staff archaeologists at UCLA. Minimum of one month of field time away from campus required. May be repeated for credit with consent of adviser. Concurrently scheduled with course C159. S/U or letter grading.

M265. Depositional History and Stratigraphic Analysis. (4) (Same as Ancient Near East M265.) Lecture, two hours. Theoretical understanding of depositional processes ("laws") which lead to site formation and of stratigraphic procedures to be used in recovery of embedded cultural materials. Study of issues covered in literature, with specific test cases from actual excavations and site reports. Coverage of theoretical implications of such disciplines as surveying and pedology with help of specialists. S/U or letter grading.

C280. Ancient and Historic Metals: Corrosion, Technology, and Microstructure. (6) Seminar, four hours; laboratory, four hours. Overview of technology of ancient metals, aspects of extraction and alloying, corrosion that ancient metals undergo, and how this impacts their preservation. Exploration of knowledge and research work of last two decades that has substantially advanced understanding of processes of extraction, alloying, surface patination, metallic coatings, corrosion, and microstructure. Laboratory work in preparation and examination of metallic samples under microscope, as well as lectures on technology of metallic works of art. Discussion of phase and stability diagrams of common alloying systems and environments. Metallographic study samples represent Bronze Age Europe, Renaissance Europe, China from Warring States to Tang dynasty, Japanese sword-making, Indian high-tin bronze alloys, bronzes, Peruvian, Colombian, Costa Rican, and Panamanian copper and gold-copper alloys. Concurrently scheduled with course C180. Letter grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Individual Studies for Graduate Students. (2 to 12) Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U or letter grading.

597. Preparation for PhD Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Preparation: completion of formal coursework, passing of language examinations before enrollment. May be repeated for credit with consent of adviser. S/U grading.

598. MA Paper Preparation. (2 to 12) Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U grading.

599. PhD Dissertation Research and Preparation. (2 to 12) Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U grading.

ARCHITECTURE AND URBAN DESIGN

School of the Arts and Architecture

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Hitoshi Abe, PhD, Chair

Professors

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Dana Cuff, PhD
Neil M. Denari, MArch
Diane G. Favro, PhD
Craig E. Hodgetts, MArch
Sylvia Lavin, PhD
Greg S. Lynn, MArch
Mark Mack, MArch
Thom Mayne, MArch
Ben J. Refuerzo, MArch

Professors Emeriti

Marvin Adelson, PhD
Samuel Aroni, PhD
Baruch Givoni, PhD
Thomas S. Hines, PhD
F. Eugene Kupper, MArch
Jurg Lang, DiplArch
Robin S. Liggett, PhD
Murray A. Milne, MArch
Barton Myers, MArch
George Rand, PhD
Dagmar E. Richter, DiplArch
Richard Schoen, MArch
Thomas R. Vreeland, Jr., MArch
Richard S. Weinstein, MA

Associate Professors

Jason K. Payne, MArch
Heather L. Roberge, MArch

Assistant Professor

Michael Osman, PhD

Adjunct Professors

Alan Locke, MSc
Roger Sherman, MArch

Adjunct Associate Professors

Jeffrey N. Inaba, MArch, MA
Kivi S. Sotamaa, MArch

Adjunct Assistant Professor

Georgina Huljich, MArch

Scope and Objectives

The Department of Architecture and Urban Design at UCLA offers a Bachelor of Arts degree in Architectural Studies and four graduate degree programs tailored to the needs of different groups of students: MArch I, MArch II, MA, and PhD.

The BA in Architectural Studies is a two-year program, with focus on the built environment. The curriculum visualizes architecture as a cultural, creative, and technical practice and a discipline with direct social impact. Within the context of a liberal arts education, a finely balanced set of architecture and urban design courses, ranging from the history and theory of design to contemporary building technologies, provides students with a diverse foundation of knowledge in the field of architecture and prepares them for graduate school and/or careers in a wide range of fields.

MArch I is a three-year first professional degree program accredited by the National Architectural Accrediting Board (NAAB). It does not assume any prior background in architecture. Students who do have some prior architecture background (e.g., a four-year undergraduate degree) may also enter the program and may petition to waive certain required courses and substitute more advanced electives in their place. MArch I graduates normally pursue professional careers in architectural practice.

MArch II is an advanced self-supporting professional degree program for students who already hold a first professional degree in architecture. It provides opportunities for intensive concentration in a variety of areas of professional specialization.

The MA and PhD degree programs provide opportunities to pursue research and scholarship in the field of architecture. Graduates typically pursue academic or applied research and consulting careers.

In the U.S. most state registration boards require a degree from an accredited professional degree program as a requisite for licensure. NAAB, the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees: Bachelor of Architecture and Master of Architecture. A program may be granted a five-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established standards. Master's degree programs may consist of a preprofessional undergraduate degree and a professional graduate degree which, when earned sequentially, comprise an accredited professional education. However, the preprofessional degree is not, by itself, recognized as an accredited degree.

Undergraduate Study

Architectural Studies BA

Admission

Students are admitted for fall quarter only. Admission is highly competitive, and only a limited number of students are admitted each year. UCLA students may apply for admission in fall quarter of their second year in residence, must have at least a 3.0 cumulative grade-point average, and are required to complete the Preparation for the Major courses, with grades of B or better, before applying for admission. Transfer students must have at least a 3.0 cumulative GPA and are expected to complete the Preparation for the Major courses during their first year in residence. All applicants must submit a statement of interest and a three- to six-page PDF of creative work. Applications are available in the department office to regularly enrolled UCLA students during the previous fall quarter. For further information, consult the undergraduate adviser.

Preparation for the Major

Required: Architecture and Urban Design 10A, 10B, 30.

The Major

Required: Architecture and Urban Design 121, 122, 123, 131, 132, 133, 141, 142, 143.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Architecture and Urban Design offers Master of Architecture I (MArch I) and Master of Architecture II (MArch II) degrees, and Master of Arts (MA) and Doctor of Philosophy (PhD) degrees in Architecture. A concurrent degree program (Architecture MArch I/Urban Planning MURP) and a Graduate Certificate in Urban Humanities are also offered.

Architecture and Urban Design

Lower Division Courses

1. Introduction to Design. (2 or 3) Studio/lecture/field trips, 40 hours. Limited to high school students. Two- or three-week intensive summer course in architectural design, with focus on developing design skills through space making and its representation. Exposure to contemporary architectural practices through studio work, lectures and presentations, field trips, and final demonstration, critique, and exhibition of student work. Offered only as part of Teen Arch Studio summer program. P/NP grading.

10A. History of Architecture and Urban Design: Prehistory to Mannerism. (5) Lecture, three hours; discussion, one hour; outside study, 11 hours. Developments in architecture and urban design from pre-history to 1600, constructing critical positions within

which implications of terms history, architecture, city, and culture can be explored. Focus on examples from Europe and Mediterranean Basin and periodic exploration of world context. P/NP or letter grading.

10B. History of Architecture and Urban Design: Baroque to Contemporary Moment. (5) Lecture, three hours; discussion, one hour; outside study, 11 hours. Survey of architectural and urban history from baroque to contemporary moment that covers significant buildings, spaces, artifacts, and theories of modernism. Architecture performs as reflection of cultural, sociopolitical, philosophical, and technological transformations in world history. Stylistic genres, applied terminology, seminal texts, and alternative historiographies that apply to design of built domain that ranges in scale from details to cities. While canon of Western tradition remains overall focus, weekly thematic categories provide variety of conduits for addressing architecture and urban design in global context. P/NP or letter grading.

30. Introduction to Architectural Studies. (5) Lecture, three hours; discussion, one hour; outside study, 11 hours. Exploration of role of built environment in social, cultural, and political life: how buildings are constructed, what they mean, effects they have on world, and ways they imagine new futures and shape private and public life. Focus on series of contemporary case studies for what each reveals about new possibilities for shaping world in which we live, with emphasis on how architecture extends to cities, roads, books, and films. Consideration of historical context and cultural genealogy of particular buildings and environments, material and economic conditions of building, and more. P/NP or letter grading.

Upper Division Courses

102. Introduction to Representation. (2) Studio, four hours; outside study, two hours. Limited to currently enrolled college/university students and graduates of colleges/universities. Introduction to techniques of spatial representation as they relate to architectural design. How to communicate using two- and three-dimensional drawing and modeling. Analog and digital techniques and opportunity afforded by moving between both. Analog techniques include orthographic and axonometric projection. Digital techniques focus on computer graphics fundamentals, including bit map and vector graphic imaging using Adobe suite and modeling using Rhinoceros. Offered in summer only. Letter grading.

103. Introduction to Architectural Design. (6) Studio, 18 hours. Limited to currently enrolled college/university students and graduates of colleges/universities. Introduction to basic architectural design principles and problem solving. How to control point, line, surface, and volume to shape spaces for human use. Visual analysis as tool for discussing and understanding organization. Techniques of repetition, variation, order, scale, and rhythm. Use of case-study analysis to uncover disciplinary issues within design problems and production of individual solutions to problems. Offered in summer only. Letter grading.

121. Studio I. (6) Studio, eight hours; outside study, 10 hours. Limited to Architectural Studies majors. Introduction to basic architectural design principles and problem solving: how to control point, line, surface, and volume to shape spaces for human use. Visual analysis as tool for discussing and understanding organization. Techniques of repetition, variation, order, scale, and rhythm. Use of case-study analysis to uncover disciplinary issues within design problems, as well as to produce individual solutions to those problems. Letter grading.

122. Studio II. (6) Studio, eight hours; outside study, 10 hours. Enforced requisite: course 121. Limited to Architectural Studies majors. Issues of inhabitation, domesticity, and program. Architectural precedents and principles of spatial organization. Relationship of architectural form to human body and role of architectural space in choreography of human activity. Understanding and application of knowledge of architectural tectonics, structure, and measurement. Letter grading.

123. Studio III. (6) Studio, eight hours; outside study, 10 hours. Enforced requisites: courses 121, 122. Limited to Architectural Studies majors. Introduction to disciplinary issues, techniques, and organizations of landscape and how those can influence design of building and site. Development of material and temporal characteristics of architecture relative to role those play in landscape. Introduction to issues of accessibility and egress as systems of movement. Structure as serial component that relates to site, construction, topography, climatology, accessibility, and their mutual interaction. Letter grading.

M125B. Digital Cultural Mapping Core Course B: Google Earth, Geographic Information Systems, Hypercities, and Timelines. (4) (Same as Ancient Near East M125B.) Laboratory, three hours; discussion, one hour. Enforced requisite: Ancient Near East 125A. Hands-on laboratory-based investigation of emerging digital mapping technologies, including instruction in Web-based mapping applications, virtual globes, and geographic information systems (GIS). Critique and creation of maps of cultural phenomena, applying skills learned in Ancient Near East 125A to real-world data sets in humanities and social sciences. By mastering emerging technologies in field of digital cultural mapping, students take part in evaluation and production of sophisticated visual representations of complex data, becoming active participants in development of this new field. How to use suite of GIS and neogeography tools. Fostering of creative approaches to and engagement with mapping technologies: What new questions can be asked and answered using these technologies? How does one reason, argue, and solve real-world problems through digital cultural mapping? Design, development, and implementation of student mapping-based research projects. Part of Digital Cultural Mapping Project supported by W.M. Keck Foundation. P/NP or letter grading.

M125C. Digital Cultural Mapping Core Course C: Summer Research. (4) (Same as Ancient Near East M125C.) Laboratory, three hours; fieldwork, one hour. Enforced requisite: course M125B or Ancient Near East M125B. Participation in collaborative geographic information systems (GIS) research project in humanities or social sciences using skills learned in courses 125A and M125B. Gathering and input of datasets from real-world sources, creating visual representations of data through production of digital maps, and performing analysis of larger dataset to answer specific research questions. Final oral presentation required that details student work and provides critical analysis of source material and technological/methodological issues inherent to type of GIS used for investigation. Part of Digital Cultural Mapping Project supported by W.M. Keck Foundation. Offered in summer only. P/NP or letter grading.

M130. Space and Place. (4) (Same as World Arts and Cultures M130.) Lecture, three hours. Survey of array of spaces and places from cross-cultural or comparative perspective and with performance emphasis, with focus on mutual interaction of human beings and their created environments. Emphasis on common, ordinary, anonymous, or vernacular non-built and built environments, that are built and used by members of small-scale, traditional, and transitional communities around world. P/NP or letter grading.

131. Issues in Contemporary Design. (5) Lecture, three hours; outside study, 12 hours. Limited to Architectural Studies majors. How global design culture today operates as part of set of spatial, economic, political, and social discourses. From development of cities to new formal languages in architecture, consequences of fact that great percentage of our lives is spent in controlled designed environments, including role that research and interdisciplinarity play today in influencing design ideas and processes, as well as how design is influenced by technology and new urban conditions. Letter grading.

132. Domestic Architecture: Critical History. (5) Lecture, three hours; outside study, 12 hours. Limited to Architectural Studies majors. Investigation of relationship between culture and design through medium

of domestic architecture, from communal living arrangements of antiquity to functional and automated ideals of modern movement. Exploration of how design of domestic interior has evolved to express and accommodate corresponding developments in life-style and taste. Letter grading.

133. Modernism and Metropolis. (5) Lecture, three hours; outside study, 12 hours. Limited to Architectural Studies majors. Introduction to emergence of contemporary metropolis through series of comparative urban explorations that begin in Los Angeles and extend to engage range of cities, including key examples from Asia to South America. Modern project can be seen in myriad forms across globe, so that city and suburb, taken together, exist in complex commingling of aesthetic, political, spatial, economic, technological, and social issues. Letter grading.

141. Technology I: Projections. (5) Laboratory, four hours; outside study, 11 hours. Limited to Architectural Studies majors. Introduction to techniques of spatial representation as they relate to architectural design. How to communicate using two- and three-dimensional drawing and modeling. Analog and digital techniques and opportunity afforded by moving between both. Analog techniques include orthographic and axonometric projection. Digital techniques focus on computer graphics fundamentals, including bit map and vector graphic imaging using Adobe suite and modeling using Rhinoceros. Letter grading.

142. Technology II: Building Materials and Methods. (5) Laboratory, four hours; outside study, 11 hours. Limited to Architectural Studies majors. Introduction to construction systems and materials in relation to design, such as framed, bearing wall, or hybrid systems. Graphic conventions and organization of construction documents. Letter grading.

143. Technology III: Digital Technology. (5) Laboratory, four hours; outside study, 11 hours. Limited to Architectural Studies majors. Overview of three-dimensional computer-aided visualization concepts, teaching applications of AutoCAD and Maya and their use relative to process of design and visual communication. Basic representation methods and tools and introduction to additional concepts required to dynamically interact with computer and to explore and understand communicative capacities of different methods of representation. Explanation of bitmap versus vector graphics, typography basics, and color output and integration for print and Web, and introduction to three-dimensional digital modeling and fabrication. Letter grading.

CM153. Introduction to Sustainable Architecture and Community Planning. (4) (Same as Environment M153.) Lecture, three hours. Relationship of built environment to natural environment through whole systems approach, with focus on sustainable design of buildings and planning of communities. Emphasis on energy efficiency, renewable energy, and appropriate use of resources, including materials, water, and land. Concurrently scheduled with course CM247A. Letter grading.

199. Directed Research or Senior Project in Architecture and Urban Design. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M201. Theories of Architecture. (4) (Same as Urban Planning M201.) Lecture, three hours. Exploration of conceptual and historical structures that shape current issues in architectural theory. Readings in primary texts serve as framework for understanding nature of speculative inquiry in architectural context. Letter grading.

220. Introduction to Computers. (2) Lecture, 90 minutes; laboratory, 90 minutes; outside study, three hours. Introduction to basic concepts, skills, and theoretical aspects of computer-aided architecture design microcomputer skills. Applications selected

are commonly found in professional offices. Two- and three-dimensional representation (i.e., painting, drafting, multimedia, hypermedia, and modeling). Letter grading.

226C. Computer Visualization. (4) Lecture, three hours. Designed for graduate students. Concept and techniques of computer visualization of artifacts, including realistic rendering and animation. Letter grading.

M227A. Programming Computer Applications in Architecture and Urban Design. (4) (Same as Design | Media Arts M241.) Lecture, three hours; outside study, nine hours. Introductory course in logic of computing through experiments in computer graphics programming. Investigation of both procedural and object-oriented approaches to programming. May be repeated for credit with consent of adviser. S/U or letter grading.

M227B. Introduction to Geometric Modeling. (4) (Same as Design | Media Arts M242.) Lecture, three hours; outside study, nine hours. Requisite: course M227A. Survey of geometric and three-dimensional modeling, with emphasis on implementation of three-dimensional solids constructions and editing operations. Basic representations and operations on shapes and solids. May be repeated for credit with consent of adviser. S/U or letter grading.

M227C. User Interaction Techniques in Design. (4) (Same as Design | Media Arts M243.) Lecture, three hours; outside study, nine hours. Requisite: course M227A or knowledge of C++ programming language. Programming techniques for implementing modern computer-user interfaces, specifically looking at issues relevant to building software tools for computer-aided problem solving in architecture and design. May be repeated for credit with consent of adviser. S/U or letter grading.

227D. Design and Building Models. (4) Lecture, three hours. Review of range of information and knowledge potentially used in design. Knowledge representation, abstractions, and constructs. Logical structure of design information. Development of knowledge used in areas of design, how it can be identified, analyzed, and structured. Letter grading.

CM247A. Introduction to Sustainable Architecture and Community Planning. (4) (Same as Urban Planning M291.) Lecture, three hours. Relationship of built environment to natural environment through whole systems approach, with focus on sustainable design of buildings and planning of communities. Emphasis on energy efficiency, renewable energy, and appropriate use of resources, including materials, water, and land. Concurrently scheduled with course CM153. Letter grading.

M271. Elements of Urban Design. (4) (Same as Urban Planning M292.) Lecture, three hours. Introduction of basic knowledge of elements and methods of urban design. Multidisciplinary approach leading to understanding of political, socioeconomic, and technological framework of urban systems and its dynamic interrelations. S/U or letter grading.

M272. Real Estate Development and Finance. (4) (Same as Urban Planning M272.) Lecture, two hours; workshop, two hours; outside study, eight hours. Requisites: Urban Planning 220A, 220B. Introduction to real estate development process specifically geared to students in planning, architecture, and urban design. Financial decision model, market studies, designs, loan packages, development plan, and feasibility studies. Lectures and projects integrate development process with proposed design solutions that are interactively modified to meet economic feasibility tests. S/U or letter grading.

286. Roman Architecture and Urbanism. (4) Lecture, three hours. Examination of architectural and urban developments during Roman period, from archaic age to late Empire. Built environments of ancient world investigated from various perspectives, with consideration to programming, symbolism, and viewing, as well as to technological, aesthetic, and political factors. S/U or letter grading.

288. Renaissance Architecture and Urbanism. (4) Lecture, three hours. Examination of architectural developments from 15th to 17th century. Primary focus on Italian peninsula, and extending to entire Mediterranean basin. Analysis of individual structures, cities, and landscape designs to reveal changing cultural and theoretical values, as well as specific aesthetic and iconographic content. S/U or letter grading.

289. Special Topics in Architecture and Urban Design. (2 to 4) Lecture, two hours; discussion, two hours. Selected academic topics initiated by students, student teams, or faculty and directed by faculty member. May be repeated for credit. S/U or letter grading.

290. Special Topics in Critical Studies in Architectural Culture. (5) Lecture, three hours; discussion, one hour; outside study, 11 hours. Designed for graduate students. Exploration of how architecture operates in relation to wider cultural, historical, and theoretical issues. May be repeated for maximum of 30 units. Letter grading.

291. Theory of Architectural Programming. (4) Lecture, three hours. Exploration of concepts and methods of architectural programming and its interrelation to design process; planning of design process; various techniques for determination of program contents, basic conditions, resources, and constraints; identification of solution types for given situations. S/U or letter grading.

M293. Politics, Ideology, and Design. (4) (Same as Urban Planning M293.) Lecture, three hours. Exploration of cultural and political context of architecture and planning work. Examination of theory and practice from variety of perspectives applied to set of varied physical environments and to set of current spatialized concepts. Consideration of theoretical propositions that are shaping present urban and architectural debate and concrete case studies where politics and ideology shape design process. Letter grading.

294A-294B. Environmental Psychology. (4-4) Lecture, three hours. Introduction to models, concepts, and theories concerning impact of environment on human behavior, perception, and thought. Review of research results concerning space perception, cognitive mapping, preferences and attitudes toward environment, effects of crowding and stress, personal space and territoriality. S/U or letter grading.

M295. Introduction to Urban Humanities. (4) (Same as Urban Planning M295.) Seminar, six hours; studio, six hours. Core introduction to urban humanities. Analytical and descriptive methods of humanities paired with speculative and projective methods of architectural and urban design to better understand contemporary state of human environment. Focus on Los Angeles, with concepts seminar, methods laboratory, projects studio, and site visit components. Offered in summer only. S/U or letter grading.

296. Proseminar: Critical Studies in Architectural Culture. (4) Seminar, three hours. Orientation for PhD students to tradition of architectural theory, scholarship, and research and to current research directions and questions, through intensive reading and critical discussion. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

401. Advanced Topics Studio. (6) Studio, 12 hours; outside study, six hours. Preparation: satisfactory completion of intermediate-level studios (courses 412, 413, 414) or MArch II student. Students may choose (through lottery) from several different projects focusing on special topics in architectural and urban design to be offered by faculty members. May be repeated for credit. Letter grading.

402. Final Advanced Topics Studio. (6) Studio, 12 hours; outside study, six hours. Preparation: satisfactory completion of intermediate- and advanced-level studios for MArch I students; satisfactory completion

of advanced-level studios and fourth-term standing for MArch II students. Students may choose (through lottery) from several different advanced studio projects focusing on special topics in architectural and urban design to be offered by faculty members. Exit document (analytic paper with graphic component that critically examines final student design work) required at completion of course. Letter grading.

403A-403B-403C. Research Studios. (2-2-6) For courses 403A, 403B: seminar, three hours; outside study, three hours; for course 403C: studio, 12 hours; outside study, six hours. Preparation: satisfactory completion of intermediate-level studios (courses 412, 413, 414, 415) or MArch II student. Course 403A is requisite to 403B, which is requisite to 403C. In-depth research phase (courses 403A, 403B) and advanced studio project (course 403C), with focus on number of different special topics in architecture and urban design. In Progress (403A, 403B) and letter (403C) grading.

M404. Joint Planning/Architecture Studio. (4) (Same as Urban Planning M404.) Lecture, one hour; discussion, one hour; studio, four hours. Opportunity to work on joint planning/architecture project for client. Outside speakers; field trips. Examples of past projects include Third Street Housing, Santa Monica; New American House for nontraditional households; Pico-Aliso Housing, Boyle Heights; working with resident leaders at Los Angeles City public housing developments. S/U or letter grading.

411. Introductory Design Studio. (6) Studio, 12 hours; outside study, six hours. Introduction to sketching, drawing, perspectives, CAD. Architectural composition is initially studied in terms of its separate elements. After each is studied by means of manipulative exercise that allows for experimentation of its intrinsic possibilities, students undertake series of closely controlled exercises dealing with combining elements and then design small buildings. Letter grading.

412. Building Design Studio. (6) Studio, 12 hours; outside study, six hours. Requisite: course 411. Concentration on basic skills, leading to projects exploring architectural program in relation to design process and, particularly, implications of program on architectural forms and concepts. In second phase, introduction of structural elements to fulfill program requirements and to support and further develop intended forms and concepts. Letter grading.

413. Building Design with Landscape Studio. (6) Studio, 12 hours; outside study, six hours. Requisite: course 412. Introduction to theoretical and technical issues such as site planning, urban design, landscape design, building typology. Building design and site planning in relation to water, landforms, and plants in natural light, heat, and ventilation. Letter grading.

414. Major Building Design Studio. (6) Studio, 12 hours; outside study, six hours. Requisite: course 413. Designed for second-year graduate students. Introduction to issues such as programming and program manipulation, site planning, urban design, and integration of technical systems and architectural expression. Emphasis either on treatment in breadth of large-scale projects or exploration in depth and detail of smaller-scale projects. Students learn to integrate structure and environmental control and to present their ideas in graphic or model form. Letter grading.

415. Comprehensive Studio. (6) Studio, 12 hours; outside study, six hours. Requisite: course 414. Culmination of core sequence (courses 411 through 414), with focus on development phase of project. Technical concerns such as lighting, material innovation, sustainability, construction documents, and building envelopes to be considered critical to generation of architectural form, integrated in design of single building project. Letter grading.

431. Structures I. (4) Lecture, three hours. Preparation: basic algebra, geometry, trigonometry. Introduction to structural behavior and structural statics. Operations with forces and factors, both algebraically and graphically. Equilibrium of force systems; polygon of forces and funicular polygon. Internal actions; axial

force and bending moment. Reactions, stability, and statical determinacy. Determinate frames. Plane trusses; analysis and design. S/U or letter grading.

432. Structures II. (4) Lecture, three hours. Requisite: course 431. Mechanics of structures and structural elements. Elastic materials: stress, strain, and stress-strain relations. Theory of bending: curvature, stress and strain distributions, centroid, moments of inertia, resisting and plastic moments. Design of beams for bending, shear, and deflections. Torsion members. Instability and design of columns. Design for combined bending and compression. Tensile structures; cables, pneumatic structures. Slabs and plates; shells and folded plates. S/U or letter grading.

433. Structures III. (4) Lecture, three hours. Requisite: course 432. Introduction to statically indeterminate analysis. Structural materials and loads. Wind loads: distribution with height, design for comfort, structure behavior under lateral loads. Steel construction and concepts for high-rise structures. Structural case studies in timber and steel. Introduction to earthquakes: seismology, magnitude, intensity, history. Seismic instrumentation. Case studies of recent earthquakes and damage. Earthquake design concepts and seismic code requirements. S/U or letter grading.

436. Introduction to Building Construction. (2) Laboratory, two hours; outside study, four hours. Introduction to construction techniques. Study of physical principles and materials for making architecture through series of exercises and field trips. Letter grading.

437. Building Construction. (4) Laboratory, four hours; outside study, eight hours. Principles of structure and enclosure, with focus on production and materials research. Exploration of building elements for formal and functional properties; in addition, design development of project in previous studio may be developed in detail with integration of range of technical systems. Letter grading.

441. Environmental Control Systems. (4) Lecture, four hours. Design of mechanical systems necessary for functioning of large buildings: air handling, fire and life safety, plumbing, vertical and horizontal circulation, communication and electrical power distribution, analysis of interaction of these systems and their integrated effects on architectural form of building. S/U or letter grading.

442. Building Climatology. (4) Lecture, four hours. Preparation: basic physics. Design of buildings that specifically respond to local climate; utilization of natural energies, human thermal comfort; sun motion and sun control devices; use of plant materials and landform to modify microclimate. S/U or letter grading.

461. Architectural Practice. (4) Lecture, three hours. Historical development of profession; role of architect in contemporary society, current forms of practice and emerging trends. Contractual relationships, ethical responsibility, office management and promotion. Case studies of practical process. S/U or letter grading.

496. Special Projects in Architecture. (2 to 8) Tutorial, to be arranged. Projects initiated either by individual students or student teams and directed by faculty member. May be repeated for credit. S/U or letter grading.

497. Special Projects in Urban Design. (2 to 8) Tutorial, to be arranged. Projects initiated either by individual students or student teams and directed by faculty member. May be repeated for credit. S/U or letter grading.

498. Comprehensive Examination Seminar. (4) Seminar, three hours; outside study, nine hours. Seminar intended to begin process of developing independent proposal with related research and documentation that moves toward production of final document or book for each project. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor,

department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Research and Study in Architecture and Urban Design. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U grading.

597. Preparation for Comprehensive Examination or PhD Qualifying Examinations. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U grading.

598. Preparation in Architecture/Urban Design for Master's Thesis. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U grading.

599. PhD Dissertation Research in Architecture. (2 to 8) Tutorial, to be arranged. Limited to doctoral students. May be repeated for credit. S/U grading.

manent collection such examples as may be selected.

Additionally, the Department of Art reserves the right to use documentation and reproductions of student art work from studio courses, student exhibitions, and other records of creative work in publications including, but not limited to, the undergraduate and graduate brochures and publications, department and school websites, and presentations and events related to student recruitment and outreach.

Undergraduate Study

The Art major is a designated capstone major. As part of the upper division advanced studio requirements, all undergraduate students are required to complete a senior studio course that emphasizes analysis and criticism of individual creative work and ideas. Students develop and present a body of creative work in which they exhibit familiarity with and competence in a range of techniques and media, and a level of proficiency in utilizing particular media appropriate to advanced-level studio projects. Graduates are expected to demonstrate familiarity with historical precedents for and issues in contemporary art, to understand terms and concepts relevant to contemporary art discourse, and to have the ability to effectively articulate analysis of works of art to participate in a studio critique.

Art BA

Capstone Major

Preparation for the Major

Required: Art 1A, 1B, 11A, 11B, 11D, 11E, 31A, 31B, 31C, and one course from Art History 20 through 31.

The Major

Required: A minimum of nine upper division courses, including Art 100 or 132 or one course from an approved list of upper division nonmajor courses, six courses from at least four of the following studio areas: 130, 133, 137, 140, 145, 147, 148, one course from Art History M110A through 185, one capstone senior studio course (Art 150), and 8 units of art electives.

Each course applied toward major requirements must be taken for a letter grade, with the exception of Art 190, 193, and 195, which are offered only on a Passed/Not Passed grading basis. Of those, no more than 4 units total may be applied toward the upper division art elective requirement.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

ART

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Russell Ferguson, MA
Andrea Fraser
Roger R. Herman, MFA
Mary Kelly, MA
Barbara Kruger
Catherine S. Opie, MFA
Hirsch Perlman, BA
Lari G. Pittman, MFA
Adrian A. Saxe, BFA
Patty A. Wickman, MFA

Professors Emeriti

Raymond B. Brown, MA
Paul D. McCarthy, MFA
Charles R. Ray, MFA
Nancy J. Rubins, MFA
James Welling, MFA

Associate Professors

Rodney T. McMillian, MFA
Silke Otto-Knapp, MFA

Lecturer

Jacob M. Samuel, BFA

Scope and Objectives

The Department of Art offers professional art training that emphasizes experimentation and encourages students to draw from many disciplines in their creative process. The department provides a strong background in theory and criticism to support contemporary studio practice. Bachelor of Arts degree coursework and Master of Fine Arts degree specializations include ceramics, new genres, painting and drawing, photography, and sculpture. An interdisciplinary studio option is offered within the MFA program. All programs have access to the art resources at UCLA and in the Los Angeles community.

The Department of Art reserves the right to hold for exhibition purposes examples of any work done in classes and to retain for the per-

Graduate Degrees

The Department of Art offers the Master of Fine Arts (MFA) degree in Art.

Art

Lower Division Courses

1A. Drawing. (4) Studio, eight hours; five hours arranged. Course in basic drawing skills intended as preparation for work in variety of media. P/NP or letter grading.

1B. Sculpture. (4) Studio, eight hours; five hours arranged. Introduction to concepts and forms of contemporary sculpture to become familiar with tools and material to enable students to visually manifest their individual ideas. Presentation of work of contemporary artists. P/NP or letter grading.

11A. Painting. (4) Studio, eight hours; five hours arranged. Basics of painting; introduction to technical procedures, tools, and materials. Discussion of fundamental conceptual and formal concerns. P/NP or letter grading.

11B. Photography. (4) Studio, eight hours; five hours arranged. Fundamentals in technique, with emphasis on individual projects. Varied approaches, processes, and applications of photographic medium within context of art, supported by studies in theory, aesthetics, and history of photography. P/NP or letter grading.

11C. Printmaking. (4) Studio, eight hours; five hours arranged. Introductory survey of various technical and conceptual concerns in variety of printmaking media as preparation for more focused study in particular media at upper division level. P/NP or letter grading.

11D. New Genres. (4) Studio, eight hours; five hours arranged. Introduction to projects in installation, performance, video, film, intermedia, and other nontraditional media and processes. P/NP or letter grading.

11E. Ceramics. (4) Studio, eight hours; five hours arranged. Introduction to ceramic materials and processes, with emphasis on personal and cultural expression in ceramic media. Discussion of ceramics in contemporary artistic practice and social history of ceramic art. Letter grading.

20. Production. (2) Studio, four hours. Limited to Art majors. Instruction in production techniques and processes, including basics of recording still images, moving images, and sound. Discussion of professional setups and standard practices as well as alternatives. Editing of still images, moving images, and sound. Review of use of tools, software, workflow, storage, and output modalities. Letter grading.

31A. Modernism. (5) Lecture, three hours; discussion, one hour; field trips, three hours. Impact of modernist thought on art and society from mid-19th through early-20th centuries. Exploration of origins, development, theory, and practice of modernism in Europe and U.S. Letter grading.

31B. Modernism. (5) Lecture, three hours; discussion, one hour; field trips, three hours. Art majors should complete courses 31A, 31B, and 31C in sequence in first year. Continuation of impact of modernist ideas through mid-20th century, with focus primarily on work made from 1920s to 1960s. Letter grading.

31C. Modernism. (5) Lecture, three hours; discussion, one hour; field trips, three hours. Art majors should complete courses 31A, 31B, and 31C in sequence in first year. Continuation of impact of modernist ideas through latter part of 20th century, covering shift from modernist to postmodernist practices and theories, with focus on work made from 1960s to present. Letter grading.

70. Summer Art Institute: Special Topics in Studio. (3) Studio/lecture/field trips, 45 hours. Limited to high school students in Summer Art Institute. Two-week intensive in studio art covering range of media and contemporary art practices and combination of focused studio work, lecture/presentations, field trips,

critiques, and final exhibition of student work. Offered only as part of Summer Institute. May be repeated once for credit. P/NP grading.

Upper Division Courses

100. Issues in Contemporary Art. (5) Lecture, three hours; discussion, one hour; screenings/research, 11 hours. Requisites: courses 31A, 31B, 31C. Selected topics in theoretical, critical, aesthetic, and historical studies and their relevance to practicing artists. May be repeated for maximum of 20 units. Letter grading.

130. Advanced Drawing. (5) Studio, eight hours; seven hours arranged. Requisite: course 1A. Drawing as both independent expressive medium and as means of visualization. May be repeated for maximum of 20 units. Letter grading.

132. Survey of Critical Thought. (5) Lecture, three hours; discussion, one hour; screenings/research, 11 hours. Requisites: courses 31A, 31B, 31C. Overview of premodern, modern, and postmodern theory as reflected in critical writing and artistic practice, with emphasis on 1940s to present. Specific topics may vary. May be repeated for maximum of 20 units. Letter grading.

133. Advanced Painting. (5) Studio, eight hours; seven hours arranged. Requisite: course 11A. Varied media and subjects to further develop students' technical and expressive means to implement their ideas. May be repeated for maximum of 20 units. Letter grading.

137. Advanced New Genres. (5) Studio, eight hours; seven hours arranged. Requisite: course 11D. Emphasis to be selected by faculty members from one or more of following media: installation, performance, video, film, other nontraditional media and processes. May be repeated for maximum of 20 units. Letter grading.

140. Advanced Printmaking. (5) Studio, eight hours; seven hours arranged. Requisite: course 11C. Selected studies in fine printmaking, historical and contemporary: woodcut, etching and engraving, lithography, silk screen, mixed media. May be repeated for maximum of 20 units. Letter grading.

145. Advanced Sculpture. (5) Studio, eight hours; seven hours arranged. Requisite: course 1B. Selected studies in sculpture, historical and contemporary: modeling, carving, casting, welding, and other media; forms in space, including installations and nonstudio pieces. May be repeated for maximum of 20 units. Letter grading.

147. Advanced Photography. (5) Studio, eight hours; seven hours arranged. Requisite: course 11B. Selected projects in photography and related media, concentrating on development of individual students' artwork. Studio emphasis with special topics in theory and critical analysis. May be repeated for maximum of 20 units. Letter grading.

148. Advanced Ceramics. (5) Studio, eight hours; seven hours arranged. Requisite: course 11E. Selected studies in ceramics, with emphasis on individualized creative experimentation with materials and techniques introduced in course. Methods and processes to be selected from range of possibilities, including handforming and modeling, preparation and use of molds, slipcasting, and use of potter's wheel. May be repeated for maximum of 20 units. Letter grading.

150. Senior Studio. (5) Studio, eight hours; seven hours arranged. Limited to seniors. Advanced studio projects, with emphasis on analysis and criticism of individual creative work and ideas. Letter grading.

170. Special Topics in Studio. (2 to 4) Studio/museum visits, four to eight hours; two to four hours arranged. Current themes in art theory, practice, and criticism, offering students opportunity to explore these issues in studio context through critique of work and discussion of recommended readings. May be repeated for maximum of 16 units. P/NP or letter grading.

C180. Seminar: Art. (4) Seminar, three hours. Limited to junior/senior Art majors. Advanced topics in critical theory and study of contemporary art, with emphasis

on individuals, issues, and methodologies. Possible areas of study from structuralism, deconstruction, feminist and psychoanalytic theory, commodification, and censorship. May be repeated for credit. Concurrently scheduled with course C280. Letter grading.

C181. Exhibition and System. (4) Seminar, four hours. Preparation: at least one course from 100 through 150. Examination of temporary exhibition and its associated field of publications as intertextual system of meaning, beginning with individual works and proceeding to on-site analysis of current exhibitions. Concurrently scheduled with course C281. Letter grading.

C182. Exhibitions and Public Programs. (4) Seminar, four hours. Preparation: at least one course from 100 through 150. Introduction to principles of program planning and community development in relation to visual arts and work of art museums. Concurrently scheduled with course C282. Letter grading.

C183. Special Topics in Art. (2 or 4) Seminar, six hours (2-unit course) or 12 hours (4-unit course). Preparation: at least one course from 100 through 150. Selected topics in art explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for credit. Concurrently scheduled with course C283. Letter grading.

M184. Chicana Art and Artists. (4) (Same as Chicana and Chicano Studies M175 and World Arts and Cultures M128.) Lecture, four hours. Introduction to Chicana art and artists. Examination of Chicana aesthetic. Chicana artists have developed unique experience and identity as artists and Chicanas. Letter grading.

M185. Whose Monument Where: Course on Public Art. (4) (Same as Chicana and Chicano Studies M185 and World Arts and Cultures M126.) Lecture, four hours. Recommended corequisite: course M186A, M186B, or M186C. Examination of public monuments in U.S. as basis for cultural insight and critique of American values from perspective of artist. Use of urban Los Angeles as textbook in urban space issues such as who is public, what is public space at end of 20th century, what defines neighborhoods, and do different ethnic populations use public space differently. P/NP or letter grading.

M186A. Beyond Mexican Mural: Beginning Muralism and Community Development. (4) (Same as Chicana and Chicano Studies M186A and World Arts and Cultures M125A.) Studio/lecture, four hours. Corequisite: course M186AL. Investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. P/NP or letter grading.

M186AL-M186BL-M186CL. Beyond Mexican Mural: Muralism and Community Laboratory. (4-4-2) (Same as Chicana and Chicano Studies M186AL-M186BL-M186CL and World Arts and Cultures M125AL-M125BL-M125CL.) Course M186AL is requisite to M186BL, which is requisite to M186CL. Mural and Digital Laboratory is art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in community-based setting. Open to students during scheduled hours with laboratory tech support, it offers instruction as students independently and in collaborative teams research, design, and produce large-scale painted and digitally generated murals to be placed in community setting. P/NP or letter grading. **M186AL.** Beginning. Laboratory, four hours. Corequisite: course M186A; **M186BL.** Intermediate. Laboratory, four hours. Requisites: courses M186A, M186AL. Corequisite: course M186B; **M186CL.** Advanced. Laboratory, two hours. Corequisite: course M186C.

M186B. Beyond Mexican Mural: Intermediate Muralism and Community Development. (4) (Same as Chicana and Chicano Studies M186B and World Arts and Cultures M125B.) Studio/lecture, four hours. Requisites: courses M186A, M186AL. Corequisite: course

M186BL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through states of production to full scale and community approval. P/NP or letter grading.

M186C. Beyond Mexican Mural: Advanced Muralism and Community Development. (4) (Same as Chicana and Chicano Studies M186C and World Arts and Cultures M125C.) Studio/lecture, six hours. Requisites: courses M186B, M186BL. Corequisite: course M186CL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through installation, documentation, and dedication, with work on more advanced independent projects. P/NP or letter grading.

C187. Contemporary Art Collections in Los Angeles. (2) Seminar, three hours; outside study, three hours. Limited to junior/senior Art majors. Exploration of critical issues regarding concept of collections and collecting. Visits to institutions and collections and discussion of vision, goals, and scope of collections, as well as individual works. Concurrently scheduled with course C287. Letter grading.

190. Studio/Research Colloquia in Art. (1) Seminar, three hours. Corequisite: course 197 or 198. Limited to juniors/seniors. Designed to bring together students undertaking supervised tutorial studio projects or research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for maximum of 4 units. P/NP grading.

193. Journal Club Seminars: Current Topics in Art. (1) Seminar, three hours. Limited to junior/senior Art majors. Discussion of selected current exhibitions, visiting artist lectures, screenings, and readings in field. May be repeated for credit. P/NP grading.

195. Community Internships in Art. (2 to 4) (Formerly numbered 195A.) Tutorial, six to 12 hours. Limited to juniors/seniors. Art-related internship in supervised setting in community agency, business, or institution. Students meet on regular basis with instructor and provide periodic reports of their experience. Only 4 units may be applied toward upper division art elective major requirement. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP grading.

197. Individual Studies in Art. (2 to 4) Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Corequisite: course 190. Limited to junior/senior Art majors. Individual intensive studio project or study, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of project or mastery of subject matter required. May be repeated for maximum of 8 units. Individual contract required. Letter grading.

198. Honors Research in Art. (2 to 4) Tutorial, to be arranged. Preparation: 3.0 grade-point average overall, 3.5 grade-point average in major. Corequisite: course 190. Limited to junior/senior Art majors. Development and completion of comprehensive research or studio project under direct supervision of faculty member. May be repeated for maximum of 8 units. Individual contract required. Letter grading.

Graduate Courses

271. Graduate Painting. (2 to 8) Studio, eight hours. Study in painting and associated media. May be repeated for credit with consent of adviser. Letter grading.

272. Graduate Printmaking. (2 to 8) Studio, eight hours. Studies in traditional and experimental printmaking. Selected studies in intaglio, lithograph,

woodcut, silk screen, photo printmaking, and mixed media. May be repeated for credit with consent of adviser. Letter grading.

273. Graduate Sculpture. (2 to 8) Studio, eight hours. Studies in sculpture with specific attention to ongoing nature, specificity, and approach to each student's particular discipline. Individual studio visits and consultation. May be repeated for credit with consent of adviser. Letter grading.

274. Graduate Photography. (2 to 8) Studio, eight hours. Studies concentrating on development of individual students' artwork. Studio emphasis with adjacent studies in theoretical and critical analysis. Specific attention to original, expressive, social, and humanistic values of art. May be repeated for credit with consent of adviser. Letter grading.

275. Graduate New Genres. (2 to 8) Studio, eight hours. Studies in alternative media, including installation, performance, video, film, and other nontraditional media and processes. May be repeated for credit with consent of adviser. Letter grading.

276. Graduate Group Critique. (4) Discussion, four hours; tutorial, to be arranged. Group critique/discussion of students' research. Additional tutorial meetings by arrangement with instructor. May be repeated for credit. Letter grading.

277. Graduate Ceramics. (2 to 8) Studio, eight hours. Studies in ceramics and art with investigation of traditional and experimental processes and intellectual approaches to art practice utilizing ceramic media. Emphasis on development of significant body of original work reflecting student's expressive and theoretical concerns. May be repeated for credit. Letter grading.

278. Interdisciplinary Studio. (2 to 8) Studio, eight hours. Tutorial focused on directed research, studio visits, and group discussions of recommended readings. May be repeated for credit. S/U or letter grading.

C280. Seminar: Art. (4) Seminar, three hours. Advanced topics in critical theory and study of contemporary art, with emphasis on individuals, issues, and methodologies. Possible areas of study from structuralism, deconstruction, feminist and psychoanalytic theory, commodification, and censorship. May be repeated for credit. Concurrently scheduled with course C180. Letter grading.

C281. Exhibition and System. (4) Seminar, four hours. Examination of temporary exhibition and its associated field of publications as intertextual system of meaning, beginning with individual works and proceeding to on-site analysis of current exhibitions. May be repeated for credit. Concurrently scheduled with course C181. Letter grading.

C282. Exhibitions and Public Programs. (4) Seminar, four hours. Introduction to principles of program planning and community development in relation to visual arts and work of art museums. May be repeated for credit. Concurrently scheduled with course C182. Letter grading.

C283. Special Topics in Art. (2 or 4) Seminar, six hours (2-unit course) or 12 hours (4-unit course). Selected topics in art explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for credit. Concurrently scheduled with course C183. Letter grading.

C287. Contemporary Art Collections in Los Angeles. (2) Seminar, three hours; outside study, three hours. Exploration of critical issues regarding concept of collections and collecting. Visits to institutions and collections and discussion of vision, goals, and scope of collections, as well as individual works. Concurrently scheduled with course C187. Letter grading.

375. Teaching Apprentice Practicum (1 to 4). Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400A-400B. Visiting Artists Studio. (2-2) Studio, six hours. Designed for MFA students. Introduction to visiting artists in their area of study, with focus on one-on-one critiques with wide range of practitioners. In Progress (400A) and S/U (400B) grading.

400C. Visiting Artists Studio. (4) Studio, 12 hours. Limited to graduate art students. Introduction to visiting artists in their area of study, with focus on one-on-one critiques with wide range of practitioners. S/U grading.

401. MFA Working Groups. (2) Research group meeting, two hours. Limited to MFA students. Three or more MFA candidates propose research and/or studio topic and invite Art Department faculty member to mentor group/topic. May be repeated for credit. S/U grading.

495. Teaching Assistant Training Practicum. (2) Seminar, three hours; outside study, three hours. Forum for first-year teaching assistants for discussion and exploration of teaching pedagogy and classroom mechanics. Problems and practices of teaching art at college level, as well as role of teaching assistants within department. Designed to help new teaching assistants develop teaching skills and to orient them to department and University policies and resources. May not be applied toward degree requirements. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U or letter grading.

597. Preparation for Master's Comprehensive Examination. (2 to 12) Tutorial, to be arranged. May not be applied toward MA or MFA course requirements. May be repeated. S/U grading.

ART HISTORY

College of Letters and Science

UCLA

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Miwon Kwon, PhD, Chair

Professors

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Burglind Jungmann, PhD
Mary Kelly, MA
Miwon Kwon, PhD
Steven D. Nelson, PhD
David A. Scott, PhD
Debra L. Silverman, PhD (*Presidential Professor of Modern European History*)
Dell Upton, PhD
Lothar von Falkenhausen, PhD
Bronwen Wilson, PhD

Professors Emeriti

Susan B. Downey, PhD
Cecelia F. Klein, PhD
David M. Kunzle, PhD
Carlo Pedretti, MA (*Armand Hammer Professor Emeritus of Leonardo Studies*)
Donald A. Preziosi, PhD
Anthony Vidler, DiplArch
Joanna C. Woods-Marsden, PhD

Associate Professors

Meredith M. Cohen, PhD
 Hui-Shu Lee, PhD
 Saloni Mathur, PhD
 Stella E. Nair, PhD

Adjunct Professor

John M.D. Pohl, PhD

Adjunct Assistant Professor

Marla C. Berns, PhD

Scope and Objectives

The Department of Art History offers programs leading to the Bachelor of Arts, Master of Arts, and PhD degrees. It endorses an interdisciplinary and intercultural approach to art history of all periods and places. By thinking across current categories and boundaries and even critically interrogating art history itself, students are encouraged to question the canon, rethink the relationship between margins and centers, and practice a socially and politically responsible art history.

The rich and varied art resources available at UCLA and throughout Southern California offer students extraordinary opportunities to supplement the formal curriculum.

Undergraduate Study

The Art History Department offers a designated capstone program for undergraduate majors. Students have options for completing a senior honors thesis, a directed independent study, an advanced undergraduate seminar, a museum studies internship, a research assistantship, or a faculty-approved upper division course that includes additional coursework culminating in the completion of a capstone paper. Through their capstone work, students are expected to conceive and execute a research or creative project; identify and evaluate documentation relevant to the discipline; develop an enhanced capacity for writing and research, critical and analytical thinking, and competent familiarity with art historical methodologies; and identify and articulate these arguments within art historical discourse and areas of specialization. The capstone experience also enables students to develop an enriched understanding of the foundations of the discipline, as well as the current landscape of the field.

Art History BA**Capstone Program****Preparation for the Major**

Required: Two courses from Art History 20 through 24 and two courses from 27 through 31. It is strongly recommended that the courses be taken prior to enrollment in upper division courses. Some of these courses serve as requisites to certain upper division courses.

Transfer Students

Transfer applicants to the Art History major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two art history

courses in ancient, Renaissance and baroque, medieval, or modern art and two courses in African, Asian, or pre-Columbian art.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division art history courses as follows:

1. One course from each of the following three historical periods; (a) *ancient/medieval before 1400*—Art History M110A, M110B, M110C, M111, M112A through M112D, M113A, M113B, M114A through C114D, C115A through C115F, C116A, C116B, C117A, C117B, M118A, 119A, 119B, C139A, C148A, C148B, 154A, (b) *early modern, 1400 to 1700*—courses 121A through 121D, 124, C125A, 125B, C126, C139B, C139C, C141, C148C, C148E, C152B, C152C, 154B, and (c) *modern/contemporary, 1700 to present*—courses M118B, 127A, 127B, M127C, C128A, C128B, C128C, C129A, C129B, C129C, 130, C131A, C131B, C131C, 132, C133A through 133E, CM135A, CM135B, C142A, C142B, C145B, C148D, 154D, C160, C170A
2. Three courses from at least three of the following five geographic regions: (a) *Africa*—Art History C145A, C145B, (b) *Asia*—courses C148A through C148E, C149, 150A, C150B, C151, 152A through C152D, C153, 154A through 154D, C155, 156, C158A, (c) *Europe and U.S.*—courses C115B through C115F, 121A through 121D, 124, C125A, 125B, C126, 127A, 127B, M127C, C129A, C129B, C129C, C131A, C131B, C131C, C133A through 133E, CM135A, CM135B, 137, C170A, (d) *Latin America and Caribbean*—courses C139A, C139B, C139C, C140, C141, C142A, C142B, 143, 144, and (e) *Mediterranean, Middle East, and Near East*—courses M110A, M110B, M110C, M111, M112A through M112D, M113A, M113B, M114A, M114B, M114C, C115A, 119A, 119B
3. Additional art history electives selected from courses 100 through 185 (20 units minimum); courses 196, 197A, and 197B may also be included. With prior approval of the undergraduate adviser, one of these courses may be taken in another department

While the department does not require language training beyond the College requirement, Art History majors, particularly those planning graduate work, are strongly encouraged to study foreign languages beyond what is required by the College.

Each course must be taken for a letter grade.

Honors Program

The honors program is designed for Art History majors who are interested in carrying out an in-

dependent research project that culminates in a departmental honors thesis of approximately 30 pages. The program gives qualified students the opportunity to work closely with individual professors on an in-depth supervised research and writing project.

All senior Art History majors who have completed a minimum of six upper division art history courses with a departmental grade-point average of 3.5 or better and an overall GPA of 3.0 or better are eligible to apply. Consult the art history student affairs officer no later than the beginning of fall quarter of the senior year.

To qualify for graduation with honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average of 3.5 or better in upper division courses in the department and an overall GPA of 3.0 or better, and (3) complete Art History 198A and 198B with grades of A– or better.

To qualify for graduation with highest honors, students must (1) complete all requirements for the major, (2) have a cumulative GPA of 3.85 or better in upper division courses in the department and an overall GPA of 3.65 or better, and (3) complete courses 198A and 198B with grades of A.

Art History Minor

The Art History minor is designed for students who wish to augment their major with a series of courses that analyze the history, theory, and criticism of diverse visual traditions in world culture. On the lower division level, the minor exposes students to overviews of these traditions in broad time periods from ancient to modern, from the regional to the global, as well as to courses that trace the historical significance of art in the context of specific thematic and media concerns. Upper division courses offer more specialized content that explores crucial episodes or areas with more intense and rigorous theoretical and methodological strategies.

To enter the minor students must be in good academic standing with an overall grade-point average of 2.0 or better, have completed 45 units, and file a petition with the student affairs officer in 206A Dodd Hall, 310-825-3992. Students are advised to declare the minor early and meet with the student affairs officer to plan a coherent program.

Required Lower Division Courses (15 units): Three courses selected from Art History 20 through 31.

Required Upper Division Courses (20 units): Five art history courses as follows:

1. Two courses from at least two of the following three historical periods; (a) *ancient/medieval before 1400*—Art History M110A, M110B, M110C, M111, M112A through M112D, M113A, M113B, M114A through C114D, C115A through C115F, C116A, C116B, C117A, C117B, M118A, 119A, 119B, C139A, C148A, C148B, 154A, (b) *early modern, 1400 to 1700*—courses 121A through 121D, 124, C125A, 125B, C126,

- C139B, C139C, C141, C148C, C148E, C152B, C152C, 154B, and (c) *modern/contemporary, 1700 to present*—courses M118B, 127A, 127B, M127C, C128A, C128B, C128C, C129A, C129B, C129C, 130, C131A, C131B, C131C, 132, C133A through 133E, CM135A, CM135B, C142A, C142B, C145B, C148D, 154D, C160, C170A
2. Two courses from at least two of the following five geographic regions: (a) *Africa*—Art History C145A, C145B, (b) *Asia*—courses C148A through C148E, C149, 150A, C150B, C151, 152A through C152D, C153, 154A through 154D, C155, 156, C158A, (c) *Europe and U.S.*—courses C115B through C115F, 121A through 121D, 124, C125A, 125B, C126, 127A, 127B, M127C, C129A, C129B, C129C, C131A, C131B, C131C, C133A through 133E, CM135A, CM135B, 137, C170A, (d) *Latin America and Caribbean*—courses C139A, C139B, C139C, C140, C141, C142A, C142B, 143, 144, and (e) *Mediterranean, Middle East, and Near East*—courses M110A, M110B, M110C, M111, M112 through M112D, M113A, M113B, M114A, M114B, M114C, C115A, 119A, 119B
3. One additional art history elective selected from courses 100 through 185; course 197A may also be included

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

By petition, one upper division course with substantial art historical content and methodology applied toward the students' majors may also be applied toward this minor.

Each minor course must be taken for a letter grade (unless the course is graded only on a P/NP basis), and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Art History offers Master of Arts (MA) and Doctor of Philosophy (PhD) degrees in Art History.

Art History

Lower Division Courses

20. Ancient Art. (5) (Formerly numbered 50.) Lecture, three hours; quiz, one hour; museum field trips. Prehistoric, Egyptian, Mesopotamian, Aegean, Greek, Hellenistic, and Roman art and architecture. P/NP or letter grading.

21. Medieval Art. (5) (Formerly numbered 51.) Lecture, three hours; quiz, one hour. Early Christian, Byzantine, Islamic, Carolingian, Ottoman, Romanesque, and Gothic art and architecture. P/NP or letter grading.

22. Renaissance and Baroque Art. (5) (Formerly numbered 57.) Lecture, three hours; discussion, one hour. Survey of Renaissance and baroque art. P/NP or letter grading.

23. Modern Art. (5) (Formerly numbered 54.) Lecture, three hours; discussion, one hour; museum field trips. History of modern art from 1860s to 1960s, from Manet and impressionists to pop art and minimalism. Study of origins and social functions, as well as aesthetic innovations and philosophical dilemmas of modernism. P/NP or letter grading.

24. Architecture in Modern World. (5) (Formerly numbered 58.) Lecture, three hours; discussion, one hour. Introduction to study of architectural history through examination of built world of past two centuries. Building technologies and forms of economic, social, and political life have produced modern built environment that is both diverse and increasingly connected. Focus on factors that have affected architecture globally and those that give regions, cultures, and historical periods their particular qualities. Topics include architectural and urban ramifications of modern self-consciousness, nationalism and internationalism, industrialism, colonialism and anticolonialism, and new art and architectural theories. P/NP or letter grading.

27. Art and Architecture of Ancient Americas. (5) (Formerly numbered 55B.) Lecture, three hours; discussion, one hour; museum field trips. Introduction to art, architecture, and urbanism of Americas (North to South) from earliest settlement until A.D. 1450. Analysis of variety of media within their historical and cultural context. P/NP or letter grading.

28. Arts of Africa. (5) (Formerly numbered 55A.) Lecture, three hours; discussion, one hour; museum field trips. Introduction to arts and architecture of Africa. Examination of social and historical contexts of their production. Introduction to body of information within framework of conceptual problem through series of case studies. P/NP or letter grading.

29. Chinese Art. (5) (Formerly numbered 56B.) Lecture, three hours; discussion, one hour; museum field trips. General introduction to Chinese art, covering all major periods from Neolithic to modern age. Presentation of monuments as well as artifacts in variety of media in their social and historical contexts. P/NP or letter grading.

31. Art of India and Southeast Asia. (5) (Formerly numbered 56A.) Lecture, three hours; discussion, one hour; museum field trips. Discussion of selection of monuments and objects from Indian subcontinent and Southeast Asia using key historical, cultural, and religious concepts. Analysis of each monument or object in detail, with their relationships compared and contrasted. P/NP or letter grading.

88. Lower Division Seminars. (4) Seminar, three hours. Limited to freshmen. Variable topics; consult Schedule of Classes or department for topics to be offered in specific term. P/NP or letter grading.

Upper Division Courses

100. Art Historical Theories and Methodologies. (4) Seminar, three hours. Requisites: three courses from 20 through 31. Critical examination of history of discipline of art history, with studies of various theoretical, critical, and methodological approaches to visual arts. Letter grading.

M110A. Art and Architecture of Ancient Egypt, Predynastic Period to New Kingdom. (4) (Formerly numbered M101A.) (Same as Ancient Near East CM101A.) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts during Predynastic period and Old Kingdom. May be repeated for credit with consent of instructor. P/NP or letter grading.

M110B. Art and Architecture of Ancient Egypt, New Kingdom to Greco-Roman Period. (4) (Formerly numbered M101B.) (Same as Ancient Near East CM101B.) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts from New Kingdom to Greco-Roman period. P/NP or letter grading.

M110C. Ancient Egyptian Temple and City of Thebes. (4) (Formerly numbered M101C.) (Same as Ancient Near East M101C.) Lecture, four hours; fieldwork, one hour. Focus on ancient temples of city of Thebes (modern day Luxor). Theban temples are some of best-preserved cult buildings in all of Egypt, and their study illuminates traditions of artistic representation, architectural development, and social and political transformations echoed throughout all of ancient Egypt. Investigation of ritual linking of temples on Nile's eastern and western banks through festival processions, chronological changes in function and form of Theban temples through time, and statutory program of individual temples. P/NP or letter grading.

M111. Minoan Art and Archaeology. (4) (Formerly numbered M102A.) (Same as Classics M153A.) Lecture, three hours. Requisite: course 20 or Classics 10 or 51A. Study of development of art and architecture in Minoan Crete from circa 3000 to 1000 B.C. P/NP or letter grading.

M112A. Mycenaean Art and Archaeology. (4) (Formerly numbered M102B.) (Same as Classics M153B.) Lecture, three hours. Requisite: course 20 or Classics 10 or 51A. Study of development of art and architecture in Mycenaean Greece from circa 2000 to 1000 B.C. P/NP or letter grading.

M112B. Archaic Greek Art and Archaeology. (4) (Formerly numbered M102C.) (Same as Classics M153C.) Lecture, three hours. Requisite: course 20 or Classics 10 or 51A. Study of development of art and architecture of Greek world from approximately 800 through 490 B.C. P/NP or letter grading.

M112C. Classical Greek Art and Archaeology. (4) (Formerly numbered M102D.) (Same as Classics M153D.) Lecture, three hours. Requisite: course 20 or Classics 10 or 51A. Study of development of art and architecture of Greek world from approximately 490 through 350 B.C. P/NP or letter grading.

M112D. Hellenistic Greek Art and Archaeology. (4) (Formerly numbered M102E.) (Same as Classics M153E.) Lecture, three hours. Requisite: course 20 or Classics 10 or 51A. Study of development of art and architecture of Greek world from middle of 4th century B.C., including transmittal of Greek art forms to Romans. P/NP or letter grading.

M113A. Etruscan Art. (4) (Formerly numbered M102F.) (Same as Classics M153F.) Lecture, three hours. Requisite: course 20 or Classics 20 or 51B. Arts of Italic peninsula from circa 1000 B.C. to end of Roman Republic. P/NP or letter grading.

M113B. Roman Art and Archaeology. (4) (Formerly numbered M102G.) (Same as Classics M153G.) Lecture, three hours. Requisite: course 20 or Classics 20 or 51B. Art and architecture of Rome and its Empire from circa 300 B.C. to A.D. 300. P/NP or letter grading.

M113C. Late Roman Art. (4) (Formerly numbered M102H.) (Same as Classics M153H.) Lecture, three hours. Requisite: course 20 or Classics 20 or 51B. Art of Roman Empire from 2nd through 4th century (A.D.). P/NP or letter grading.

M114A-M114B-M114C. Classical Archaeology. (4-4) (Formerly numbered M102I-M102J-M102K.) (Same as Classics M153I-M153J-M153K.) Lecture, three hours. Requisite: one course from 20, Classics 10, 20, 51A, 51B, or History 1A. Knowledge of Greek and Latin not required. General introduction to study of Aegean, Greek, and Roman architecture, sculpture,

and painting. May be repeated for credit with department consent. P/NP or letter grading. **M114A.** Greco-Roman Architecture; **M114B.** Greco-Roman Sculpture; **M114C.** Greco-Roman Painting.

C114D. Selected Topics in Ancient Art. (4) Lecture, three hours. Variable topics in ancient art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C214D. P/NP or letter grading.

C115A. Late Antique Art and Architecture. (4) (Formerly numbered 105A.) Lecture, three hours. Enforced requisite: course 21. Art and architecture of late Roman Empire and early Christian world. Concurrently scheduled with course C215A. P/NP or letter grading.

C115B. Early Medieval Art and Architecture. (4) (Formerly numbered 105B.) Lecture, three hours. Requisite: course 21. Art and architecture of Western Europe from Migration period until A.D. 1000. Concurrently scheduled with course C215B. P/NP or letter grading.

C115C. Romanesque Art and Architecture. (4) (Formerly numbered 105C.) Lecture, three hours. Requisite: course 21. Art and architecture of Western Europe in 11th and 12th centuries. P/NP or letter grading.

C115D. Gothic Art and Architecture. (4) (Formerly numbered 105D.) Lecture, three hours. Art and architecture of Europe in 13th century. Concurrently scheduled with course C215D. P/NP or letter grading.

C115E. Late Gothic Art and Architecture. (4) (Formerly numbered 105E.) Lecture, three hours. Strongly recommended preparation: course 21. Art and architecture of Europe in 14th and early 15th centuries. P/NP or letter grading.

C115F. Medieval Paris. (4) Lecture, three hours. Enforced requisite: course 21. Material culture, art, architecture, and history of city of Paris to circa 1500. Concurrently schedule with course C215F. P/NP or letter grading.

C116A. Middle Byzantine Art and Architecture. (4) (Formerly numbered 105E.) Lecture, three hours. Requisite: course 21. Theory and development of Byzantine art from iconoclastic controversy to 1204. Concurrently scheduled with course C216A. P/NP or letter grading.

C116B. Late Byzantine Art and Architecture. (4) Lecture, three hours. Theory and development of Byzantine art from 1204 to 1453. Concurrently scheduled with course C216B. P/NP or letter grading.

C117A. Medieval Archaeology. (4) Lecture, three hours. Archaeology of medieval world. Concurrently scheduled with course C217A. P/NP or letter grading.

C117B. Selected Topics in Medieval Art. (4) Lecture, three hours. Variable topics in medieval art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C217B. P/NP or letter grading.

M118A. Medieval Armenian Art. (4) (Formerly numbered M173.) (Same as Armenian M172.) Lecture, three hours. Examination of cultural and historical impact of Armenian miniature paintings. P/NP or letter grading.

M118B. Armenian Painting, 17th to 20th Century. (4) (Formerly numbered M172.) (Same as Armenian M173.) Lecture, three hours. Overview of development of modern Armenian painting out of its matrix in 17th and 18th centuries. P/NP or letter grading.

C118C. Selected Topics in Armenian Art. (4) Lecture, three hours. Variable topics in Armenian art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C218. P/NP or letter grading.

119A. Western Islamic Art. (4) (Formerly numbered 104A.) Lecture, three hours. From Tigris and Eu-phrates Rivers to Spain, 7th to 16th century. P/NP or letter grading.

119B. Eastern Islamic Art. (4) (Formerly numbered 104B.) Lecture, three hours. From Tigris and Eu-phrates Rivers through Afghanistan and parts of central Asia; Ottoman Empire. P/NP or letter grading.

M119C. Introduction to Islamic Archaeology. (4) (Formerly numbered M104D.) (Same as Islamic Studies M111 and Middle Eastern Studies M111.) Lecture, three hours. From earliest monuments of Islam in Arabia and Jerusalem to humble remains of small Egyptian port, broad focus on archaeological and standing remains in central Islamic lands (primarily Syria, Egypt, and Iraq), Turkey, Iran, North Africa, and Spain. Profound cultural transformations occurred from birth of Islam in 7th century to early Ottoman period in 16th and 17th centuries, which are traceable in material records. Assessment of effectiveness of tools afforded by historical archaeology to aid understanding of past societies. P/NP or letter grading.

M119D. Archaeology and Art of Christian and Islamic Egypt. (4) (Same as Archaeology M112, Islamic Studies M112, and Middle Eastern Studies M112.) Lecture, three hours. Culture of Egypt transformed gradually after Muslim conquest in mid-7th century C.E. According to material evidence such as ceramics, textiles, architectural forms, and building techniques, it is functionally impossible to separate pre-Islamic Christian Egypt from early Islamic Egypt. Although population may have become largely Muslim by 10th century, Egypt remained Coptic in many senses even to 14th century and retains sizeable Christian minority to present. Survey of archaeological remains and standing architecture of Egypt from 6th to 19th century, charting changes and continuities in material culture and shifts in human geography and land use. P/NP or letter grading.

C120. Selected Topics in Islamic Art. (4) (Formerly numbered C104C.) Lecture, three hours. Variable topics in Islamic art and architecture that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C220A. P/NP or letter grading.

121A. Italian Renaissance Art of 14th Century. (4) (Formerly numbered 106A.) Lecture, three hours. Art and architecture of 14th century. P/NP or letter grading.

121B. Italian Renaissance Art of 15th Century. (4) (Formerly numbered 106B.) Lecture, three hours. Art and architecture of 15th century. P/NP or letter grading.

121C. Italian Renaissance Art of 16th Century. (4) (Formerly numbered 106C.) Lecture, three hours. Art and architecture of 16th century. P/NP or letter grading.

121D. Late Renaissance Art: Counter-Reformation. (4) (Formerly numbered 106D.) Lecture, three hours. Requisite: course 22. Painting, sculpture, and architecture of late 16th and early 17th centuries considered in context of Counter-Reformation. P/NP or letter grading.

124. Northern Renaissance Art. (4) (Formerly numbered 108A.) Lecture, three hours. Requisite: course 22. Painting and sculpture in Northern Renaissance. P/NP or letter grading.

C125A. Southern Baroque Art. (4) (Formerly numbered C109A.) Lecture, three hours. Art and architecture of Spain or Italy, 16th to late 17th century. Concurrently scheduled with course C225. P/NP or letter grading.

125B. Northern Baroque Art. (4) (Formerly numbered 109B.) Lecture, three hours. Requisite: course C125A. Art and architecture of Northern Europe, 16th to late 17th century. P/NP or letter grading.

C126. Selected Topics in Early Modern Art. (4) Lecture, three hours. Variable topics in early modern art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C226. P/NP or letter grading.

127A. European Art of 17th and 18th Centuries. (4) (Formerly numbered 109C.) Lecture, three hours. Requisite: course 22. Painting, architecture, and sculpture of 17th and 18th centuries examined in light

of political and intellectual developments. Special emphasis on effect of rise of democratic institutions, especially French Revolution. P/NP or letter grading.

127B. European Art of 19th Century. (4) (Formerly numbered 110A.) Lecture, three hours. Requisite: course 23. Neoclassicism and Romanticism, with emphasis on France—development and influence of David, Ingres, and Delacroix. P/NP or letter grading.

M127C. Cultural and Intellectual History of Modern Europe, 19th Century. (4) (Formerly numbered M110D.) (Same as History M122E.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Climates of taste and climates of opinion. Educational, moral, and religious attitudes; art, thought, and manners of time in historical context. P/NP or letter grading.

C128A-C128B-C128C. History of Photography. (4-4-4) (Formerly numbered C171A-C171B-C171C.) Concurrently scheduled with courses C228A-C228B-C281C. P/NP or letter grading. **C128A.** 1839 to 1910. Lecture, three hours. Study of origin, social functions, and development of photography in 19th and early 20th centuries, from Niépce to Atget. **C128B.** 1910 to Present. Lecture, three hours; discussion, one hour. History of photography in 20th century, with special attention to photography's entrance into project of avant-garde and its role in formation of postmodern aesthetic. **C128C.** Selected Topics. Lecture, three hours. Variable topics in history of photography that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit.

C129A. Modern Art, 1900 to 1950. (4) (Formerly numbered C147.) Lecture, three hours. Inquiry into 20th-century modernism from Fauvism to abstract expressionism. Topics include primitivism, gender, and sexuality in modernist art; origins of abstraction, collage, photomontage, and ready-made; rise of automatism and chance procedures; art, utopia, and political revolution; antimodernism and fascism; mass culture, machine paradigm, and work of art in age of mechanical reproduction. Concurrently scheduled with course C229A. P/NP or letter grading.

C129B. Dada, 1915 to 1923. (4) (Formerly numbered C149A.) Lecture, three hours; discussion, one hour (when scheduled). Introduction to modernism and historical avant-garde of early 20th century, tracing in detail emergence of Dada avant-garde in its various geographical locales during and after World War I. Visual art, literature, film, and performance addressed, with special attention to invention of series of avant-garde strategies crucial to Dada: ready-made, chance procedures, mechanical drawing, and photomontage. Concurrently scheduled with course C229B. P/NP or letter grading.

C129C. Surrealism, 1924 to 1939. (4) (Formerly numbered C149B.) Lecture, three hours; discussion, one hour (when scheduled). Study of art, literature, and film associated with surrealist movement in France, with special attention to dissident surrealism of writer and philosopher Georges Bataille, as well as to challenge to art history posed by surrealism's engagement with lessons of psychoanalysis. Concurrently scheduled with course C229C. P/NP or letter grading.

130. Selected Topics in Modern Art. (4) (Formerly numbered 110F.) Lecture, three hours. Requisite: course 23. Changing topics in modern art (post-1780) that reflect interests of individual regular and visiting faculty members. May be repeated once for credit. P/NP or letter grading.

C131A. Contemporary Art, 1940s to 1950s. (4) (Formerly numbered C150A.) Lecture, three hours. Requisite: course 23. Study of major artistic and cultural trends following World War II in U.S. and Europe, covering abstract expressionism to pop art. Concurrently scheduled with course C231A. P/NP or letter grading.

C131B. Contemporary Art, 1960s to 1970s. (4) (Formerly numbered C150B.) Lecture, three hours. Requisite: course 23. Study of ambitions and contexts of pop art, minimalism, conceptual art, feminist art, performance, land art, and more. Concurrently scheduled with course C231B. P/NP or letter grading.

C131C. Contemporary Art, 1980s to 1990s. (4) (Formerly numbered C150C.) Lecture, three hours; discussion, one hour. Requisite: course 23. Study of politics of representation at end of century, covering dominant strategies and trends in postmodernist art. Concurrently scheduled with course C231C. P/NP or letter grading.

132. Selected Topics in Contemporary Art. (4) (Formerly numbered 150D.) Lecture, three hours. Requisite: course 23. Changing topics in contemporary art (post-1945) that reflect interests of individual regular and/or visiting faculty members. May be repeated once for credit. P/NP or letter grading.

C133A. American Art before Civil War. (4) (Formerly numbered C112A.) Lecture, three hours. Painting, sculpture, and architecture in U.S. from Colonial period through Civil War. Concurrently scheduled with course C233A. P/NP or letter grading.

C133B. American Art in Gilded Age, 1860 to 1900. (4) (Formerly numbered C112B.) Lecture, three hours. Painting, sculpture, and architecture in U.S. from Civil War to turn of century. Concurrently scheduled with course C233B. P/NP or letter grading.

C133C. American Art, 1900 to 1945. (4) (Formerly numbered C112C.) Lecture, three hours. Painting, sculpture, and photography in U.S. from 1900 to 1945. Concurrently scheduled with course C233C. P/NP or letter grading.

133D. Architecture in U.S. (4) (Formerly numbered 113A.) Lecture, three hours; discussion, one hour. Introduction to architecture built in U.S. over last 5,000 years. Architecture as vehicle for political and cultural authority, citizenship, ethnic and social identity; its role in defining place and our relationship to natural environment and as vehicle for asserting human control over natural world; its place in world of work and commerce; and its status as professional and aesthetic pursuit. P/NP or letter grading.

133E. American Houses. (4) (Formerly numbered 113C.) Lecture, three hours. Many historians consider single-family houses to be one of two most American contributions to world architecture (next to skyscrapers). Examination of this claim critically by placing single-family houses in broader context of varied dwellings built and occupied by residents of present-day U.S. over last 500 years, including both aesthetically ambitious houses and ordinary (or vernacular) ones, houses of indigenous groups and those of immigrants of many sorts, urban and rural houses, and single-family houses and multiple dwellings of all sorts. Offers ways to think about houses we occupy and to understand how they relate to major themes in history of American architecture. P/NP or letter grading.

CM135A. African American Art before 1900. (4) (Formerly numbered CM112D.) (Same as African American Studies CM135A.) Lecture, three hours. Detailed inquiry into work to circa 1900 of African American artists whose works provide insightful and critical commentary about major features of American life and society. Concurrently scheduled with course CM235A. P/NP or letter grading.

CM135B. African American Art, 1900 to 1963. (4) (Formerly numbered CM112E.) (Same as African American Studies CM135B.) Lecture, three hours. Detailed inquiry into work of African American artists from Columbian Exposition to 1963 March on Washington within context of social, political, and cultural engagement, as well as in codification of modern black life in U.S. Concurrently scheduled with course CM235B. P/NP or letter grading.

137. Arts of Native North America. (4) (Formerly numbered 118D.) Lecture, three hours. Survey of painting, sculpture, and other arts from Inuit to peoples of Caribbean and Southwestern U.S. P/NP or letter grading.

C139A. Mayan Art and Architecture. (4) (Formerly numbered C117B.) Lecture, three hours. Requisite: course 27. Study of art of selected Maya-speaking cultures of southern Mesoamerica from circa 2000 B.C. to Conquest, with particular emphasis on history and iconography. Concurrently scheduled with course C239A. P/NP or letter grading.

C139B. Aztec Art and Architecture. (4) (Formerly numbered C117D.) Lecture, three hours. Requisite: course 27. Painting, sculpture, architecture, and other arts of Nahuatl-speaking peoples of central Mexico, with emphasis on their social and historical context and major scholarly debates. Concurrently scheduled with course C239B. P/NP or letter grading.

C139C. Inca Art and Architecture. (4) (Formerly numbered 117F.) Lecture, three hours. Exploration of art, architecture, and urbanism of Incas from their empire's height in late 15th century to their political and cultural fragmentation during Spanish occupation of Andes (1532 to 1824). Concurrently scheduled with course C239C. P/NP or letter grading.

C140. Selected Topics in Arts of Indigenous Americas. (4) Lecture, three hours. Variable topics in artistic production of Native people across Americas that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C240A. P/NP or letter grading.

C141. Colonial Latin American Art. (4) (Formerly numbered 117E.) Lecture, three hours. Art and architecture of colonial Americas from 16th to 18th century. Concurrently scheduled with course C241. P/NP or letter grading.

C142A. Mexican Art in Modern Age. (4) (Formerly numbered C110L.) Lecture, three hours. Mexican art of 19th and 20th centuries, from foundation of academy in 1785 to present day. Study of art and revolution, muralism, surrealism, indigenism, postcolonialism, and postmodernism in painting, sculpture, prints, photography, and architecture. Concurrently scheduled with course C242A. P/NP or letter grading.

C142B. Latin American Art of 20th Century. (4) (Formerly numbered C110H.) Lecture, three hours; discussion, one hour (when scheduled). Mainstream modern and contemporary art and architecture of selected Latin American countries, including both modernist and postmodernist forms, considered in context of social and political concerns, both national and international. Concurrently scheduled with course C242B. P/NP or letter grading.

143. Selected Topics in Latin American Art. (4) Lecture, three hours. Variable topics in Latin American art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. P/NP or letter grading.

144. Caribbean Art. (4) (Formerly numbered 118B.) Lecture, three hours. Cultural history of Caribbean. P/NP or letter grading.

C145A. Architecture and Urbanism in Africa. (4) (Formerly numbered C119D.) Lecture, three hours. Survey of African built environment at various moments and in different places from about 200 C.E. to present, with emphasis on cultural, social, and historical contexts of architecture, gender, and space, and contemporary African cities. Concurrently scheduled with course C245A. P/NP or letter grading.

C145B. Contemporary Arts of Africa. (4) (Formerly numbered C119C.) Lecture, three hours; discussion, one hour (when scheduled). Survey of African visual practices since mid-20th century, with special emphasis on changing meaning of art object, status of African artist, global reception of contemporary African art, and very definitions of contemporary African art. Concurrently scheduled with course C245B. P/NP or letter grading.

147. Arts of Oceania. (4) (Formerly numbered 118A.) Lecture, three hours. Requisite: course 28. Survey of arts of major island groupings of Pacific, emphasizing style-regions and broad historical relationships. P/NP or letter grading.

C148A. Art and Material Culture, Neolithic to 210 B.C. (4) (Formerly numbered C115D.) Lecture, three hours. Genesis of Chinese civilization in light of new archaeological finds, including sites and works of art (e.g., ceramics, bronzes, jades). Concurrently scheduled with course C248A. P/NP or letter grading.

C148B. Art and Material Culture of Early Imperial China, 210 B.C. to A.D. 906. (4) (Formerly numbered C115E.) Lecture, three hours. Palaces and tombs of early imperial dynasties, impact of Buddhist art (cave temples), rise of new media and technologies. Concurrently scheduled with course C248B. P/NP or letter grading.

C148C. Art and Material Culture of Late Imperial China, 906 to 1911. (4) (Formerly numbered C115F.) Lecture, three hours. Secular and religious (Buddhist and Taoist) architecture, painting, sculpture, and various luxury industries (lacquer, porcelain, textiles, jade, bronze, furniture, wood and bamboo carving, etc.). Concurrently scheduled with course C248C. P/NP or letter grading.

C148D. Advanced Chinese Art. (4) (Formerly numbered C115B.) Lecture, three hours. Study in Chinese painting and sculpture. Concurrently scheduled with course C248D. P/NP or letter grading.

C148E. Art in Modern China. (4) (Formerly numbered C115G.) Lecture, three hours. Concentrated look at major schools and masters of Chinese art from turn of 20th century to present, with focus on interaction with foreign cultures and issues of self-identity, assimilation, modernity, tradition, and continuity. Consideration of recent developments in Chinese art in global context. Concurrently scheduled with course C248E. P/NP or letter grading.

C148F. Advanced Chinese Painting. (4) Lecture, three hours. Examination of classical painting of imperial China through theory and practice. Concurrently scheduled with course C248F. P/NP or letter grading.

C148G. Gardens in Chinese Art and Culture. (4) Lecture, three hours. Overview of practice, theory, and representation of Chinese gardens in their historical, philosophical, artistic, social, and cultural contexts through literary writings, paintings, and aspects of material culture. Concurrently scheduled with course C248G. P/NP or letter grading.

C149. Selected Topics in Chinese Art. (4) (Formerly numbered C115L.) Lecture, three hours. Variable topics in Chinese art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C249A. P/NP or letter grading.

150A. Japanese Art. (4) (Formerly numbered 114C.) Lecture, three hours. Not open to freshmen. Japanese art from its beginning in prehistory through 19th century. Emphasis on development of Buddhist art and its relationship with culture. P/NP or letter grading.

C150B. Advanced Japanese Art. (4) (Formerly numbered C115C.) Lecture, three hours. Requisite: course 150A. Study in Japanese painting and sculpture. Concurrently scheduled with course C250. P/NP or letter grading.

C151. Selected Topics in Japanese Art. (4) Lecture, three hours. Variable topics in Japanese art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C251A. P/NP or letter grading.

152A. Arts of Korea. (4) (Formerly numbered 114E.) Lecture, three hours; museum field trip. Introduction to arts and archaeology on Korean peninsula from Neolithic beginnings to early 20th century through analysis and discussion of selection of monuments and objects within technological, stylistic, religious, cultural, and sociopolitical contexts. Examination of construction of concepts of history and art under colonial and nationalist perspectives, with regard to historical and contemporary East Asian cultural and political interrelations. P/NP or letter grading.

C152B. History of Korean Painting. (4) (Formerly numbered C140A.) Lecture, three hours. Limited to juniors/seniors. Korean painting history from Three Kingdoms period to 19th century, examined within cultural and sociopolitical contexts. Special emphasis on diversity of topics and social status of artists during Choson dynasty (1392 to 1910). Concurrently scheduled with course C252A. P/NP or letter grading.

C152C. History of Korean Ceramics. (4) (Formerly numbered C140B.) Lecture, three hours. Limited to juniors/seniors. History of Korean ceramics from Neolithic period to 19th century, with special emphasis on technological and stylistic developments. Concurrently scheduled with course C252B. P/NP or letter grading.

C152D. History of Korean Buddhist Art. (4) (Formerly numbered C140C.) Lecture, three hours. Limited to juniors/seniors. History of Korean Buddhist art from Three Kingdoms period to Choson dynasty, with special emphasis on Buddhist iconography and relationship between sculpture, painting, and architecture. Concurrently scheduled with course C252C. P/NP or letter grading.

C153. Selected Topics in Korean Art. (4) (Formerly numbered C140D.) Lecture, three hours. Limited to juniors/seniors. Variable topics in Korean art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C253A. P/NP or letter grading.

154A. Early Art of India. (4) (Formerly numbered 114A.) Lecture, three hours. Not open to freshmen. Survey of Indian art from Indus Valley cultures to 10th century. Emphasis on Buddhist and Hindu backgrounds of arts. P/NP or letter grading.

154B. Later Art of India. (4) (Formerly numbered 114D.) Lecture, three hours. Not open to freshmen. Survey of Indian art from 10th to 19th century. Decline of Buddhist art, last efflorescence of Hindu architecture, Muslim painting and architecture, and Rajput painting. P/NP or letter grading.

C154C. Advanced Indian Art. (4) (Formerly numbered C115A.) Lecture, three hours. Requisite: course 154A. Study in Indian sculpture and architecture. Concurrently scheduled with course C254A. P/NP or letter grading.

154D. Modern and Contemporary South Asian Art. (4) (Formerly numbered 180C.) Lecture, three hours; discussion, one hour (when scheduled). Topics in modern and contemporary South Asian art from 1900 to present. P/NP or letter grading.

C155. Selected Topics in South and Southeast Asian Art. (4) Lecture, three hours. Variable topics in South and Southeast Asian art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C255A. P/NP or letter grading.

156. Arts of Southeast Asia. (4) (Formerly numbered 114F.) Lecture, three hours. Not open to freshmen. Southeast Asian art from its beginning in prehistory through 19th century. Study of art of selected cultures from Burma, Malaysia, Thailand, Cambodia, Vietnam, and Indonesia. P/NP or letter grading.

C158A. Selected Topics in Asian Arts and Architecture. (4) Lecture, three hours. Variable topics in Asian arts and architecture that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C258A. P/NP or letter grading.

C160. Art and Empire. (4) (Formerly numbered C180A.) Lecture, three hours. Examination of relationship between art and imperial ideologies and introduction to current issues in colonial studies and post-colonial criticism. Concurrently scheduled with course C260A. P/NP or letter grading.

161. Cities in History. (4) (Formerly numbered 113B.) Lecture, three hours; discussion, one hour. Examination of history of cities worldwide, locating cities in their aesthetic, social, cultural, and symbolic contexts. History of cities from origins of urbanism to present, with focus on recent centuries. P/NP or letter grading.

C169. Selected Topics in Architectural History. (4) Lecture, three hours. Variable topics in architectural history that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C269. P/NP or letter grading.

C170A. Museum Studies. (4) (Formerly numbered C103A.) Lecture, three hours; discussion, one hour (when scheduled). Introduction to museology as critical practice, with emphasis on history and theory of museums and impact of culture and society on current museum theory and practice. Concurrently scheduled with course C270A. P/NP or letter grading.

C170B. Museum Studies Practicum. (2 to 4) (Formerly numbered C103C.) Lecture, three hours. On-site examination and discussion of selected artworks, exhibitions, and associated published and distributed materials, and of museum and gallery institutions, practices, and policies. Concurrently scheduled with course C270B. Letter grading.

C171. Selected Topics in Museum Studies. (4) Seminar, three hours. Variable topics in museum studies that reflect interests of individual regular and/or visiting faculty members. May be repeated for credit with topic change. Concurrently scheduled with course C271. P/NP or letter grading.

C172A. Preservation of Art. (4) (Formerly numbered C103D.) Lecture, three hours. Designed for Anthropology and Art History majors and other juniors/seniors. Introduction to preservation of cultural heritage materials, including what should be preserved and why, as well as who should be involved in decision-making process. Discussion of issues of preservation and restoration of these cultural heritage materials both in museum and outdoor environment contexts. Materials and techniques used to make cultural heritage materials, in relation to preservation efforts needed to prevent decay and loss. Introduction to examples of conservation issues related to sites, buildings, monuments, and collections. Ethical and contextual aspects with reference to changing values, illustrating how cultural materials may have been treated differently according to those values. Concurrently scheduled with course C272A. P/NP or letter grading.

C172B. Art: Fakes, Forgeries, and Authenticity. (4) (Formerly numbered C103F) Lecture, three hours. Examination of concepts of authenticity, originality, fakes, and forgeries in art. Overview of problems inherent in concept of authenticity and description of many examples of problems related to this concept in series of discussions based on objects from variety of cultures. Introduction to subject of fakes and account of three different areas of connoisseurship that are essential component of production, study, and scientific examination of fakes. Nature of art connoisseurship described in many examples from Renaissance and earlier panel paintings, as well as antiquities and traditional African arts. Background of art restoration and art conservation discussed in relationship to authenticity and technical studies. Scientific tools that form basis of another kind of connoisseurship described in terms of dating techniques that can be applied directly to works of art and technical methods by which material constituents of works of art are studied. Concurrently scheduled with course C272C. P/NP or letter grading.

185. Undergraduate Seminar. (4) (Formerly numbered 127.) Seminar, three hours. Designed for juniors/seniors. Selected aspects of art history explored through readings, discussion, research papers, and oral presentations. May be repeated twice for credit. P/NP or letter grading.

195. Museum Studies Internship. (3) Tutorial, five hours; fieldwork, four hours. Requisite: course C170A. Limited to junior/senior Art History majors. Internship in supervised setting at participating host museum at UCLA or in greater Los Angeles area. Participation in ongoing museum projects and operations, with specific work to be determined by host institution in consultation with faculty mentor. Curatorial, educational, communications, public relations, and development work may be included, as well as assistance at public programs and related events. Students meet on regular basis with faculty mentor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty mentor required. P/NP grading.

196. Research Apprenticeship in Art History. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP or letter grading.

197A. Individual Studies in Art History. (2 to 4) (Formerly numbered 197.) Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Limited to seniors. Individual intensive study for majors, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for maximum of 8 units. Eight units may be applied toward major. Individual contract required. P/NP or letter grading.

197B. Individual Capstone Studies. (2) Tutorial, two hours. Limited to departmental junior/senior majors and minors. Guided study led by faculty supervisor. Instructor meets with student to help design culminating capstone project so it conforms to departmental capstone project guidelines. Must be taken in conjunction and concurrently with one upper division departmental course. May not be repeated for credit. Individual contract required. P/NP or letter grading.

198A-198B. Honors Research in Art History. (4-4) Tutorial, to be arranged. Preparation: completion of minimum of four upper division art history courses with 3.5 departmental grade-point average and overall 3.0 grade-point average. Limited to junior/senior Art History and History/Art History majors. Two-term independent research project under supervision of appropriate faculty member, culminating in departmental honors thesis of approximately 30 pages. Individual contract required. In Progress (198A) and letter (198B) grading.

199. Directed Research in Art History. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Art Historical Theories and Methodologies. (4) Seminar, three hours. Critical examination of history of discipline of art history, with studies of various theoretical, critical, and methodological approaches to visual arts from antiquity to present. May be repeated for credit with consent of adviser. S/U or letter grading.

201. Topics in Historiography of Art History. (4) Seminar, three hours. Critical examination of historiographic traditions of specific areas and fields within discipline of art history, concentrating on particular time periods, geographical areas, artistic traditions, or work of one or more authors. May be repeated for credit with consent of adviser. S/U or letter grading.

202. Topics in Theory and Criticism in Art History. (4) Seminar, three hours. Focused studies of various theoretical and critical traditions within art history, concentrating on particular issues, authors, or methodologies either within or across historical and cultural areas. May be repeated for credit with consent of adviser. S/U or letter grading.

203. Topics in Architectural History and Theory. (4) Seminar, three hours. Focused studies of various theoretical and critical traditions within architectural history, concentrating on particular issues, authors, or methodologies either within or across historical, geographic, and cultural areas. May be repeated for credit with consent of adviser. S/U or letter grading.

207. Consortium Scholar Seminar at Getty Research Institute. (4) Seminar, three hours. Intramural graduate seminar at Getty Museum in collaboration with Getty Research Institute. Instructors, topics, and format vary. S/U or letter grading.

210. Egyptian Art. (4) Seminar, two hours. Requisites: courses M110A, M110B, M111. Art in Egypt during Late period and Greco-Roman period. Students should be ready to prepare for every meeting

briefing of topic from archaeological memoirs, not to exceed 10 minutes. Some lectures. May be repeated for credit with consent of adviser. S/U or letter grading.

212A. Topics in Aegean Art. (4) (Formerly numbered 211.) Seminar, two hours. Requisites: courses M111, M112A. Art and architecture of Aegean Bronze Age (3000 to 1000 B.C.). Monuments or theoretical problems related to art and culture of Crete, Greece, Cyclades, or Western Anatolia. May be repeated for credit with consent of adviser. S/U or letter grading.

212B. Topics in Classical Art. (4) (Formerly numbered 221.) Seminar, two to three hours. Studies in Parthian art. Site-by-site survey of Near East (Afghanistan, Iran, Iraq, Syria) during period of Greek and Parthian control. May be repeated for credit with consent of adviser. S/U or letter grading.

212C. Classical Art. (4) (Formerly numbered 223.) Seminar, two hours. Studies in Greco-Roman art and archaeology. Studies of specific periods, sites, or artistic media. May be repeated for credit with consent of adviser. S/U or letter grading.

C214D. Selected Topics in Ancient Art. (4) Lecture, three hours. Variable topics in ancient art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C114D. S/U or letter grading.

C215A. Late Antique Art and Architecture. (4) Lecture, three hours. Enforced requisite: course 21. Art and architecture of late Roman Empire and early Christian world. Concurrently scheduled with course C115A. S/U or letter grading.

C215B. Early Medieval Art and Architecture. (4) Lecture, three hours. Requisite: course 21. Art and architecture of Western Europe from Migration period until A.D. 1000. Concurrently scheduled with course C115B. S/U or letter grading.

C215D. Gothic Art and Architecture. (4) Lecture, three hours. Art and architecture of Europe in 13th century. Concurrently scheduled with course C115D. S/U or letter grading.

C215F. Medieval Paris. (4) Lecture, three hours. Enforced requisite: course 21. Material culture, art, architecture, and history of city of Paris to circa 1500. Concurrently schedule with course C115F. S/U or letter grading.

C216A. Middle Byzantine Art and Architecture. (4) Lecture, three hours. Requisite: course 21. Theory and development of Byzantine art from iconoclastic controversy to 1204. Concurrently scheduled with course C116A. S/U or letter grading.

C216B. Late Byzantine Art and Architecture. (4) Lecture, three hours. Theory and development of Byzantine art from 1204 to 1453. Concurrently scheduled with course C116B. S/U or letter grading.

C217A. Medieval Archaeology. (4) Lecture, three hours. Archaeology of medieval world. Concurrently scheduled with course C117A. S/U or letter grading.

C217B. Selected Topics in Medieval Art. (4) Lecture, three hours. Variable topics in medieval art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C117B. S/U or letter grading.

217C. Medieval Art. (4) (Formerly numbered 225.) Seminar, two hours. Studies in selected topics in Byzantine and European medieval art. May be repeated for credit with consent of adviser. S/U or letter grading.

217D. Byzantine Art, Architecture, and Archaeology. (4) Seminar, two hours. Selected topics in Byzantine art and architecture. May be repeated for credit with consent of adviser. S/U or letter grading.

C218. Selected Topics in Armenian Art. (4) Lecture, three hours. Variable topics in Armenian art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C118C. S/U or letter grading.

C220A. Selected Topics in Islamic Art. (4) (Formerly numbered C214.) Lecture, three hours. Variable topics in Islamic art and architecture that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C120. S/U or letter grading.

220B. Advanced Studies in Islamic Art. (4) (Formerly numbered 213.) Seminar, three hours. Monuments or theoretical problems related to Islamic culture and artistic production. May be repeated for credit with consent of adviser. S/U or letter grading.

222A. Italian Renaissance Art. (4) (Formerly numbered 230.) Seminar, two hours. Preparation: knowledge of Italian. Study of various aspects of Leonardo's theoretical approach to art in terms of sources and impact on followers. May be repeated for credit with consent of adviser. S/U or letter grading.

224A. Northern Renaissance Art. (4) (Formerly numbered 235.) Seminar, two hours. Preparation: knowledge of German. Emphasis on selected topic (e.g., particular artist, trend, or problem). Research papers and oral reports required. May be repeated for credit with consent of adviser. S/U or letter grading.

C225. Southern Baroque Art. (4) (Formerly numbered C209A.) Lecture, three hours. Art and architecture of Spain or Italy, 16th to late 17th century. Concurrently scheduled with course C125A. S/U or letter grading.

225B. Early Modern Art. (4) (Formerly numbered 240.) Seminar, three hours. Emphasis on selected topic (e.g., particular artist, trend, or problem). Research papers and oral reports required. Language requirements depend on area of focus. May be repeated for credit with consent of adviser. S/U or letter grading.

C226. Selected Topics in Early Modern Art. (4) Lecture, three hours. Variable topics in early modern art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C126. S/U or letter grading.

C228A-C228B-C228C. History of Photography. (4-4-4) (Formerly numbered C271A-C271B-C271C.) Concurrently scheduled with courses C128A-C128B-C128C. S/U or letter grading. **C228A. 1839 to 1910.** Lecture, three hours. Study of origin, social functions, and development of photography in 19th and early 20th centuries, from Niépce to Atget. **C228B. 1910 to Present.** Lecture, three hours; discussion, one hour. History of photography in 20th century, with special attention to photography's entrance into project of avant-garde and its role in formation of postmodern aesthetic. **C228C. Selected Topics.** Lecture, three hours. Variable topics in history of photography that reflect interests of individual regular and/or visiting faculty members.

228D. History and Theory of Photography. (4) (Formerly numbered 272.) Seminar, three hours. Selected topics in photography history, criticism, and theory. S/U or letter grading.

C229A. Modern Art, 1900 to 1950. (4) (Formerly numbered C247.) Lecture, three hours; discussion, one hour. Inquiry into 20th-century modernism from Fauvism to abstract expressionism. Topics include primitivism, gender, and sexuality in modernist art; origins of abstraction, collage, photomontage, and ready-made; rise of automatism and chance procedures; art, utopia, and political revolution; antimodernism and fascism; mass culture, machine paradigm, and work of art in age of mechanical reproduction. Concurrently scheduled with course C129A. S/U or letter grading.

C229B. Dada, 1915 to 1923. (4) (Formerly numbered C249A.) Lecture, three hours; discussion, one hour (when scheduled). Introduction to modernism and historical avant-garde of early 20th century, tracing in detail emergence of Dada avant-garde in its various geographical locales during and after World War I. Visual art, literature, film, and performance addressed, with special attention to invention of series of avant-garde strategies crucial to Dada: ready-made, chance

procedures, mechanical drawing, and photomontage. Concurrently scheduled with course C129B. S/U or letter grading.

C229C. Surrealism, 1924 to 1939. (4) (Formerly numbered C249B.) Lecture, three hours; discussion, one hour (when scheduled). Study of art, literature, and film associated with surrealist movement in France, with special attention to dissident surrealism of writer and philosopher Georges Bataille, as well as to challenge to art history posed by surrealism's engagement with lessons of psychoanalysis. Concurrently scheduled with course C129C. S/U or letter grading.

230A. European Art, 1700 to 1900. (4) (Formerly numbered 245.) Seminar, two hours. May be repeated for credit with consent of adviser. S/U or letter grading.

M230B-M230C. Seminars: Modern European History. (4-4) (Formerly numbered M241A-M241B.) (Same as History M230A-M230B.) Seminar, three hours. Course M230B is enforced requisite to M230C. May be repeated for credit with consent of adviser. In Progress (M230B) and letter (M230C) grading.

230D. Modern Art. (4) (Formerly numbered 253.) Seminar, two hours. Changing topics in modern art (including illustration and other popular forms) that reflect interests of particular faculty members. Political and economic factors affecting arts of France and Germany at various times. May be repeated for credit with consent of adviser. S/U or letter grading.

C231A. Contemporary Art, 1940s to 1950s. (4) (Formerly numbered C250A.) Lecture, three hours. Requisite: course 23. Study of major artistic and cultural trends following World War II in U.S. and Europe, covering abstract expressionism to pop art. Concurrently scheduled with course C131A. S/U or letter grading.

C231B. Contemporary Art, 1960s to 1970s. (4) (Formerly numbered C250B.) Lecture, three hours. Requisite: course 23. Study of ambitions and contexts of pop art, minimalism, conceptual art, feminist art, performance, land art, and more. Concurrently scheduled with course C131B. S/U or letter grading.

C231C. Contemporary Art, 1980s to 1990s. (4) (Formerly numbered C250C.) Lecture, three hours; discussion, one hour. Requisite: course 23. Study of politics of representation at end of century, covering dominant strategies and trends in postmodernist art. Concurrently scheduled with course C131C. S/U or letter grading.

232. Contemporary Art. (4) (Formerly numbered 251.) Seminar, three hours. Selected topics in contemporary art, criticism, and theory. S/U or letter grading.

C233A. American Art before Civil War. (4) (Formerly numbered C212A.) Lecture, three hours. Painting, sculpture, and architecture in U.S. from Colonial period through Civil War. Concurrently scheduled with course C133A. S/U or letter grading.

C233B. American Art in Gilded Age, 1860 to 1900. (4) (Formerly numbered C212B.) Lecture, three hours. Painting, sculpture, and architecture in U.S. from Civil War to turn of century. Concurrently scheduled with course C133B. S/U or letter grading.

C233C. American Art, 1900 to 1945. (4) (Formerly numbered C212C.) Lecture, three hours. Painting, sculpture, and photography in U.S. from 1900 to 1945. Concurrently scheduled with course C133C. S/U or letter grading.

234. American Art. (4) (Formerly numbered 255.) Seminar, two hours. Requisite: course C233A or C233B or C233C, depending on topic. Topics in American art from Colonial period to present. Discussion of weekly readings, student oral presentations, and papers. May be repeated for credit with consent of adviser. S/U or letter grading.

CM235A. African American Art. (4) (Formerly numbered CM212D.) (Same as African American Studies CM235A.) Lecture, three hours. Detailed inquiry into work to circa 1900 of African American artists whose works provide insightful and critical commentary about major features of American life and society. Concurrently scheduled with course CM135A. S/U or letter grading.

CM235B. African American Art, 1900 to 1963. (4) (Formerly numbered CM212E.) (Same as African American Studies CM235B.) Lecture, three hours. Detailed inquiry into work of African American artists from Columbian Exposition to 1963 March on Washington within context of social, political, and cultural engagement, as well as in codification of modern black life in U.S. Concurrently scheduled with course CM135B. S/U or letter grading.

M236. Topics in African American Art. (4) (Formerly numbered M256.) (Same as African American Studies M256.) Seminar, three hours. Requisite: course CM235A or CM235B. Topics in African American art from 18th century to present. May be repeated for credit with consent of graduate adviser. S/U or letter grading.

237. Native North American Art. (4) (Formerly numbered 219D.) Seminar, three hours. Studies in selected topics in art of American Indians. May be repeated for credit with consent of adviser. S/U or letter grading.

C239A. Mayan Art and Architecture. (4) (Formerly numbered C218B.) Lecture, three hours. Requisite: course 27. Study of art of selected Maya-speaking cultures of southern Mesoamerica from circa 2000 B.C. to Conquest, with particular emphasis on history and iconography. Concurrently scheduled with course C139A. S/U or letter grading.

C239B. Aztec Art and Architecture. (4) (Formerly numbered C218D.) Lecture, three hours. Requisite: course 27. Painting, sculpture, architecture, and other arts of Nahuatl-speaking peoples of central Mexico, with emphasis on their social and historical context and major scholarly debates. Concurrently scheduled with course C139B. S/U or letter grading.

C239C. Inca Art and Architecture. (4) Lecture, three hours. Exploration of art, architecture, and urbanism of Incas from their empire's height in late 15th century to their political and cultural fragmentation during Spanish occupation of Andes (1532 to 1824). Concurrently scheduled with course C139C. S/U or letter grading.

C240A. Selected Topics in Arts of Indigenous Americas. (4) Lecture, three hours. Variable topics in artistic production of Native people across Americas that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C140. S/U or letter grading.

240B. Art and Architecture of Indigenous Americas. (4) (Formerly numbered 219B.) Seminar, three hours. Studies in selected topics in artistic production of Native people across Americas. May be repeated for credit with consent of adviser. S/U or letter grading.

C241. Colonial Latin American Art. (4) (Formerly numbered 218E.) Lecture, three hours. Art and architecture of colonial Americas from 16th to 18th century. Concurrently scheduled with course C141. S/U or letter grading.

C242A. Mexican Art in Modern Age. (4) (Formerly numbered C252.) Lecture, three hours. Mexican art of 19th and 20th centuries, from foundation of academy in 1785 to present day. Study of art and revolution, muralism, surrealism, indigenism, postcolonialism, and postmodernism in painting, sculpture, prints, photography, and architecture. Concurrently scheduled with course C142A. S/U or letter grading.

C242B. Latin American Art of 20th Century. (4) (Formerly numbered C254.) Lecture, three hours; discussion, one hour (when scheduled). Mainstream modern and contemporary art and architecture of selected Latin American countries, including both modernist and postmodernist forms, considered in context of social and political concerns, both national and international. Concurrently scheduled with course C142B. S/U or letter grading.

C245A. Architecture and Urbanism in Africa. (4) (Formerly numbered C216D.) Lecture, three hours. Survey of African built environment at various moments and in different places from about 200 C.E. to present, with emphasis on cultural, social, and histor-

ical contexts of architecture, gender, and space, and contemporary African cities. Concurrently scheduled with course C145A. S/U or letter grading.

C245B. Contemporary Arts of Africa. (4) (Formerly numbered C216C.) Lecture, three hours; discussion, one hour (when scheduled). Survey of African visual practices since mid-20th century, with special emphasis on changing meaning of art object, status of African artist, global reception of contemporary African art, and very definitions of contemporary African art. Concurrently scheduled with course C145B. S/U or letter grading.

246. African Art. (4) (Formerly numbered 219C.) Seminar, three hours. Studies in selected topics in art of sub-Saharan Africa. May be repeated for credit with consent of adviser. S/U or letter grading.

247. Oceanic Art. (4) (Formerly numbered 219A.) Seminar, three hours. Studies in selected topics in art of Pacific islands. May be repeated for credit with consent of adviser. S/U or letter grading.

C248A. Art and Material Culture, Neolithic to 210 B.C. (4) (Formerly numbered C261A.) Lecture, three hours. Genesis of Chinese civilization in light of new archaeological finds, including sites and works of art (e.g., ceramics, bronzes, jades). Concurrently scheduled with course C148A. S/U or letter grading.

C248B. Art and Material Culture of Early Imperial China, 210 B.C. to A.D. 906. (4) (Formerly numbered C261B.) Lecture, three hours. Palaces and tombs of early imperial dynasties, impact of Buddhist art (cave temples), rise of new media and technologies. Concurrently scheduled with course C148B. S/U or letter grading.

C248C. Art and Material Culture of Late Imperial China, 906 to 1911. (4) (Formerly numbered C261C.) Lecture, three hours. Secular and religious (Buddhist and Taoist) architecture, painting, sculpture, and various luxury industries (lacquer, porcelain, textiles, jade, bronze, furniture, wood and bamboo carving, etc.). Concurrently scheduled with course C148C. S/U or letter grading.

C248D. Advanced Chinese Art. (4) (Formerly numbered C258.) Lecture, three hours. Study in Chinese painting and sculpture. Concurrently scheduled with course C148D. S/U or letter grading.

C248E. Art in Modern China. (4) (Formerly numbered C261D.) Lecture, three hours. Concentrated look at major schools and masters of Chinese art from turn of 20th century to present, with focus on interaction with foreign cultures and issues of self-identity, assimilation, modernity, tradition, and continuity. Consideration of recent developments in Chinese art in global context. Concurrently scheduled with course C148E. S/U or letter grading.

C248F. Advanced Chinese Painting. (4) Lecture, three hours. Examination of classical painting of imperial China through theory and practice. Concurrently scheduled with course C148F. S/U or letter grading.

C248G. Gardens in Chinese Art and Culture. (4) Lecture, three hours. Overview of practice, theory, and representation of Chinese gardens in their historical, philosophical, artistic, social, and cultural contexts through literary writings, paintings, and aspects of material culture. Concurrently scheduled with course C148G. S/U or letter grading.

C249A. Selected Topics in Chinese Art. (4) (Formerly numbered C261E.) Lecture, three hours. Variable topics in Chinese art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C149. S/U or letter grading.

249B. Chinese Art. (4) (Formerly numbered 260B.) Seminar, three hours. Advanced studies in secular and religious artistic traditions of China. May be repeated for credit with consent of adviser. S/U or letter grading.

C250. Advanced Japanese Art. (4) (Formerly numbered C259.) Lecture, three hours. Requisite: course 150A. Study in Japanese painting and sculpture. Concurrently scheduled with course C150B. S/U or letter grading.

C251A. Selected Topics in Japanese Art. (4) Lecture, three hours. Variable topics in Japanese art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C151. S/U or letter grading.

251B. Japanese Art. (4) (Formerly numbered 260C.) Lecture, three hours. Advanced studies in secular and religious artistic traditions of Japan. May be repeated for credit with consent of adviser. S/U or letter grading.

C252A. History of Korean Painting. (4) (Formerly numbered C242A.) Lecture, three hours. Korean painting history from Three Kingdoms period to 19th century, examined within cultural and sociopolitical contexts. Special emphasis on diversity of topics and social status of artists during Choson dynasty (1392 to 1910). Concurrently scheduled with course C152B. S/U or letter grading.

C252B. History of Korean Ceramics. (4) (Formerly numbered C242B.) Lecture, three hours. History of Korean ceramics from Neolithic period to 19th century, with special emphasis on technological and stylistic developments. Concurrently scheduled with course C152C. S/U or letter grading.

C252C. History of Korean Buddhist Art. (4) (Formerly numbered C242C.) Lecture, three hours. History of Korean Buddhist art from Three Kingdoms period to Choson dynasty, with special emphasis on Buddhist iconography and relationship between sculpture, painting, and architecture. Concurrently scheduled with course C152D. S/U or letter grading.

C253A. Selected Topics in Korean Art. (4) (Formerly numbered C242D.) Lecture, three hours. Variable topics in Korean art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C153. S/U or letter grading.

253B. Selected Topics in Korean Art. (4) (Formerly numbered 243.) Lecture, three hours. Studies of Korean art under different art-historical perspectives, methods, and theories. Individual studies, with emphasis on professional presentation. Group studies may be linked to exhibition projects. May be repeated with consent of instructor. S/U or letter grading.

C254A. Advanced Indian Art. (4) (Formerly numbered C257.) Lecture, three hours. Requisite: course 154A. Study in Indian sculpture and architecture. Concurrently scheduled with course C154C. S/U or letter grading.

254B. Modern and Contemporary South Asian Art. (4) (Formerly numbered 280C.) Lecture, three hours. Topics in modern and contemporary South Asian art from 1900 to present. Letter grading.

C255A. Selected Topics in South and Southeast Asian Art. (4) Lecture, three hours. Variable topics in South and Southeast Asian art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C155. S/U or letter grading.

255B. Indian Art. (4) (Formerly numbered 260A.) Lecture, two hours. Advanced studies in secular and religious artistic traditions of India. May be repeated for credit with consent of adviser. S/U or letter grading.

C258A. Selected Topics in Asian Arts and Architecture. (4) Lecture, three hours. Variable topics in Asian arts and architecture that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C158A. S/U or letter grading.

M258B. Topics in Asian Archaeology. (4) (Formerly numbered M262A.) (Same as Anthropology M216.) Lecture, three hours. Designed for graduate students. Topics may include identification of ethnic groups in archaeology, archaeology of religion, archaeological reflections of commerce and trade and their influence on social development, archaeology of language dispersal, cultural contact and nature of cultural influence. Letter grading.

258C. Fieldwork in Archaeology. (2 to 8) (Formerly numbered 265.) Fieldwork, to be arranged. Participation in archaeological excavations or other archaeo-

logical research under supervision of staff. May be repeated for credit with consent of adviser. S/U or letter grading.

C260A. Art and Empire. (4) (Formerly numbered C280A.) Lecture, three hours. Examination of relationship between art and imperial ideologies and introduction to current issues in colonial studies and post-colonial criticism. Concurrently scheduled with course C160. S/U or letter grading.

260B. Problems in Postcolonial Criticism. (4) (Formerly numbered 280D.) Seminar, three hours. Advanced study of current theoretical debates concerning colonial and postcolonial history and society. Letter grading.

C269. Selected Topics in Architectural History. (4) Lecture, three hours. Variable topics in architectural history that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C169. S/U or letter grading.

C270A. Museum Studies. (4) (Formerly numbered C203A.) Lecture, three hours; discussion, one hour (when scheduled). Introduction to museology as critical practice, with emphasis on history and theory of museums and impact of culture and society on current museum theory and practice. Concurrently scheduled with course C170A. S/U or letter grading.

C270B. Museum Studies Practicum. (2 to 4) (Formerly numbered C203C.) Lecture, three hours. On-site examination and discussion of selected artworks, exhibitions, and associated published and distributed materials, and of museum and gallery institutions, practices, and policies. Concurrently scheduled with course C170B. Letter grading.

C271. Selected Topics in Museum Studies. (4) (Formerly numbered 203D.) Seminar, three hours. Variable topics in museum studies that reflect interests of individual regular and/or visiting faculty members. May be repeated for credit with topic change. Concurrently scheduled with course C171. S/U or letter grading.

C272A. Preservation of Art. (4) (Formerly numbered C203E.) Lecture, three hours. Designed for anthropology, archaeology, and art history graduate students. Introduction to preservation of cultural heritage materials, including what should be preserved and why, as well as who should be involved in decision-making process. Discussion of issues of preservation and restoration of these cultural heritage materials both in museum and outdoor environment contexts. Materials and techniques used to make cultural heritage materials, in relation to preservation efforts needed to prevent decay and loss. Introduction to examples of conservation issues related to sites, buildings, monuments, and collections. Ethical and contextual aspects with reference to changing values, illustrating how cultural materials may have been treated differently according to those values. Concurrently scheduled with course C172A. S/U or letter grading.

272B. Restoration, Preservation, and Conservation. (4) (Formerly numbered 204.) Seminar, three hours. May not be repeated. S/U or letter grading.

C272C. Art: Fakes, Forgeries, and Authenticity. (4) (Formerly numbered C203G.) Lecture, three hours. Examination of concepts of authenticity, originality, fakes, and forgeries in art. Overview of problems inherent in concept of authenticity and description of many examples of problems related to this concept in series of discussions based on objects from variety of cultures. Introduction to subject of fakes and account of three different areas of connoisseurship that are essential component of production, study, and scientific examination of fakes. Nature of art connoisseurship described in many examples from Renaissance and earlier panel paintings, as well as antiquities and traditional African arts. Background of art restoration and art conservation discussed in relationship to authenticity and technical studies. Scientific tools that form basis of another kind of connoisseurship described in terms of dating techniques that can be applied directly to works of art and technical methods by which

material constituents of works of art are studied. Concurrently scheduled with course C172B. S/U or letter grading.

273. Studies in Materials and Production of Art-works. (4) Seminar, three hours. Designed to expose students to material properties and technical production issues related to making of artworks. Introduction to processes of construction, fabrication, maintenance, preservation, and more. Hands-on demonstrations and workshops to deepen understanding of significance of choices that artists make in choice of materials. Processes of making that can impact final physical forms as well as aesthetic meanings that can attach to it. Combination of theoretical, ethical, and practical questions that confront conservators as well as those specializing in technical art history. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Art History. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Designed for graduate students. Required of all new teaching assistants during fall quarter of their teaching assistant appointment. Workshop/seminar in teaching techniques and pedagogical issues, consisting of readings, discussions, and guest speakers on selected topics. May not be applied toward MA or PhD course requirements. S/U grading.

496. Teaching with Technology. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Designed for graduate students. Introduction to technological support available to new departmental teaching assistants. Topics include exploring functions of teaching assistant archive, CCLE, MyUCLA, Gradebook, and Turnitin and ways to efficiently use these tools. Introduction to lesson planning and ways to establish effective teaching strategies in and out of classroom. May not be applied toward MA or PhD course requirements. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U or letter grading.

597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations. (2 to 12) Tutorial, to be arranged. S/U grading.

598. Research for and Preparation of MA Thesis. (2 to 12) Tutorial, to be arranged. S/U grading.

599. Research for and Preparation of PhD Dissertation. (2 to 12) Tutorial, to be arranged. S/U grading.

Scope and Objectives

There is no major in arts and architecture; however, the following courses are part of the schoolwide curriculum.

Arts and Architecture

Lower Division Course

10. Arts Encounters: Exploring Arts Literacy in 21st Century. (5) Lecture, four hours; discussion, one hour; field trips, three hours; outside study, seven hours. Through series of direct encounters with art and artists across global range of practices, course equips students with kinds of critical skills that enhance their understanding of, and sharpen their appetite for, wide range of artistic practices. Attendance at performance/art events outside normal class schedule is mandatory. P/NP or letter grading.

Upper Division Course

100. Selected Topics in Arts. (4) Lecture, four hours; discussion and/or laboratory, three hours; outside study, five hours. Selected topics in arts explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for maximum of 8 units. P/NP or letter grading.

ASIAN AMERICAN STUDIES

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Renee E. Tajima-Peña, BA (*UCLA Alumni and Friends of Japanese Ancestry Professor of Japanese American Studies*)
Lois M. Takahashi, PhD
David K. Yoo, PhD
Min Zhou, PhD (*Walter and Shirley Wang Professor of U.S./China Relations and Communications*)

Professors Emeriti

Marjorie Kagawa-Singer, RN, PhD
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ARTS AND ARCHITECTURE

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 Kyeyoung Park, PhD
 Robert Chao Romero, JD, PhD

Lecturers

Stewart Kowh, JD
 Glenn K. Omatsu, MA

Adjunct Associate Professor

Tritia Toyota, PhD

Scope and Objectives

The Department of Asian American Studies, founded in 2004, promotes the study of Asian and Pacific Islander Americans across a number of fields and disciplines.

Following the tradition of civil rights struggles of the 1960s and 1970s, the department values the social relevance of academy-based knowledge production, as well as the connection between academia, the Asian Pacific Islander community, and other disadvantaged social groups. Faculty members in the department are likewise committed to offering a broad, inclusive, and flexible curriculum designed to meet maximum student needs, with emphasis on close mentorship, collaborative teaching, and engaged scholarship.

The undergraduate program offers a Bachelor of Arts degree for students who major in Asian American Studies, and an Asian American Studies minor for students from other departments. The education program performs the following missions: (1) conducts teaching that enables students to learn, think, and practice in a nurturing and intellectually stimulating environment, (2) equips students with theoretical and practical knowledge, as well as analytical and communicative skills that reflect the excellence of the faculty, and (3) serves student needs for personal enrichment by preparing them either for advanced graduate studies or for life after college as citizens, employees, and entrepreneurs.

As an interdisciplinary field, the undergraduate program examines the histories, contemporary realities, and diverse experiences of Asian and Pacific Islander Americans. The topical range of such examination includes immigration and diaspora, community work and development, race, gender, and generational dynamics, social activism, cultural production (including digital media and creative expression), political participation, and transnational encounters.

The graduate program offers a terminal Master of Arts degree. Graduate coursework is centered on 11 required courses that lead to completion of the degree through any one of the following venues: (1) writing a research thesis, (2) taking a written comprehensive examination that involves designing a set of undergraduate syllabi, or (3) working on an individual project. The department also grants two concurrent MA degrees—one jointly with the Fielding

School of Public Health and one with the Social Welfare Department.

The teaching and research methods used by faculty members in the department are interdisciplinary and comparative in nature, with a healthy mix of quantitative, qualitative, interpretive, and applied approaches. These methods develop out of dynamic cross-fertilization among faculty expertise that registers both major intellectual shifts in the field and notable trends from disparate disciplines, professional practices, and epistemological traditions.

Undergraduate Study

The Asian American Studies major is a designated capstone major. Students are required to complete either a community-based applied team research project or an independent scholarly or creative expression project. Those who select the community-based project are expected to use their scholarly knowledge and analytical skills to examine problems facing Asian American and/or Pacific Islander populations, think creatively and innovatively about evidence-based solutions, and to produce reports that benefit community stakeholders. Those who select to design and complete an independent scholarly or creative expression project pursue a key idea or theme of personal interest that is related to their prior coursework and to the experiences and realities of Asian Americans and/or Pacific Islanders. Through their capstone work, all students are expected to demonstrate their skills in using and synthesizing knowledge gained in disparate courses and communicating effectively their findings and conclusions in a final paper, report, or project and in a public forum.

Asian American Studies BA**Capstone Major**

The BA program in Asian American Studies provides a general introduction for students who anticipate advanced work at the graduate level or careers in research, public service, and community work related to Asian Pacific Americans. An overall grade-point average of 2.0 or better is required for admission to the major.

Preparation for the Major

Required: Two courses from Asian American Studies 10 or 10W, 20, 30 or 30W, 40, 50.

Transfer Students

Transfer applicants to the Asian American Studies major with 90 or more units must complete as many of the following courses as possible prior to admission to UCLA: two lower division Asian American studies courses or two courses that focus on Asian Americans.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: A total of 12 upper division courses, including one *scholarly and creative communications in Asian American studies course* (Asian American Studies 101); one *multidisciplinary*

plurality course selected from 103 through M129 and M172C; one *creative expression* course selected from 112C, 120, 121, 122B, C142A, C142B, C142C; one *diversity* course selected from 115, M116, 120, 130A, M130B, M130C, 143B, M143C, M165, 167, M169, 174A, 175A; one *global/transnational* course selected from 122A, 123, 170, 171A, 171B, 171C, M172C, 174B, 175B; one *engaged scholarship* course selected from 140SL, 141A, 141B, M143A, 195; five Asian American Studies elective courses selected from 103 through 199; and one capstone project course selected from 185 or 187.

No more than 12 graded units of Asian American Studies 195, 197, 198, and 199 may be applied toward the major. Courses 192 and 196 may not be applied toward the major.

Each course applied toward the major must be taken for a letter grade (courses offered only on a P/NP grading basis are acceptable), and each must be at least 4 units.

Honors Program**Admission**

The honors program is open to junior and senior Asian American Studies majors who have (1) 90 or more total units, (2) a grade-point average of 3.5 or better in upper division Asian American studies courses and an overall cumulative GPA of 3.0 or better, and (3) completed two lower division Asian American studies courses and one upper division research methods course selected from a list maintained in the Student Advising Office. Applications must be submitted no later than the end of the fifth week of classes during Winter Quarter each academic year. For application forms and further information, contact the undergraduate counselors.

Requirements

Honors students must take Asian American Studies 198A during Spring Quarter of the junior year. During Fall and Winter Quarters of the senior year, they take courses 198B and 198C, in which they write a thesis or its equivalent under the direction of a faculty member.

Asian American Studies Minor

The Asian American Studies minor is designed for students who wish to gain understanding of and competence in Asian American studies.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed two lower division Asian American studies courses, and file a petition with the undergraduate counselors, Asian American Studies Department, 3336 Rolfe Hall.

Required Lower Division Courses (10 units): Two courses from Asian American Studies 10 or 10W, 20, 30 or 30W, 40, 50.

Required Upper Division Courses (20 units): A total of five upper division courses as follows: one *multidisciplinarity* course selected from Asian American Studies 103 through M129 and M172C; one *creative expression* course

selected from 112C, 120, 121, 122B, C142A, C142B, C142C; one *diversity* course selected from 115, M116, 120, 130A, M130B, M130C, 143B, M143C, M165, 167, M169; one *global/transnational* course selected from 122A, 123, 170, 171A, 171B, 171C, M172C; and one *engaged scholarship* course selected from 140SL, 141A, 141B, M143A, 195.

No more than 4 graded units of Asian American Studies 195, 197, and 199 may be applied toward the minor. Courses 192 and 196 may not be applied toward the minor. Only courses in the department or those multiple-listed with the department may be taken to fulfill requirements for the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade (courses offered only on a P/NP grading basis are acceptable), each must be at least 4 units, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Asian American Studies offers the Master of Arts (MA) degree in Asian American Studies. Two concurrent degree programs (Asian American Studies MA/Public Health MPH and Asian American Studies MA/Social Welfare MSW) are also offered.

Asian American Studies

Lower Division Courses

10. History of Asian Americans. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 10W. Multidisciplinary examination of history of Asians and Pacific Islanders in U.S. P/NP or letter grading.

10W. History of Asian Americans. (5) Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 10. Multidisciplinary examination of history of Asians and Pacific Islanders in U.S. Satisfies Writing II requirement. Letter grading.

M18. Leadership and Student-Initiated Retention. (2) (Same as African American Studies M18, American Indian Studies M18, and Chicana and Chicano Studies M18.) Seminar, two hours. Limited to freshmen/sophomores/first-year transfer students. Not open for credit to students with credit for course M168. Exploration of issues in retention at UCLA through lens of student-initiated and student-run programs, efforts, activities, and services. Focus on populations with historically low graduation rates targeted by Campus Retention Committee. May not be applied

toward departmental major or minor elective requirements. May be repeated once for credit. Letter grading.

20. Contemporary Asian American Communities. (5) Lecture, three hours; discussion, one hour. Multidisciplinary introduction to contemporary Asian American populations and communities in U.S. Topics include contemporary immigration, demographic trends, sociocultural, economic, and political issues, and interethnic relations. P/NP or letter grading.

30. Asian American Literature and Culture. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 30W. Multidisciplinary introduction to Asian American literature and cultural production, with examination of some combination of novels, short stories, poetry, drama, performance, film, visual art, music, and/or new media. P/NP or letter grading.

30W. Asian American Literature and Culture. (5) Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 30. Multidisciplinary introduction to Asian American literature and cultural production, with examination of some combination of novels, short stories, poetry, drama, performance, film, visual art, music, and/or new media. Satisfies Writing II requirement. Letter grading.

40. Asian American Movement. (5) Lecture, three hours; discussion, one hour. Using Asian American movement of late 1960s and 1970s as lens, introduction to social history methods, including role of oral history, documentary films, and archival history, and analysis of primary and secondary sources. Asian American movement situated within larger frame of social change of era and interpretation of nation and society through lives of ordinary men and women. Exploration of campus- and community-based activism, service learning, and civic engagement. P/NP or letter grading.

50. Asian American Women. (5) Lecture, three hours; discussion, one hour. Overview of history of feminist theory and intersection of gender, class, race/ethnicity from cross-cultural perspectives, with focus on Asian American women's lived experiences in U.S. Topics include Asian American women's roles in family life, work, community organization, social change, and cultural creativity. Examination of broader structural forces that affect women in society, such as racialization, immigration, global capitalism, colonialism and postcolonialism, and social movements. P/NP or letter grading.

97. Variable Topics in Asian American Studies. (1 to 2) Tutorial, one to two hours. Current topics and particular research methods in Asian American studies through readings and other assignments. May be repeated for credit. P/NP grading.

Upper Division Courses

101. Scholarly and Creative Communication in Asian American Studies. (4) Lecture, three hours. Requisites: course 10 or 10W or 20, and either 10 (or 10W) and 20, or one additional course from 30, 30W, 40, or 50. Designed for advanced junior/senior Asian American Studies majors and minors. Examination of alternative modes of expression to effectively reach academic and nonacademic audiences, including written text, visual materials, and performance. Exploration of scholarly works by looking at how narratives are developed, ideas and values are framed, or knowledge is generated and transmitted, through either traditional or electronic mediums. Investigation of discursive and popular forms, stylistic patterns, and communicative practices. Themes and content vary by term. Independent research related to course objective may be pursued with guidance from instructor. Sharing and critiquing of other student works in progress. P/NP or letter grading.

103. Social Science Research Methods. (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Introduction to fundamentals of conducting social research on Asian Americans, pro-

viding experience in using some research methods and exercises in evaluating nature and quality of scientific research on Asian American issues. P/NP or letter grading.

104A. Field Studies Methods in Asian Pacific Communities. (4) Lecture, three hours. Preparation: one course from 101 through M191F. Development of community profiles on Asian Pacific American communities of students' choice, using various field studies techniques of data collection. P/NP or letter grading.

104B. Internships in Asian Pacific Communities. (4) Fieldwork, eight hours minimum. Requisite: course 104A or another Asian American studies course (except 199). Integrates academic and empirical work by providing students challenge of performing public service and community work in Asian Pacific or other multicultural communities, and of bringing their ongoing internship experiences back to classroom. P/NP grading.

105. Historical Research Methods. (4) Seminar, three hours. Requisite: course 10. Introduction to methods used to locate and analyze source materials for research on Asian American history. Historians have used wide range of sources that may include archival materials, oral history, material culture, and more. P/NP or letter grading.

M108. Policy, Planning, and Community. (4) (Same as Urban Planning M122.) Lecture, three hours; field laboratory. Project-oriented methods course on conducting needs assessment in Asian American communities. Geographic information systems to be used to define problems and needs. Letter grading.

111. Asian Americans and War. (4) Lecture, three hours. Interdisciplinary examination of role that war has played in history and culture of Asian Americans, drawing on diverse set of materials ranging from Asian American literature, Hollywood movies, and wartime propaganda to political speeches, Supreme Court decisions, and protest culture, to evaluate relationship between Asian American communities and geopolitical conflicts from late-19th century to contemporary period. P/NP or letter grading.

M112A. Historical Survey of Asian American Literature. (5) (Same as English M102A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of Asian American literature either produced from or thematically reflecting pre-1980 period. Issues include immigration, diaspora, generational conflict, appropriation of cultural traditions, ethnic/gender formation, interethnic dynamics, and social movement. Works by such authors as Edith Eaton, Younghill Kang, Carlos Bulosan, Hisaye Yamamoto, John Okada, Frank Chin, and Maxine Hong Kingston. P/NP or letter grading.

M112B. Contemporary Asian American Literary Issues and Criticism. (5) (Same as English M102B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of post-1980 Asian American literature that explores key literary and critical issues, such as race and geography, aesthetics and activism, cultural work and immigrant labor, kinship and sexuality, model minority and Orientalism, and meat versus rice, in study of novels, poetry, performance, memoirs, and essays. May be repeated for credit with topic or instructor change. P/NP or letter grading.

112C. Asian American Creative Writing. (4) Seminar, four hours. Enforced requisite: English Composition 3 or 3H. Designed for juniors/seniors. Examination of margin of geographic and psychic spaces that Asian Americans inhabit outside American mainstream and specific factors, such as generation, ethnicity, gender, class, and sexual orientation, that shape individual's unique margin. Balanced blend of reading and creative writing. P/NP or letter grading.

113. Asian Americans and Law. (4) Lecture, four hours. Survey of major federal and California case and legislative law directed specifically toward Asian Americans from 1850 to World War II and incarceration. Major subject areas include anti-Asian labor leg-

islation, legal prohibitions against Asians' right to testify, Executive Order 9066, and equal educational opportunity for Asians. P/NP or letter grading.

M114. Asian American Education and Schooling. (4) (Same as Education M103.) Seminar, four hours. Examination of existing body of research from various disciplines on Asian/Pacific American educational experiences. Letter grading.

115. Women and Community in Asian American Studies. (4) Lecture, three hours. Condition of Asian women in America. Topics include women in Asian American history, racial and cultural stereotypes, and contemporary issues. Methodological approaches to study of gender issues presented and evaluated. P/NP or letter grading.

M116. Asian American Social Movements. (4) (Same as Labor and Workplace Studies M116.) Lecture, three hours. Designed for juniors/seniors. Examination of several dimensions of Asian American social movements, including grassroots, mass movement character, political and social vision, and social and political relevance to current issues. How movement participants linked struggle for change with own personal transformation and growth. P/NP or letter grading.

M117. Asian American Personality and Mental Health. (4) (Same as Psychology M107.) Lecture, three hours. Requisite: Psychology 10. Foundations of personality development and mental health among Asian Americans. Topics include culture, family patterns, achievements, stressors, resources, and immigrant and minority group status. P/NP or letter grading.

118. Asian American Religious History. (4) Lecture, four hours. Examination of religion as thematic thread within context of Asian American history, primarily during period before World War II. Basic grounding in early Asian American history through exploration of role of religion in various communities. P/NP or letter grading.

M119. Asian American and Pacific Islander Labor Issues. (4) (Same as Labor and Workplace Studies M119.) Lecture, three hours. Examination of historical and contemporary labor issues in Asian and Pacific Islander American communities, with emphasis on key role that Asian and Pacific Islander American students can play in supporting labor struggles of low-income immigrants. P/NP or letter grading.

120. Asian American History through Lens. (4) Lecture, three hours. Exploration of documentary film, both as genre and as vehicle to present Asian American perspectives on history of Asian American individuals, communities, and cultures. P/NP or letter grading.

121. Exploring Asian American Theater. (4) Lecture, four hours. Study of Asian American plays; students required to compose one act based on their own experience using lessons learned in class. Exploration of scene study and acting exercises. P/NP or letter grading.

122A. Indigeneity, Empire, and Resistance in Pacific Islands. (4) Lecture, three hours. Introduction to indigenous and colonial histories of Pacific Islands. Discussions, film screenings, guest speakers, and reading assignments, with focus on issues of cultural survival, empire, indigeneity, migration, resistance, sovereignty, and war. P/NP or letter grading.

122B. Gender and Film in Pacific. (4) Lecture, three hours. Requisite: course 122A. Exploration of rise of film in Pacific Islands during 20th century, with attention to politics of gender, history, and representation, to engage students in textual and visual readings of feature-length films about Pacific. Discussions, film screenings, and guest speakers, with focus on aesthetic, cultural, economic, gendered, historical, and political dimensions of films. P/NP or letter grading.

123. Cultures of/against Empire. (4) Seminar, three hours. Critical concepts and cultural practices linking Asian American studies to study of U.S. cultures of imperialism. Course begins with premise that Asian American studies contribute distinctly to contemporary scholarship on U.S. empire. Examination of politi-

cal and intellectual coalitions toward which Asian American studies critique builds. Emphasis on works that approach study of empire through comparative racial formation, postcolonialism, transnationalism, and studies of migration. P/NP or letter grading.

M124. Comparative Racialization and Indigeneity. (4) (Same as African American Studies M124.) Lecture, three hours. Examination of processes and histories of racialization and colonization in U.S. Discussions, film screenings, guest speakers, and reading assignments, with focus on issues of cultural survival, empire, indigeneity, migration, resistance, sovereignty, and war. P/NP or letter grading.

M129. Health Issues for Asian Americans and Pacific Islanders: Myth or Model? (4) (Same as Community Health Sciences M140.) Lecture, three hours; fieldwork, one hour. Introductory overview of mental and physical health issues of Asian Americans and Pacific Islanders; identification of gaps in health status indicators and barriers to both care delivery and research for these populations. Letter grading.

130A. Chinese American Experience. (4) Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of Chinese Americans. Examination of historical and contemporary sociocultural, economic, and political issues as they affect status of Chinese Americans and their community. P/NP or letter grading.

M130B. Chinese Immigrant Literature and Film. (4) (Same as Chinese M153 and Comparative Literature M171.) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. In-depth look at Chinese immigrant experience by reading literature and watching films. Theories of diaspora, gender, and race to inform thinking and discussion of relevant issues. P/NP or letter grading.

M130C. Chinese Immigration. (4) (Same as Sociology M153.) Lecture, three hours; discussion, one hour. Survey of sociological studies of Chinese immigration, with focus on international context, organization, and institutions of Chinese America and its interactions with social environment. P/NP or letter grading.

131A. Japanese American Experience. (4) Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of Japanese Americans. Examination of historical and contemporary sociocultural, economic, and political issues as they affect status of Japanese Americans and their community. P/NP or letter grading.

131B. Japanese Americans and Incarceration. (4) Seminar, three to four hours. Requisite: course 10 or 10W. Designed for juniors/seniors. In-depth analysis of key literature about mass incarceration of Japanese Americans during 1940s. Immediate and long-range effects of internment. Emphasis on research. Original paper based on primary sources held by University of California required. Letter grading.

131C. Japanese American Resettlement. (4) Seminar, three hours. Requisite: course 10. In-depth analysis of key literature about resettlement of Japanese Americans during World War II. Development of original research paper based on primary sources. P/NP or letter grading.

132A. Korean American Experience. (4) Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of Korean Americans. Examination of historical and contemporary sociocultural, economic, and political issues as they affect status of Korean Americans and their community. P/NP or letter grading.

133. Pilipino American Experience. (4) Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of Pilipino Americans. Examination of historical and contemporary sociocultural, economic, and political issues as they affect status of Pilipino Americans and their community. P/NP or letter grading.

134. Vietnamese American Experience. (4) Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of Vietnamese Americans. Examination of his-

torical and contemporary sociocultural, economic, and political issues as they affect status of Vietnamese Americans and their community. P/NP or letter grading.

140SL. Power to People: Asian American and Pacific Islander Community-Based Learning. (4) Lecture, two hours; fieldwork, four hours. Enforced requisite: course 10 or 20 or 40. Service-learning course to engage and critically examine community organizing and community-based organizations (CBOs) in Asian American and Pacific Islander communities related to issues such as arts and culture, community health, and applied research. P/NP or letter grading.

141A. Asian American and Pacific Islander Leadership Development Project Part I: Leadership. (4) Lecture, three to four hours. Limited to juniors/seniors. First term of two-term series on leadership development, with focus on intellectual and practical learning of leadership concepts, models, and skills. In Progress grading (credit to be given only on completion of course 141B).

141B. Asian American and Pacific Islander Leadership Development Project Part II: Field Studies. (4) Lecture, three hours; fieldwork, three hours. Enforced requisite: course 141A. Limited to juniors/seniors. Second term of two-term series on leadership development, with focus on Asian American, Pacific Islander, and other ethnic communities in Los Angeles. Examination of different approaches and strategies to community building and maintenance. P/NP or letter grading.

C142A. Ethnocommunications I: Introduction to Creating Community Media. (4) (Formerly numbered 142A.) Seminar, three hours. Strong verbal communication skills and familiarity with technology required. Introduction to social documentary theory and methodology. Through hands-on production, use of digital video to tell visual stories, reclaim history, and examine social issues related to diverse peoples, cultures, and communities. Viewing of films and interactive media for critique and discussion, guest speakers, basic instruction in use of digital video technology, and group and individual video projects. Concurrently scheduled with course C242A. P/NP or letter grading.

C142B. Ethnocommunications II: Intermediate Creating Community Media. (4) (Formerly numbered 142B.) Laboratory, three hours. Continuing instruction in use of digital technology and concepts and methods of Asian Pacific American community preservation. Topics include scriptwriting, budgeting, video image and sound control through camcorder functions, basic composition/lighting, sound recording, interviewing techniques, and editing. Completion of community profile project required. Concurrently scheduled with course C242B. P/NP or letter grading.

C142C. Ethnocommunications III: Advanced Creating Community Media. (2 to 4) (Formerly numbered 142C.) Laboratory, two to three hours. Enforced requisite: course C142B. Advanced instruction in use of digital technology and concepts and methods of Asian Pacific American community preservation. Topics include scriptwriting, budgeting, video image and sound control through camcorder functions, basic composition/lighting, sound recording, interviewing techniques, and editing. Completion of community profile project required. Concurrently scheduled with course C242C. P/NP or letter grading.

142D. Visualizing History: Introduction to Creating Community Media. (4) Laboratory, three hours. Rapid developments in video and digital technologies have made it possible for previously neglected or submerged communities to visually document issues around their migration, settlement, cultural imagery, and artistic expressions. Introduction to ethnocommunications theory and methodology, developed to allow diverse peoples and cultures to reclaim and promote their histories, experiences, and contributions through study, analysis, and vigorous usage of new media technologies. P/NP or letter grading.

M143A. Fieldwork in Asian American and Pacific Islander Communities. (4) (Same as Anthropology M139P.) Lecture, three hours; discussion, one hour. Introduction to qualitative research methods and application of techniques in data collection, analysis, and reporting. Critical reflection of issues related to identity, migration, multiculturalism, tourism, and indigenous rights. Field excursions and guest lecturers from local community included. Given in Hawai'i. P/NP or letter grading.

143B. Politics of Race, Ethnicity, Migration, and Multiculturalism in Hawai'i. (4) Lecture, three hours; discussion, one hour. Critical examination of historical and contemporary experiences of various people in Hawai'i. Investigation of historical, economic, and political contexts of migration and relations between indigenous peoples, migrants, and existing racial and ethnic groups. P/NP or letter grading.

M143C. Ethnic Identity and Ethnic Relations in Hawai'i. (4) (Same as Anthropology M177P.) Lecture, three hours; discussion, one hour. Continuing construction and expression of ethnic identity in various cultural forms and social contexts in Hawai'i. Overview of theoretical approaches to and basic concepts in study of ethnic identity and ethnic relations. Discussion of historical and contemporary aspects of ethnic identity and ethnic relations in Hawai'i. Given in Hawai'i. P/NP or letter grading.

M160. Culture, Media, and Los Angeles. (6) (Same as African American Studies M102 and Honors Collegium M102.) Lecture, four hours; screenings, two hours. Designed for juniors/seniors. Role of media in society and its influence on contemporary cultural environment, specifically in Los Angeles; issues of representation as they pertain to race, ethnicity, gender, and sexuality. P/NP or letter grading.

M161. Ethnic, Cultural, and Gender Issues in America's Healthcare Systems. (4) (Same as Health Policy M110.) Lecture, three hours. Designed for juniors/seniors. Introduction to study of gender, ethnicity, and cultural diversity related to health status and healthcare delivery in U.S. Letter grading.

M164. Women, Violence, Globalization: India, Philippines, Singapore, Vietnam. (4) (Same as Gender Studies M164A.) Lecture, four hours. Study of various forms of violence done on women not only in and of themselves but in light of larger systems of oppression, with focus on Pilipino, Vietnamese, Singaporean, and South Asian cultures. Letter grading.

M165. Race, Gender, Class. (5) (Same as Comparative Literature M175.) Seminar, three hours. Theoretical and literary readings combined to explore three main aspects of social and cultural experience (race, gender, class) as separate but interconnected spheres affecting both minority and majority populations in U.S. Examination of these issues from comparative perspectives. P/NP or letter grading.

M166A. Immigrant Rights, Labor, and Higher Education. (4) (Same as Chicana and Chicano Studies M156A and Labor and Workplace Studies M166A.) Seminar, three hours. New immigrant rights movement, with particular attention to labor and higher education. Overview of history of immigrant rights movement and examination of development of coalition efforts between labor movement and immigrant rights movement nationally and locally. Special focus on issue of immigrant students in higher education, challenges facing undocumented immigrant students, and legislative and policy issues that have emerged. Students conduct oral histories, family histories, research on immigration and immigrant rights, write poetry and spoken word about immigrant experience, and work to collectively develop student publication on immigrant students in higher education. P/NP or letter grading.

M166B. Research on Immigration Rights, Labor, and Higher Education. (4) (Same as Chicana and Chicano Studies M156B and Labor and Workplace Studies M166B.) Seminar, two hours. Requisite: course M166A. Expansion of research conducted by students in course M166A involving oral histories, re-

search on immigration/labor/higher education, and evaluation of legislation and legal issues impacting undocumented students. Letter grading.

M166C. Worker Center Movement: Next Wave Organizing for Justice for Immigrant Workers. (4) (Same as African American Studies M167, Chicana and Chicano Studies M130, and Labor and Workplace Studies M167.) Seminar, three hours. Development of theoretical and practical understanding of worker center movement, with focus on historical factors that have led to emergence and growth of worker centers. Role of worker centers in promoting multi-ethnic and multiracial campaigns for workplace and economic justice. Transnational cross-border solidarity issues and rights of undocumented workers. P/NP or letter grading.

167. Immigration and New Second Generation. (4) Lecture, three hours. Study of lived experiences of contemporary immigrants and their children. Examination of socioeconomic circumstances, life chances, and outcomes of new second generation. Review of theoretical literature and empirical research on immigration and immigrant adaptation, comparing historical and contemporary trends of immigration and experiences of adult immigrants. Study of immigrant children's experiences, considering patterns, processes, and mechanisms of growing up American and identity formation. Asian immigration and Asian Americans from comparative perspective. P/NP or letter grading.

M168. Student-Initiated Retention and Outreach Issues in Higher Education. (4) (Same as African American Studies M118, American Indian Studies M118, and Chicana and Chicano Studies M118.) Lecture, four hours. Exploration of issues in outreach and retention of students in higher education, especially through student-initiated programs, efforts, activities, and services, with focus on UCLA as case. May be repeated twice for credit. Letter grading.

M169. Constructing Race. (4) (Same as African American Studies M159P and Anthropology M159P.) Lecture, three hours. Examination of race, socially constructed category, from anthropological perspective. Consideration of development of racial categories over time and in different regions, racial passing, multiracial identity in U.S., whiteness, race in popular culture, and race and identity. P/NP or letter grading.

170. Transnational Perspectives on Asian America. (4) Lecture, three hours. Recommended preparation: background in Asian Pacific American social and legal history. Designed for juniors/seniors. Examination of transformations that have occurred in Asian America in last four decades as consequence of global economic restructuring and new immigration. Introduction to and survey of new frameworks for understanding these changes in postmodern Asian Pacific American communities, using theories of transnationalism and Asian American political and racial history. Readings and discussion on transnational aspects of wide range of historical and contemporary topics in context of Asia/Asian American experience. Building of linkages between roots of social constructions of race and multisited social processes that now constitute globalizing Asian America. Theoretical readings assigned. P/NP or letter grading.

171A. Critical Issues in U.S.-China Relations. (4) Lecture three hours. Not open to freshmen. Critical examination of U.S. involvement in China, Hong Kong, and Taiwan, including study of historical, cultural, political, and socioeconomic factors that shape relations between China, Hong Kong, and Taiwan and U.S. Examination of impact of relationships in Pacific Rim and Chinese Americans and their communities. P/NP or letter grading.

171B. Critical Issues in U.S.-Japan Relations. (4) Lecture, three hours. Not open to freshmen. Critical examination of U.S. involvement in Japan, including study of historical, cultural, political, and socioeconomic factors that shape relations between Japan and U.S. Examination of impact of relationships in Pacific Rim and Japanese Americans and their communities. P/NP or letter grading.

171C. Critical Issues in U.S.-Korea Relations. (4) Lecture, three hours. Not open to freshmen. Critical examination of U.S. involvement in Korea, including study of historical, cultural, political, and socioeconomic factors that shape relations between Korea and U.S. Examination of impact of relationships in Pacific Rim and Korean Americans and their communities. P/NP or letter grading.

M171D. Critical Issues in U.S.-Philippine Relations. (4) (Same as History M144C.) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: History 176A, 176B, 176C. Designed for juniors/seniors. Examination of complex interrelationship between U.S. colonialism, Philippine nationalism, history of Filipino Americans, and Philippine diaspora in 20th century. P/NP or letter grading.

171E. Critical Issues in U.S.-Vietnam Relations. (4) Lecture, three hours. Not open to freshmen. Critical examination of U.S. involvement in Vietnam, including study of historical, cultural, political, and socioeconomic factors that shape relations between Vietnam and U.S. Examination of impact of relationships in Pacific Rim and Vietnamese Americans and their communities. P/NP or letter grading.

M172A. Indian Identity in U.S. and Diaspora. (4) (Same as History M174G.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of overseas Indian communities; transformations of Hinduism in diaspora; emergence of new diasporic art forms such as bhangra rap and chutney music; relations between Indians and other racial and ethnic groups; Indian women as embodiment of Indian culture; diasporic identities. P/NP or letter grading.

172B. Gender in South Asian Communities at Home and Abroad. (4) Seminar, three hours. Examination of centrality of gender to histories and identities of men and women of South Asian affiliation across multiple historical and geopolitical contexts. Focus on colonial South Asia, South Asian diasporas in U.K., South Asian Americans in U.S., and transnational South Asian public cultures. Theoretical approaches to study of South Asians in comparative frame and consideration of how transnational perspectives enable revisioning South Asian American experiences and to rethink relationship between Asian American studies, diaspora studies, and area studies. P/NP or letter grading.

M172C. Transnational Bollywood. (4) (Same as Communication Studies M137.) Lecture, three hours. Study of how popular Bollywood cinema materializes colonial and postcolonial formations pertaining to gender, class and caste, sexuality, race, and economic liberalization in South Asia, as well as across South Asian communities in North America, U.K., and Africa. Examination of how complex relationships between Bollywood and transnational South Asian diasporas enable us to better understand South Asian American communities. P/NP or letter grading.

M173. Topics in Vietnamese Cinema and/or Literature. (4) (Same as Vietnamese M155.) Lecture, three hours; discussion, one hour. Knowledge of Vietnamese not required. Critical and historical examination of literary and/or filmic representations connected to social practices such as empire, nation, diaspora, and globalization. Original language course materials available for interested students. P/NP or letter grading.

174A. Special Courses in Comparative Race, Ethnicity, Gender, and Sexuality. (4) (Formerly numbered 187D.) Lecture, three hours; discussion, one hour (when scheduled). Limited to juniors/seniors. Variable topics in selected issues on race, ethnicity, gender, and sexuality from comparative perspective. May be repeated for credit with topic change. P/NP or letter grading.

174B. Special Courses in Transnationalism and Diasporas. (4) (Formerly numbered 187E.) Lecture, three hours; discussion, one hour (when scheduled). Limited to juniors/seniors. Variable topics in selected comparative and international issues pertaining to transnationalism and diasporas. May be repeated for credit with topic change. P/NP or letter grading.

175A. Topics in Comparative Race, Ethnicity, Gender, and Sexuality. (4) (Formerly numbered 191D.) Seminar, three to four hours. Limited to juniors/seniors. Variable topics in selected issues on race, ethnicity, gender, and sexuality from comparative perspective. May be repeated for credit with topic change. P/NP or letter grading.

175B. Topics in Transnationalism and Diasporas. (4) (Formerly numbered 191E.) Seminar, three to four hours. Limited to juniors/seniors. Variable topics in selected comparative and international issues pertaining to transnationalism and diasporas. May be repeated for credit with topic change. P/NP or letter grading.

185. Capstone Community-Based Research. (4) Seminar, one hour; fieldwork, three hours. Limited to senior departmental majors and minors. Designed to serve as complement to service learning requirement for major and minor and may be used to fulfill capstone requirement for major and minor. Students work as research team, are matched with one or more community groups, and must complete minimum of 40 fieldwork hours. Duties and responsibilities collaboratively determined by instructor, students, and sponsoring organizations. Readings determined in consultation with instructor. Letter grading.

187. Capstone Research Seminar. (4) Seminar, three hours. Limited to senior departmental majors and minors. Synthesis and application of knowledge students have acquired through prior departmental courses so they can conduct in-depth research or creative-expression project. Themes may vary by instructor and term. Students pursue independent work related to course theme with guidance from instructor, then share and critique other student work in progress. Letter grading.

187A. Special Courses in Research Methodologies. (4) Lecture, three hours; discussion, one hour (when scheduled). Limited to juniors/seniors. Variable topics in multidisciplinary research methodologies in Asian American studies. May be repeated for credit with topic change. P/NP or letter grading.

187B. Special Courses in Asian American Themes. (4) Lecture, three hours; discussion, one hour (when scheduled). Limited to juniors/seniors. Variable topics in selected Asian American themes, including issues in cultural formation, religion, education, social class, economic development, social movement, politics, and public policy. May be repeated for credit with topic change. P/NP or letter grading.

187C. Special Courses in Asian American Populations and Communities. (4) Lecture, three hours; discussion, one hour (when scheduled). Limited to juniors/seniors. Variable topics in historical and contemporary issues pertaining to different Asian-origin subgroups and their respective communities. May be repeated for credit with topic change. P/NP or letter grading.

191A. Topics in Research Methodologies. (4) Seminar, three to four hours. Limited to juniors/seniors. Variable topics in multidisciplinary research methodologies in Asian American studies. May be repeated for credit with topic change. P/NP or letter grading.

191B. Topics in Asian American Themes. (4) Seminar, three to four hours. Limited to juniors/seniors. Variable topics in selected Asian American themes, including issues in cultural formation, religion, education, social class, economic development, social movement, politics, and public policy. May be repeated for credit with topic change. P/NP or letter grading.

191C. Topics in Asian American Populations and Communities. (4) Seminar, three to four hours. Limited to juniors/seniors. Variable topics in historical and contemporary issues pertaining to different Asian-origin subgroups and their respective communities. May be repeated for credit with topic change. P/NP or letter grading.

M191F. Topics in Asian American Literature. (5) (Same as English M191C.) Seminar, three or four hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in Asian American literature. Topics may include genres (auto-

biography, novel, poetry, short fiction, or drama); specific nationalities within Asian American community; themes of transnational migration; cross-cultural, interdisciplinary, or interracial negotiation; and gender and queer politics. Reading, discussion, and development of culminating project. May be repeated for credit with topic or instructor change. P/NP or letter grading.

192. Undergraduate Practicum in Asian American Studies. (2 or 4) Seminar, two or four hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students in Asian American studies courses. Students assist in preparation of materials and development of innovative programs with guidance of faculty members in small course settings. May not be applied toward departmental major or minor requirements. May be repeated for credit. P/NP grading.

195. Community or Corporate Internships in Asian American Studies. (4) Tutorial, two hours; fieldwork, eight hours. Requisites: courses 10 or 10W, and 20. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

M195CE. Comparative Approaches to Community and Corporate Internships. (4) (Same as African American Studies M195CE, American Indian Studies M195CE, Chicana and Chicano Studies M195CE, and Gender Studies M195CE.) Tutorial, one hour; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Comparative study of race, gender, and indigeneity in relation to contemporary workplace dynamics. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. Individual contract with supervising faculty member required. P/NP or letter grading.

196. Research Apprenticeship in Asian American Studies. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper division students under guidance of faculty mentor to learn skills and techniques. May not be applied toward departmental major or minor requirements. May be repeated for credit. Individual contract required. P/NP grading.

197. Individual Studies in Asian American Studies. (2 to 4) Tutorial, three hours. Requisites: course 10 or 10W or 20 or comparable knowledge in Asian American studies, 3.0 grade-point average or better. Limited to juniors/seniors. Directed reading of scholarly work or supervised research between student and faculty member. No original research or project expected, but tangible evidence of mastery of subject matter required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

198A. Honors Research in Asian American Studies. (4) Tutorial, three to four hours. Requisites: two courses from 10 (or 10W), 20, and 30 (or 30W) and one course from 104A through M108, 187A, or 191A. Introduction to research techniques and applications of methodologies in study of Asians and Pacific Islanders in U.S. Development of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

198B-198C. Honors Research in Asian American Studies. (4-4) Tutorial, three hours. Requisite: course 198A. Course 198B is requisite to 198C. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. In Progress (198B) and letter (198C) grading.

199. Directed Research or Senior Project in Asian American Studies. (2 to 4) Tutorial, three hours. Preparation: 3.0 overall grade-point average. Requisites: courses 10 (or 10W) and 20 or comparable knowledge in Asian American studies. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating research paper or project report required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Critical Issues in Asian American Studies. (4) Seminar, three hours. Designed for graduate students. Examination and development of critical appreciation of research literature on Asians in America and development of alternative interpretations of Asian American experience. Topics include Asian American history and economic/political and social/psychological issues. S/U or letter grading.

200B. Critical Issues in Asian American Communities. (4) Lecture, three hours. Designed for graduate students. Evaluation of traditional and contemporary theories and models of community for their appropriateness to understanding Asian Pacific American communities. Consideration of specific topics that explicate development, structure, and dynamics of Asian Pacific American communities in studying community issues and concerns. S/U or letter grading.

200C. Critical Issues in Asian American Studies Research. (4) Seminar, three hours. Designed for graduate students. Critical review of research methods, strategies, and philosophies in Asian American studies. S/U or letter grading.

200D. Asian American Literature and Culture. (4) Seminar, three hours. Examination of questions arising from Asian American literary and cultural criticism from mid-1980s to present, with focus on assumptions, possibilities, and limitations of certain theoretical perspectives and positions that have become important in Asian American critical practice. S/U or letter grading.

203. Asian American Research Methods. (4) Seminar, three hours. Introduction to empirical research methods, stressing uses and relevancy in research with ethnic minority populations. Review of characteristics and logical processes of research and applicability of scientific and scholarly inquiry in advancing knowledge. S/U or letter grading.

M213. Asian-Latinos. (4) (Same as Chicana and Chicano Studies M213.) Seminar, three hours. Limited to graduate students. Examination of historical and contemporary populations of Asian-Latinos in Latin America and U.S. Review and critique of nascent literature on Asian-Latinos and analysis of experience of Asian-Latinos utilizing theoretical frameworks of *mestizaje*, critical mixed-race theory, and transnationalism. Coverage of often-overlooked Asian contributions to Latin American and Chicano/Latino culture and identity and exploration of unique experience of mixed-race Asian-Latinos. S/U or letter grading.

215A-215B. Asian American Jurisprudence. (215A: 3 or 4/215B: 1 or 2) (Formerly numbered M215A.) Lecture, three hours. Course 215A is enforced requisite to 215B. Designed for graduate students. Through judicial opinions, commentary, and historical readings, examination of how American law has shaped demographics, experiences, and possibilities of Asian Americans and also how they shaped American law as well. Concurrently scheduled with Law 315. In Progress (215A) and S/U or letter (215B) grading.

222. Colonialism and Law in Pacific. (4) Seminar, three hours. Reading seminar on broad topics of colonialism and law. Survey of anthropological, historical, and legal studies of ways in which colonialism and law operate as methods of social control, order, and surveillance in Asia and Pacific. S/U or letter grading.

231. Japanese American Resettlement: Meaning and Methods. (4) Seminar, three hours. Designed for graduate students. In-depth analysis of multiple dimensions of Japanese American post-World War II resettlement and research methods needed to study resettlement holistically. S/U or letter grading.

M239. Race, Ethnicity, and Culture as Concepts in Practice and Research. (4) (Same as Community Health Sciences M239.) Seminar, three hours. Integration of cross-cultural findings in healthcare with current American (U.S.) healthcare system paradigms to facilitate designing culturally based public health programs and train culturally competent practitioners. Letter grading.

C242A. Ethnocommunications I: Introduction to Creating Community Media. (4) Seminar, three hours. Strong verbal communication skills and familiarity with technology required. Introduction to social documentary theory and methodology. Through hands-on production, use of digital video to tell visual stories, reclaim history, and examine social issues related to diverse peoples, cultures, and communities. Viewing of films and interactive media for critique and discussion, guest speakers, basic instruction in use of digital video technology, and group and individual video projects. Concurrently scheduled with course C142A. S/U or letter grading.

C242B. Ethnocommunications II: Intermediate Creating Community Media. (4) Laboratory, three hours. Continuing instruction in use of digital technology and concepts and methods of Asian Pacific American community preservation. Topics include scriptwriting, budgeting, video image and sound control through camcorder functions, basic composition/lighting, sound recording, interviewing techniques, and editing. Completion of community profile project required. Concurrently scheduled with course C142B. S/U or letter grading.

C242C. Ethnocommunications III: Advanced Creating Community Media. (2 to 4) Laboratory, two to three hours. Enforced requisite: course C242B. Advanced instruction in use of digital technology and concepts and methods of Asian Pacific American community preservation. Topics include scriptwriting, budgeting, video image and sound control through camcorder functions, basic composition/lighting, sound recording, interviewing techniques, and editing. Completion of community profile project required. Concurrently scheduled with course C142C. S/U or letter grading.

M260. Topics in Asian American Literature. (4) (Same as English M260A.) Seminar, three hours. Graduate seminar that examines and critically evaluates writings of Asian Americans. May be repeated for credit. S/U or letter grading.

M261. Theorizing Third World. (4) (Same as Comparative Literature M274.) Seminar, three hours. Investigation of politics of power, gender, and race in complex relationships between so-called First World and Third World, using both theoretical and textual approaches. S/U or letter grading.

M290Q. Social Welfare Policy in Asian American Communities. (4) (Same as Social Welfare M290Q.) Seminar, three hours. Overview of social welfare policy in Asian American communities. Introduction to major social welfare policies and programs in U.S. and impact on Asian American communities. Policy development, approaches, processes of implementation, evaluation, and strategies to effect policy. S/U or letter grading.

297A-297Z. Topics in Asian American Studies. (4 each) Seminar, three hours. Designed for graduate students. Selected topics in Asian American studies. S/U or letter grading:

297B. Asian Migration to U.S. (4) Seminar, three hours. Emphasis on Asia as main regional source for international migrants. Topics include patterns and theories of international migration and their relevance to Asian experience, sending and receiving country perspectives, research and policy issues. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, three hours. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. Unit credit may be applied toward full-time equivalence but not toward 11-course requirement for MA. May be repeated for credit. S/U grading.

490. Writing Workshop for Graduate Students. (2) Lecture, one hour; discussion, one hour. Practice in writing reports, grant proposals, abstracts, theses, and article-length research papers. Analyzing rhetorical and stylistic features of essays in various Asian American journals helps students improve both their prose style and editorial abilities. Four units may be applied toward MA degree requirements. May be repeated once for credit. S/U grading.

495. Supervised Teaching of Asian American Studies. (4) Seminar, three hours. Preparation: apprentice personnel appointment as teaching assistant in Asian American studies. Designed for graduate students. Required of all new teaching assistants. Special course for teaching assistants designed to deal with problems and techniques for teaching introductory Asian American studies courses. Unit credit may be applied toward full-time equivalence but not toward course requirements for MA. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U or letter grading.

597. Research for and Preparation of MA Capstone. (2 to 8) Tutorial, three hours. Limited to graduate students. Preparation and research for MA capstone. May be repeated for credit. S/U grading.

598. Research for and Preparation of MA Thesis. (2 to 8) Tutorial, to be arranged. Preparation of research data and writing of MA thesis. S/U grading.

Richard E. Strassberg, PhD
Shirleen S. Wong, PhD

Associate Professors

Jack W. Chen, PhD
Robert Y. Chi, PhD
Hung-hsiang Chou, PhD
Torquil Duthie, PhD (*Haruhisa Handa Professor of Shinto Studies*)
Michael D. Emmerich, PhD
Christopher P. Hanscom, PhD
Natasha L. Heller, PhD
Namhee Lee, PhD
Thu-huong Nguyen-vo, PhD
Sung-Deuk Oak, ThD

Assistant Professor

Min Li, PhD

Lecturers S.O.E.

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Kuo-yi Pao, MA, MS, *Emeritus*

Lecturers

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Yumiko Kawanishi, PhD
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ASIAN LANGUAGES AND CULTURES

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Robert C. Epp, PhD
Theodore D. Huters, PhD
Kan Lao, BA
Peter H. Lee, PhD
Richard C. Rudolph, PhD
Hartmut E.F. Scharfe, PhD
Jonathan A. Silk, PhD

Scope and Objectives

The Department of Asian Languages and Cultures offers a wide range of courses in the languages, literatures, religions, and cultural heritage of China, Japan, and Korea, as well as South and Southeast Asia. The department offers training in many specialized fields such as archaeology, film, folklore, history, linguistics, literature, mythology, religious studies, and cultural studies. Courses prepare students for careers in business, government service, international relations, journalism, law, publishing, teaching, and academic professions.

Undergraduate majors earn a Bachelor of Arts degree. The graduate program offers Master of Arts and PhD degrees. At all levels of study, various major fields are possible.

For undergraduates, the department offers majors that combine language study with courses taught in English that examine the rich cultural heritage of China, Japan, and Korea, as well as South and Southeast Asia. The majors also provide opportunities for education abroad in an Asian country. The language courses aim to develop the four skills of speaking, aural comprehension, reading, and writing in a balanced and mutually supportive manner. The lecture and seminar courses aim to develop critical thinking and writing skills through in-depth study of a culture within a broader historical and comparative context.

Undergraduate majors who wish to pursue graduate degrees are encouraged to apply for admission to the honors program.

At the graduate level, the department offers a program leading to an MA degree in several fields of Asian culture. The MA degree is preparatory to entrance into the PhD program. The PhD program, which is very selective, trains research scholars for academic careers in specialized fields.

Courses for Nonmajors

The department offers many courses in which knowledge of Asian languages is not required. A current list is available in the department office (290 Royce Hall) and at <http://www.alc.ucla.edu>.

Undergraduate Study

The department offers one major in the study of Asian languages and linguistics—BA in Asian Languages and Linguistics, two majors in the study of Asian cultures—BA in Asian Humanities and BA in Asian Religions, and three majors in Asian literatures—BA in Chinese, BA in Japanese, and BA in Korean. Each course in the majors must be taken for a letter grade.

The department also offers two minors—Asian Humanities minor and Asian Languages minor. Each course in the minors must be taken for a letter grade.

Students considering a major or minor in the department should consult the departmental undergraduate adviser as soon as possible in their University career, but in no case later than the point at which they are about to begin taking upper division courses. Students should select courses to fulfill major or minor requirements in consultation with the undergraduate adviser. The approved list of courses for each category of major or minor requirements is available in the department office (290 Royce Hall) and at <http://www.alc.ucla.edu>.

At least 24 upper division units required for the majors must be completed successfully while in residence at UCLA.

Placement in Language Courses

Students are not placed in Chinese, Japanese, and Korean language courses automatically according to their years of previous study. Students with any prior knowledge or study of an Asian language who wish to take courses in that language at UCLA are required to take the appropriate departmental language placement examination (see the Schedule of Classes or <http://www.alc.ucla.edu> for more information). The examination determines which course is most appropriate for the student's current level of proficiency. Students who have obtained college credit for Asian language courses may not repeat those same courses for credit. Prospective majors who place out of the upper division modern language requirement are expected to substitute an equivalent number of other units to be selected in consultation with the departmental undergraduate adviser.

Language Acquisition Courses

No credit is allowed for completing a less advanced course after successful completion of a more advanced Asian language course with focus on conversation, grammar, and/or composition.

Asian Humanities BA

Preparation for the Major

Required: Completion of the intermediate sequence in one Asian language offered by the department (e.g., Chinese 6, 10, Filipino 6, Hindi-Urdu 6, Indonesian 6, Japanese 6, 10, Korean 6, 10, Thai 6, Vietnamese 6, or equivalent) and Asian 30 or one civilization course (e.g., Chinese 50, Japanese 50, 70, Korean 50) or one introduction to religions course (e.g., Asian M60, M60W, M61, Chinese M60, M60W, Korean M60, South Asian M60, Southeast Asian M60) within the department.

Transfer Students

Transfer applicants to the Asian Humanities major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of Chinese, Japanese, Korean, Filipino/Tagalog, Hindi, Indonesian, Thai, or Vietnamese and either one civilization course on Asia or one introduction to Buddhism course or one introduction to Asian religions course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Three upper division language courses in one Asian language offered by the department and eight upper division electives within the department, including at least one course from at least four of the following areas: China, Japan, Korea, South Asia, or Southeast Asia.

Asian Languages and Linguistics BA

Preparation for the Major

Required: Completion of the intermediate sequence in one Asian language offered by the department (e.g., Chinese 6, 10, Filipino 6, Hindi-Urdu 6, Indonesian 6, Japanese 6, 10, Korean 6, 10, Thai 6, Vietnamese 6, or equivalent) and Asian 30 or one civilization course (e.g., Chinese 50, Japanese 50, 70, Korean 50, Southeast Asian 70) or one introduction to religions course (e.g., Asian M60, M60W, M61, Chinese M60, M60W, Korean M60, South Asian M60, Southeast Asian M60) within the department; and Linguistics 20.

Transfer Students

Transfer applicants to the Asian Languages and Linguistics major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of Chinese, Japanese, Korean, Filipino/Tagalog, Hindi, Indonesian, Thai, or Vietnamese and either one Asian language

and culture course or one civilization course on Asia or one introduction to Buddhism course or one introduction to Asian religions course or one introduction to linguistic analysis course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven courses as follows: (1) five upper division language courses in one Asian language offered by the department, or three upper division language courses in one Asian language offered by the department and two upper division language courses in a different Asian language offered by the department, (2) Asian 100 and 104, (3) two Asian linguistics courses selected from Asian CM124, Chinese 103, C120, Japanese M120, CM122, CM123, CM127, and (4) two upper division electives within the department or from the Linguistics Department.

Asian Religions BA

Preparation for the Major

Required: Completion of the intermediate sequence in one Asian language offered by the department (e.g., Chinese 6, 10, Filipino 6, Hindi-Urdu 6, Indonesian 6, Japanese 6, 10, Korean 6, 10, Thai 6, Vietnamese 6, or equivalent) and Asian 30 or one introduction to religions course from Asian M60, M60W, M61, Chinese M60, M60W, Korean M60, South Asian M60, or Southeast Asian M60.

Transfer Students

Transfer applicants to the Asian Religions major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of Chinese, Japanese, Korean, Filipino/Tagalog, Hindi, Indonesian, Thai, or Vietnamese, or one year of Sanskrit, and one introduction to Buddhism course or one introduction to Asian religions course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Three upper division language courses in one Asian language offered by the department; six upper division Asian religions courses within the department, including at least one course each concerning religions in China, Japan, Korea, and either South Asia or Southeast Asia; and two electives within the department.

Chinese BA

Preparation for the Major

Required: Chinese 6 or 6A or 10 or equivalent, and one course from 50, M60, M60W, 70, 70W, or Asian 30.

Transfer Students

Transfer applicants to the Chinese major with 90 or more units must complete as many of the

following introductory courses as possible prior to admission to UCLA: two years of Chinese and one Chinese civilization course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven courses as follows: (1) five language courses selected from either *modern Chinese* (Chinese 100A and 100B and 100C or 100I, 101A, 101B, 102A, C107A, C120, 130A or 130B, 135) or from *premodern Chinese* (110A, 110B, 110C, 140A through 140D, 165)—at least two language courses must be in the premodern language or texts, (2) one literature course selected from 130A, 130B, 131, 135, 140A through 140D, C150A, 150B, 151, 152, or M153, (3) three elective courses on China selected from C138, 139, 154, 155, C156, CM160, 165, 174, C175, 176, 180, 184, 185, 186, 187, 191A, 191B, or from items 1 and 2 above not used to fulfill another requirement, and (4) two additional upper division elective courses within the department but outside China.

Japanese BA

Preparation for the Major

Required: Japanese 6 or 10 or equivalent, and 50 or 70 or Asian 30.

Transfer Students

Transfer applicants to the Japanese major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of Japanese and one Japanese civilization or images of Japan course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven courses as follows: (1) five language courses in modern or premodern language or texts selected from Japanese 100A and 100B and 100C or 100S, 100R, 101A and 101B and 101C or 101S, 102A, 102B, 103A, 103B, 104, 110A, 110B, M120, CM123, 130A, 130B, 140A, 140B, 140C, C149, 165, C180, (2) one literature course selected from C150, 151, 154, M156, 157, 158, C159, 170, 172, C173, 174, C177, C186, or 191A, (3) three elective courses on Japan selected from C112, CM122, CM123, CM127, 155, CM160, 161, 165, C171, 175, C182, 191B, 191C, or from items 1 and 2 above not used to fulfill another requirement, and (4) two additional upper division elective courses within the department but outside Japan.

Korean BA

Preparation for the Major

Required: Korean 6 or 6A or 10 or equivalent, and 50 or M60 or Asian 30.

Transfer Students

Transfer applicants to the Korean major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of Korean and one Korean civilization course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven courses as follows: (1) five language courses selected from Korean 100A, 100B, 100C, 101A and 101B and 101C or 101I, 102A, 102B, 102C, 103A, 103B, 103C, 104A, 104B, 104C, C105A, C105B, C105C, 106A, 106B, 106C, 107A, 107B, 107C, CM120, 165, 176, 178, (2) one literature course selected from 130A, 130B, 150, or C151, (3) three elective courses on Korea selected from CM127, C149, 154, 155, CM160, 165, 172, 175, 177, 180A, 180B, 180C, 181, 182, 183, 184A, 184B, 185, M186, 187, 191A, 191B, or from items 1 and 2 above not used to fulfill another requirement, and (4) two additional upper division elective courses within the department but outside Korea.

Study Abroad

Early acquisition of Asian language skills aids in the timely completion of major requirements and enriches appreciation of Asian cultures. Students are encouraged, therefore, to complete up to a year of language study in approved programs of study abroad.

Honors Program

Admission

The honors program is open to departmental majors with a 3.5 grade-point average in upper division courses in the major and a 3.0 overall GPA. Students should apply for admission by spring quarter of their junior year and, at the time of admission, must have completed at least two upper division courses in their major. For application forms and further information, contact the departmental undergraduate adviser.

Requirements

The honors program is a three-term sequence (Asian 198A-198B-198C), taken in addition to requirements for the major, that culminates in the submission of a 40- to 60-page thesis. In most circumstances courses 198A-198B-198C are taken in the senior year (fall, winter, and spring quarters), although students also have the option of taking course 198A in spring quarter of their junior year. Students are expected to use an Asian language in their research, with the scope of language work to be determined in consultation with their faculty adviser. Highest honors, honors, or no honors are awarded as determined by the faculty thesis director and the departmental honors committee.

To qualify for graduation with departmental honors, students must (1) complete all require-

ments for the major, (2) have a cumulative grade-point average of 3.5 or better in upper division courses required for the major and an overall GPA of 3.0 or better, and (3) complete Asian 198A-198B-198C.

To qualify for graduation with departmental highest honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average of 3.8 or better in upper division courses required for the major and an overall GPA of 3.5 or better, and (3) complete Asian 198A-198B-198C with a grade of A in each course.

Asian Humanities Minor

The Asian Humanities minor is designed to recognize a serious commitment to the study of Asian cultures. Lower division survey courses in civilizations and religious traditions provide students with a solid foundation in the diverse cultural heritages of Asia. Students may fulfill upper division requirements from a wide variety of courses in all aspects and historical periods of Asian humanities.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed 45 units at UCLA and all lower division requirements for the minor, and consult with the departmental undergraduate adviser.

Required Lower Division Courses (10 units): Two courses from Asian 30, M60, M60W, M61, Chinese 50, M60, M60W, Japanese 50, 70, Korean 50, M60, South Asian M60, Southeast Asian M60.

Required Upper Division Courses (20 units): Five courses in the department concerning Asian culture (e.g., film, folklore, history, linguistics, literature, mythology, religious studies).

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor, and at least 16 units must be taken in residence at UCLA.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Asian Languages Minor

The Asian Languages minor is designed to recognize a serious commitment to the study of Asian languages. It is especially suited for students who wish to augment their major program in the College of Letters and Science with mastery of an Asian language. The lower division survey course in civilization or religious tradition provides students with an essential introduction to the diverse cultural heritages of Asia. The upper division language courses provide students with advanced skills in speaking, aural comprehension, reading, and writing an Asian language.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed 45 units at UCLA and all lower

division requirements for the minor, and consult with the departmental undergraduate adviser.

Required Lower Division Courses (10 units): Completion of the intermediate sequence in one Asian language offered by the department (e.g., Chinese 6, 10, Filipino 6, Hindi-Urdu 6, Indonesian 6, Japanese 6, 10, Korean 6, 10, Thai 6, Vietnamese 6, or equivalent) and Asian 30 or one civilization course (e.g., Chinese 50, Japanese 50, 70, Korean 50) or one introduction to religions course (e.g., Asian M60, M60W, M61, Chinese M60, M60W, Korean M60, South Asian M60, Southeast Asian M60) within the department.

Required Upper Division Courses (20 units): Three language courses in one Asian language offered by the department and two electives within the department.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor, and at least 16 units must be taken in residence at UCLA.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Asian Languages and Cultures offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Asian Languages and Cultures.

Asian

Lower Division Courses

M20. Visible Language: Study of Writing. (5) (Same as Indo-European Studies M20, Near Eastern Languages M20, Slavic M20, and Southeast Asian M20.) Lecture, three hours; discussion, one hour. Consideration of concrete means of language representation in writing systems. Earliest representations of language known are those of Near East dating to end of 4th millennium B.C. While literate civilizations of Egypt, Indus Valley, China, and Mesoamerica left little evidence of corresponding earliest developments, their antiquity and, in case of China and Mesoamerica, their evident isolation mark these centers as loci of independent developments in writing. Basic characteristics of early scripts, assessment of modern alphabetic writing systems, and presentation of conceptual basis of semiotic language representation. Origins and development of early non-Western writing systems. How Greco-Roman alphabet arose in 1st millennium B.C. and how it compares to other modern writing systems. P/NP or letter grading.

30. Languages and Cultures of Asia. (5) (Formerly numbered 120.) Lecture, three hours; discussion, one hour. Comparative perspective on Asian languages, with emphasis on three major East Asian languages—Chinese, Japanese, and Korean—to show what they share and how they differ in terms of linguistic features, historical development, and larger cultural settings in which these three languages are used. P/NP or letter grading.

M60. Introduction to Buddhism. (5) (Same as Religion M60A.) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course M60W. Knowledge of Asian languages not required. General survey of development of Buddhism in India, with focus on those religious doctrines and meditative practices most essential to various Asian traditions of Buddhism. Letter grading.

M60W. Introduction to Buddhism. (5) (Same as Religion M60W.) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course M60. Knowledge of Asian languages not required. General survey of Buddhist worldview and lifestyle, with focus on those religious doctrines and meditative practices most essential to various Asian traditions of Buddhism. Particular attention to problems involved in study of religion. Satisfies Writing II requirement. Letter grading.

M61. Introduction to Zen Buddhism. (5) (Same as Religion M61.) Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. Introduction to Zen traditions and to interplay between Zen and other fundamental cultural and religious concerns in East Asia. Topics include role of Zen within Buddhist thought and practice, artistic and literary arts, society, and daily life. Letter grading.

70A-70C. Popular Culture in East Asia. (5-5-5) Lecture, three hours; discussion, one hour. Popular culture in China, Japan, Korea, and Vietnam. Topics include popular religion, language, literature, arts, material culture, cinema, and music. Themes include identities, gender, sexuality, and class relations. Letter grading. **70A.** 17th through 19th Centuries; **70B.** 1895 to 1945; **70C.** From 1945.

Upper Division Courses

100. Methods in Asian Linguistics. (4) Lecture, three hours; discussion, one hour. Research methodologies for dealing with Asian languages, with emphases on bibliographical, data, and professional resources, issues in analyzing and presenting language examples, explaining language phenomena beyond what is observed, cross-linguistic comparisons, oral presentation skills, and writing reports in organized ways. P/NP or letter grading.

104. Asian Language Pedagogy. (4) Lecture, three hours; discussion, one hour. Required of all Asian Languages and Linguistics majors. Current issues in teaching Asian languages. Pedagogical grammar, curricular development, social, cultural, and cognitive foundations of Asian language acquisition, best practices in teaching Asian language writing systems, special issues in teaching heritage students, comparisons of K-12 language teaching and college language teaching, assessment methods, and emerging trends in Asian language teaching. P/NP or letter grading.

120FL. Readings in East Asian Languages. (2) Seminar, two hours. Requisite: Chinese 6 or 6A or 6C or Japanese 6 or Korean 6 or 6A. Enforced corequisite: course 120. Additional work in major East Asian languages to enrich and augment work assigned in course 120, including reading, writing, and other exercises in Chinese, Japanese, and Korean. P/NP or letter grading.

121. Field Methods in Asian Languages and Cultures. (3) Lecture, three hours. Recommended preparation: at least one year of one Asian language. Examination and application of methodologies to better understand language and culture acquisition by working directly with native speaker of Asian language and/or through available materials. One language per term to

be selected from languages spoken in Southeast Asia, South Asia, and East Asia. May be repeated for credit. P/NP or letter grading.

CM124. Teaching and Learning of Heritage Languages. (4) (Same as Near Eastern Languages CM114 and Slavic CM114.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and instructor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLLs) regarding teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM224. P/NP or letter grading.

130. Ideas of Culture in East Asian Studies. (4) Lecture, three hours. Knowledge of Asian languages not required. Literature and intellectual discourse of modern Japan and Korea from 1910 to 1945. Letter grading.

151. Buddhist Literature in Translation. (4) Lecture, three hours. Recommended preparation: prior course on Buddhism or traditional Asian religions. Knowledge of Asian languages not required. Readings from variety of Buddhist literature of Indic and non-Indic origin, with emphasis on key Buddhist themes and critical issues in cross-cultural interpretations of Asian religious texts. Letter grading.

152. Tibetan Buddhism. (4) Lecture, three hours. Knowledge of Asian languages not required. Survey of thought and practices of Buddhism in Tibet from its beginnings to present. Letter grading.

155. Buddhism, Film, and Media. (4) Lecture, three hours; discussion, one hour (when scheduled). Recommended requisite: course M60 (or Religion M60A) or M60W (or Religion M60W). Examination of issues related to Buddhism in globalizing world, with focus on changing and diverse presentations of Buddhism in film, print, and new media. P/NP or letter grading.

161. Topics in Asian Religions. (4) Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. In-depth examination of selected topics in one or more religious traditions of Asia. Topics vary, but may include death, gender, and state and religion. May be repeated for credit with topic change. Letter grading.

162. Buddhist Meditation Traditions. (4) Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. Survey of theory and practice of meditation in Buddhism, with emphasis on Theravada and Zen schools. Topics include various typologies of meditation, symbiotic relationship between meditation and soteriology, and processes by which doctrinal innovation prompts changes in meditative praxis. Letter grading.

163. Buddhism across Boundaries. (4) Lecture, two hours; discussion, one hour. Recommended preparation: prior course on Buddhism or traditional Asian religions. Knowledge of Asian languages not required. Investigation of various themes in development of Buddhist traditions across historical periods as well as national and cultural boundaries, including issues of praxis, politics, and translation. Letter grading.

164. Buddhism and Early Religious History of Pakistan, Afghanistan, and Central Asia: Introduction. (4) Lecture, three hours. Knowledge of Asian languages not required. Survey of regions and religions of Central Asia, especially Buddhism in Afghanistan and Pakistan. Topics include archaeological, art historical material, and linguistic approaches to history of religions. Letter grading.

C170. Approaches to Study of Religion. (4) Seminar, three hours. Investigation of many ways in which religion and religions may be studied, including anthropological, sociological, psychological, phe-

nomenological, political, reductionist, and other approaches. Readings of primary and secondary sources of modern scholarship. Concurrently scheduled with course C270. Letter grading.

190. Research Colloquia in Asian Languages and Cultures. (1) Seminar, one hour. Corequisite: course 198A or 198B or 198C or 199. Designed to bring together advanced undergraduate students undertaking individual supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

191A. Variable Topics Research Seminars: Life Writing in East Asia. (4) Seminar, three hours. Research seminar on selected topics. Readings of biography and autobiography as elements of East Asian cultural traditions, with focus rotating between China, Japan, and Korea. Readings in English and relevant East Asian languages, discussion, and development of culminating project. May be repeated for credit. Letter grading.

191B. Variable Topics Research Seminars: Buddhist Studies. (4) Seminar, three hours. Limited to juniors/seniors. Research seminar on selected topics in Buddhist studies. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

191H. Honors Research Seminars: Asian Languages and Cultures. (4) Seminar, three hours. Limited to departmental and College honors students. Introduction to research methods and critical approaches to study of Asia in preparation for writing of senior honors thesis. May be repeated for credit. Letter grading.

193. Speaker Series Seminars: Asian Languages and Cultures. (2) Seminar, two hours. Limited to undergraduate students. Introduction to latest scholarship in field of Asian studies. Attendance at selected scholarly presentations required, as well as sessions with faculty adviser to discuss presentations and published works of speakers. May be repeated for credit. P/NP grading.

195. Community Internships in Asian Languages and Cultures. (4) Tutorial, one hour; fieldwork, eight hours. Limited to juniors/seniors. Internship in supervised setting in community cultural or organizational setting. Students meet on regular basis with instructor and provide periodic journal reports of their experience. Final paper that combines academic research and knowledge gained from community experience required. Individual contract with supervising faculty member required. P/NP or letter grading.

198A-198B-198C. Honors Research in Asian Languages and Cultures. (4-4-4) Tutorial, three hours. Limited to junior/senior departmental majors. May be repeated for credit. Individual contract required. **198A.** Preparation: one undergraduate departmental seminar. Development of honors thesis under direct supervision of faculty member. Letter grading. **198B.** Enforced requisite: course 198A. Continuation of work initiated in course 198A. Presentation of research and relevant progress to supervising faculty member. In Progress grading (credit to be given only on completion of course 198C). **198C.** Enforced requisite: course 198B. Completion of research developed in courses 198A, 198B. Presentation of honors project to supervising faculty member. Letter grading.

199. Directed Research in Asian Languages and Cultures. (2 to 8) Tutorial, to be arranged. Recommended preparation: advanced reading knowledge of one Asian language. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated once with consent of instructor. Individual contract required. Letter grading.

Graduate Courses

200. Research Methods in East Asian Linguistics. (4) Seminar, three hours. Research methodologies for East Asian languages, with emphasis on compiling bibliographic data and using professional resources for research. Examination of issues in analyzing language examples, theoretical implications of linguistic data, and applications of functional linguistics in order to explain language phenomena. S/U or letter grading.

201. Proseminar: Approaches to Buddhist Studies. (4) Seminar, three hours. Designed for graduate students in Buddhist studies. Introduction to history of field, bibliography, relations with other disciplines, and current issues and research trends. S/U or letter grading.

202. Proseminar: Functional Approaches to Japanese/Korean Linguistics. (4) Seminar, four hours. Preparation: three years of Japanese or Korean, one year of any East Asian language, one functional linguistics course. Survey of recent empirical and theoretical research in syntax, semantico-pragmatics, theory of language change, and comparative sociolinguistics in Japanese/Korean. May be repeated for credit with consent of instructors. S/U or letter grading.

203. Variable Topics in East Asian Linguistics. (4) Seminar, three hours. Advanced course that explores topics in East Asian linguistics through critical reading of current research on Asian languages and in-depth analysis of linguistic data. Topics include linguistic structure, communicative function, pragmatics, language, society, and culture, and language change. May be repeated for credit. S/U or letter grading.

204A-204B. Issues and Practices in Teaching Asian languages. (4-4) Lecture, three hours. Course 204A is enforced requisite to 204B. Critical reading and discussion of major pedagogical issues in teaching Asian languages (chiefly Chinese, Japanese, Korean) as second languages, with focus on second language acquisition theories and best practices as related to Asian language teaching. In Progress (204A) and S/U or letter (204B) grading.

205. Variable Topics in East Asian Culture and History. (4) Seminar, three hours. Selected topics in East Asian culture and history, with focus on China, Japan, and Korea. May be repeated for credit with topic change. S/U or letter grading.

210. Proseminar: Cultural and Comparative Studies. (4) Seminar, three hours. Designed for graduate students. Introduction to theoretical topics relevant to comparative study of East Asian cultures in modern period. Readings include Western theoretical works balanced with texts taking congruent approaches to East Asian topics. S/U or letter grading.

215. Seminar: Cultural Studies Theory. (2) Seminar, two hours. Requisite: course 210. Reading and discussion of recent theoretical works in cultural studies. S/U grading.

216. Seminar: History and Asia. (4) Seminar, three hours. Designed for graduate students. Readings and discussion of major historiographical trends, with focus on how they have been applied to Asia. Topics include Marxist histories, Annales school and cultural history, microhistories, gender, space, historical memory, postcolonial histories, subaltern, and modernity and Asia. S/U or letter grading.

220A-220B. Seminars: Topics in Cultural Studies. (4-4) Seminar, three hours. Complements course 210. Further investigation of methodology and materials of cultural studies in connection with specific topics selected by instructors. May be repeated for credit. In Progress (220A) and letter (220B) grading.

M222A-M222B. Seminars: Corpus Linguistics. (4-4) (Formerly numbered 222A-222B.) (Same as Applied Linguistics M225A-M225B.) Seminar, three hours. Construction and exploitation of computerized language corpora for studying issues in areas such as lexicology, discourse grammar, language change and variation, language learning, and teaching. Discussion

of special issues in working with East Asian language corpora. In Progress (M222A) and S/U or letter (M222B) grading.

CM224. Teaching and Learning of Heritage Languages. (4) (Same as Near Eastern Languages CM214 and Slavic CM214.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and instructor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLLs) regarding teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM124. S/U or letter grading.

230A-230B. Seminars: Theoretical Topics in East Asian Literature. (4-4) Seminar, three hours. Preparation: reading knowledge of at least one East Asian language. Concerns of literary theory that are brought to fore by reading of literature from or about East Asia. Readings from both Western and Eastern theorists; issues of translation, comparison, and categorization. In Progress (230A) and letter (230B) grading.

240A-240B. Seminars: Topics in East Asian Literary History. (4-4) Seminar, three hours. Preparation: reading knowledge of at least one East Asian language. Critical issues common to literary historiography in East Asia, including periodization, canon, ideology, interaction between high and low culture, written and oral, etc. In Progress (240A) and letter (240B) grading.

243. Translation Workshop: East Asian Texts. (2) Seminar, two hours. Requisite: Chinese 200A or Japanese 200 or Korean 200. Translation, grammatical analysis, and discussion of selections from premodern texts that enjoyed classical status throughout East Asia. S/U grading.

245A-245B. Seminars: Position of Modernity in East Asian Literature. (4-4) Seminar, three hours. Preparation: at least five years of one East Asian language. Designed for graduate students. Course 245A concerned with conceptual architecture and archaeology of modernity, with readings largely from European sources. In-class debate probes relevance of these readings for work as Asianists. Focus on Asian writings in course 245B. In Progress (245A) and letter (245B) grading.

255. Topics in Southeast Asian Literature and/or Cinema. (4) Seminar, three hours. Knowledge of one Southeast Asian language recommended but not required. Theoretical concerns raised by works from Southeast Asia, one Southeast Asian nation, and/or Southeast Asian diasporas. Critical and historical examination of literary and/or film representations connected to practices of empire, nation, diaspora, and globalization. May be repeated for credit. S/U or letter grading.

261A-261B-261C. Current Issues in Buddhist Studies. (2-2-2) Seminar, 90 minutes. Knowledge of Asian languages not required. Critical reading and discussion of recent scholarship in Buddhist studies and closely related fields. May be repeated for credit. S/U grading.

265A-265B. Seminars: Selected Topics in Buddhist Studies. (4-4) Seminar, three hours. Coverage varies. May be repeated for credit. In Progress (265A) and letter (265B) grading.

C270. Approaches to Study of Religion. (4) Seminar, three hours. Investigation of many ways in which religion and religions may be studied, including anthropological, sociological, psychological, phenomenological, political, reductionist, and other approaches. Readings of primary and secondary sources of modern scholarship. Concurrently scheduled with course C170. Letter grading.

281A-281B. Field Methods for Study of East Asian Oral Traditions. (4-4) Seminar, three hours. Description and evaluation of modern approaches to collecting and documenting oral tradition as text, performance, and sociocultural event, providing hands-on experience in fieldwork and archiving methods. Consideration of approaches ranging from written transcription and textualization to audio and video presentations. In Progress (281A) and S/U or letter (281B) grading.

M292. Japan in Age of Empire. (4) (Same as Anthropology M276 and History M286.) Seminar, three hours. Designed for graduate students. Since late 19th century, Japan expanded its empire into East and Southeast Asia. Coverage of that period and array of anthropological studies conducted in Japan's colonies and occupied areas in this hardly explored area of study of colonialism. S/U or letter grading.

293. Graduate Student Colloquium. (4) Research group meeting, three hours. Designed to provide graduate students in Asian studies with opportunity to present their research to other students and faculty members. S/U grading.

297. Life Writing in East Asia. (4) Seminar, three hours. Readings of biography and autobiography as elements of East Asian cultural traditions, with focus rotating between China, Japan, and Korea. Readings in English and relevant East Asian languages. Letter grading.

299. Independent Study. (2 to 6) Tutorial, to be arranged. Designed for graduate students. Guided research and writing of research paper. May be repeated, but only 4 units may be applied toward MA degree. May not be applied toward PhD degree. S/U or letter grading.

301. Teaching East Asian Language as Foreign Language. (4) Lecture, four hours. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Asian Languages at College Level. (4) Seminar, three hours. Preparation: appointment as teaching assistant in East Asian languages and cultures or South and Southeast Asian languages and cultures. Study in team-teaching, teaching methodology, developing course materials, and testing. Participation in peer observations and workshops required. Students receive unit credit toward full-time equivalence but not toward any degree requirements. S/U grading.

496C. Computer Technologies for Teaching College-Level Chinese. (2) Lecture, two hours. Intended for current or potential teaching assistants in Chinese. Introduction to tools and technology designed to enrich classroom learning, help effectively manage student records, and expose students to current computer software and web resources. May not be applied toward degree requirements. S/U grading.

496E. Computer Technologies for Teaching College-Level East Asian Languages. (2) Lecture, two hours. Intended for current or potential teaching assistants in East Asian languages. Introduction to tools and technology designed to enrich classroom learning, help effectively manage student records, and expose students to current computer software and web resources. May not be applied toward degree requirements. S/U grading.

496J. Computer Technologies for Teaching College-Level Japanese. (2) Lecture, two hours. Intended for current or potential teaching assistants in Japanese. Introduction to tools and technology designed to enrich classroom learning, help effectively manage student records, and expose students to current computer software and web resources. May not be applied toward degree requirements. S/U grading.

496K. Computer Technologies for Teaching College-Level Korean. (2) Lecture, two hours. Intended for current or potential teaching assistants in Korean. Introduction to tools and technology designed to enrich classroom learning, help effectively manage student records, and expose students to current computer software and web resources. May not be applied toward degree requirements. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Studies. (2 to 4) Tutorial, to be arranged. S/U grading.

597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations. (4 to 8) Tutorial, to be arranged. S/U grading.

598. Research for and Preparation of MA Thesis. (4 to 8) Tutorial, to be arranged. Maximum of 8 units may be applied toward MA degree requirements. S/U grading.

599. Research for and Preparation of PhD Dissertation. (4 to 8) Tutorial, to be arranged. S/U grading.

Chinese

Lower Division Courses

1. Elementary Modern Chinese. (5) Lecture, two hours; discussion, three hours. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Introduction to fundamentals of standard Chinese, including pronunciation, grammar, and Chinese characters, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. P/NP or letter grading.

1A. Elementary Modern Chinese for Advanced Beginners. (5) Lecture, two hours; discussion, three hours. Recommended preparation: ability to speak and understand Mandarin or other Chinese dialects at elementary levels. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Designed for students who already have certain listening and speaking skills in Mandarin or other Chinese dialects at elementary levels. Training in all four basic language skills (speaking, listening, reading, and writing). P/NP or letter grading.

2. Elementary Modern Chinese. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 1 with grade of C or better or Chinese placement test. First-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 1. P/NP or letter grading.

2A. Elementary Modern Chinese for Advanced Beginners. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 1A with grade of C or better or Chinese placement test. First-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 1A. P/NP or letter grading.

3. Elementary Modern Chinese. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 2 with grade of C or better or Chinese placement test. First-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 2. P/NP or letter grading.

3A. Elementary Modern Chinese for Advanced Beginners. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 2A with grade of C or better or Chinese placement test. First-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 2A. P/NP or letter grading.

4. Intermediate Modern Chinese. (5) Lecture, five hours. Enforced requisite: course 3 or 8 with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Designed to strengthen communicative skills of listening, speaking, reading, and writing. Grammar reviews, knowledge of idiomatic expressions, and both traditional and simplified characters. P/NP or letter grading.

4A. Intermediate Modern Chinese for Advanced Students. (5) Lecture, five hours. Enforced requisite: course 3A with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Designed for students who already have certain listening and speaking skills in Mandarin or other Chinese dialects at intermediate levels. Training in all four basic language skills (speaking, listening, reading, and writing). P/NP or letter grading.

5. Intermediate Modern Chinese. (5) Lecture, five hours. Enforced requisite: course 4 with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 4. P/NP or letter grading.

5A. Intermediate Modern Chinese for Advanced Students. (5) Lecture, five hours. Enforced requisite: course 4A with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 4A. P/NP or letter grading.

5C. Mandarin for Cantonese Speakers. (5) Lecture, four hours. Enforced preparation: Chinese placement test. Designed for students who are Cantonese speakers and familiar with Chinese characters and who need to improve their pronunciation of standard Mandarin dialect. P/NP or letter grading.

6. Intermediate Modern Chinese. (5) Lecture, five hours. Enforced requisite: course 5 with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 5. P/NP or letter grading.

6A. Intermediate Modern Chinese for Advanced Students. (5) Lecture, five hours. Enforced requisite: course 5A with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 5A. P/NP or letter grading.

6C. Mandarin for Cantonese Speakers. (5) Lecture, four hours. Enforced requisite: course 5C or Chinese placement test. Designed for students who are Cantonese speakers and familiar with Chinese characters and who need to improve their pronunciation of standard Mandarin dialect. Completion of course 6C is equivalent to completion of course 6. P/NP or letter grading.

8. Elementary Chinese: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Intensive course equivalent to courses 1, 2, and 3. Introduction to fundamentals of standard Chinese, including pronunciation, grammar, and Chinese characters, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. Offered in summer only. P/NP or letter grading.

8A. Elementary Modern Chinese for Advanced Beginners: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Intensive course equivalent to courses 1A, 2A, and 3A. Designed for students who already have some listening and speaking skills in Mandarin Chinese but do not have any reading and writing skills and for students who speak Chinese dialect other

than Mandarin at home and have some knowledge of Chinese characters (i.e., can read some basic Chinese). Coverage of listening, speaking, reading, and writing skills. Offered in summer only. P/NP or letter grading.

10. Intermediate Modern Chinese: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Recommended preparation: course 3, 3A, or 8, or Chinese placement test or courses equivalent to elementary-level Chinese. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Intensive course equivalent to courses 4, 5, and 6. Designed to strengthen communicative skills of listening, speaking, reading, and writing. Grammar reviews, knowledge of idiomatic expressions, and both traditional and simplified characters. Completion of course 10 is equivalent to completion of course 6. Offered in summer only. P/NP or letter grading.

30. Chinese Language, Society, and Culture. (4) Lecture, two hours; discussion, two hours. Exploration of relationship between Chinese language, society, and culture. Discussion of fundamental role that language plays in Chinese social life and cultural practices while simultaneously exploring how social and cultural factors impact way Chinese language is organized. Main focus on language and thought patterns, language and gender, language and politics, language and commerce, language and law, language and arts, and language and globalization. P/NP or letter grading.

50. Chinese Civilization. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 50W. Knowledge of Chinese not required. Introduction to most important aspects of Chinese culture. Topics include early Chinese civilization, historical development of Chinese society, issues of ethnicity, Chinese language and philosophy, and early scientific and technological innovation. P/NP or letter grading.

50W. Chinese Civilization. (5) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 50. Knowledge of Chinese not required. Introduction to most important aspects of Chinese culture. Topics include early Chinese civilization, historical development of Chinese society, issues of ethnicity, Chinese language and philosophy, and early scientific and technological innovation. Satisfies Writing II requirement. Letter grading.

M60. Introduction to Chinese Religions. (5) (Same as Religion M60B.) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course M60W. Knowledge of Chinese not required. General survey of religious life in China, with emphasis on everyday religious practice over doctrine, and themes common to Buddhism, Daoism, and Confucianism. P/NP or letter grading.

M60W. Introduction to Chinese Religions. (5) (Same as Religion M61W.) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course M60. Knowledge of Chinese not required. General survey of religious life in China, with emphasis on everyday religious practice over doctrine, and themes common to Buddhism, Daoism, and Confucianism. Satisfies Writing II requirement. Letter grading.

70. Classics of Chinese Literature. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 70W. Prior knowledge of Chinese culture, literature, or language not required. Introduction to pre-20th-century Chinese literary traditions, including selections from poetry, prose, fiction, and drama. P/NP or letter grading.

70W. Classics of Chinese Literature. (5) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 70. Prior knowledge of Chinese culture, literature, or language not required. Introduction

to pre-20th-century Chinese literary traditions, including selections from poetry, prose, fiction, and drama. Satisfies Writing II requirement. Letter grading.

80. Chinese Cinema: Pictures, Prisms, Products, Projections. (5) Lecture, two hours; discussion, one hour; film viewing, three hours. Knowledge of Chinese not required. Introduction to history and major themes of Chinese cinema. Representative films studied in contexts of culture, society, politics, and economics, with reflections on changing meanings of both Chinese and cinema. May not be repeated for credit. P/NP or letter grading.

97. Variable Topics in Chinese Culture. (4) Lecture, three hours. Knowledge of Chinese language or culture not required. Variable topics course covering many different aspects of Chinese culture. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

Upper Division Courses

100A-100B-100C. Advanced Modern Chinese. (4-4-4) Lecture, three hours; discussion, two hours. Enforced requisite: course 6 or 10 with grade of C or better or Chinese placement test. Course 100A with grade of C or better or Chinese placement test is enforced requisite to 100B; course 100B with grade of C or better or Chinese placement test is enforced requisite to 100C. Third-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Materials selected from contemporary Chinese publications, with emphasis on social sciences. Texts analyzed for their linguistic features and social and cultural background. Readings, compositions, informal debates on topical issues, and oral presentations. P/NP or letter grading.

100D-100E-100F. Advanced Modern Chinese for Heritage Speakers. (4-4-4) Lecture, three hours; discussion, two hours. Enforced requisite: course 6A with grade of C or better or Chinese placement test. Course 100D with grade of C or better or Chinese placement test is enforced requisite to 100E; course 100E with grade of C or better or Chinese placement test is enforced requisite to 100F. Third-year Chinese for heritage speakers. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Materials selected from contemporary Chinese publications, with emphasis on social sciences. Texts analyzed for their linguistic features and social and cultural background. Readings, compositions, informal debates on topical issues, and oral presentations. P/NP or letter grading.

100I. Advanced Modern Chinese: Intensive. (12) Lecture, 10 hours; discussion, 10 hours. Enforced requisite: course 6 or 10 with grade of C or better or Chinese placement test. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Intensive course equivalent to courses 100A, 100B, and 100C. Materials selected from contemporary Chinese publications, with emphasis on social sciences. Texts analyzed for their linguistic features and social and cultural background. Readings, compositions, informal debates on topical issues, and oral presentations. Offered in summer only. P/NP or letter grading.

101A-101B. Advanced Readings in Modern Chinese. (4-4) Lecture, two hours; discussion, two hours. Enforced requisite: course 100C or 100I or Chinese placement test. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Advanced readings and discussion for students planning to do advanced coursework or research on China. Topics from magazines, journals, and books related to humanities and social sciences. Each course may be taken independently for credit. Letter grading.

102A. Advanced Chinese for International Business. (4) Lecture, two hours; discussion, two hours. Recommended preparation: one to two years of college-level Chinese. Designed to improve student language skills in service of business practice and ground language learning in authentic social cultural

settings. Oral and written business communication, social etiquettes in business conduct, Chinese economic and business climate, business law and regulations, resources and environment, and business case studies. May be taken independently for credit. Letter grading.

102B. Advanced Chinese for International Business. (4) Lecture, two hours; discussion, two hours. Enforced requisite: course 102A. Doing business with China and understanding Chinese economy and business conducts require advanced level of Chinese language proficiency and deep understanding of Chinese society and culture. Designed to improve student language skills in service of business practice and ground language learning in authentic social cultural settings. Oral and written business communication, social etiquettes in business conduct, Chinese economic and business climate, business law and regulations, resources and environment, and business case studies. Letter grading.

102I. Business Chinese. (8) Lecture, eight hours; discussion, eight hours. Recommended preparation: two years of college-level Chinese. Doing business with China and understanding Chinese economy and business conducts require intermediate to advanced level of Chinese language proficiency and deep understanding of Chinese society and culture. Designed to improve student language skills in service of business practice and ground language learning in authentic social cultural settings. Oral and written business communication, social etiquettes in business conduct, Chinese economic and business climate, business law and regulations, resources and environment, and business case studies. Offered in summer only. P/NP or letter grading.

103. Topics in Chinese Language and Culture. (4) Lecture, two hours; discussion, two hours. Chinese language and culture for special purposes. May be repeated for credit. P/NP or letter grading.

C107A-C107B. Academic/Professional Chinese. (4-4) Lecture, three hours; discussion, one hour. Enforced requisite: course 101B or Chinese placement test. Intended to improve reading and writing skills in specific academic and professional subject areas for students who have studied general Chinese at advanced level, with coverage in Chinese humanities and social sciences, science and technology, medicine, and applied linguistics. Concurrently scheduled with courses C207A-C207B. P/NP or letter grading.

108FL. Special Studies: Readings in Chinese. (2) Seminar, two hours. Enforced requisite: course 100C or 100I or Chinese placement test. Students must be concurrently enrolled in affiliated main course. Additional work in Chinese to augment work assigned in main course, including reading, writing, and other exercises. May be repeated for credit. P/NP or letter grading.

109. Advanced Tutorial Instruction in Chinese. (2) Tutorial, two hours. Requisite: course 100C or Chinese placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Chinese. May be repeated for credit. P/NP or letter grading.

110A-110B-110C. Introduction to Classical Chinese. (4-4-4) Lecture, three hours; discussion, one hour. Enforced requisite: course 3 or Chinese placement test. Course 110A is enforced requisite to 110B, which is enforced requisite to 110C. Grammar and readings in selected premodern texts. P/NP or letter grading.

C120. Introduction to Chinese Linguistics. (4) (Formerly numbered 120.) Lecture, three hours; discussion, one hour. Requisite: course 6, 6A, 6C, or 10. Introduction to Chinese sound system, writing system and its reform, regional differences, major structural features, language in society and in cultural practices. Concurrently scheduled with course C240. Letter grading.

130A-130B. Readings in Modern Chinese Literature. (4-4) Lecture, three hours; discussion, one hour. Enforced requisite: course 100B or Chinese placement test. Readings and discussion of works of modern Chinese literature. Each course may be taken independently for credit. Letter grading.

131. World Sinophone Literature: Theories and Texts. (4) Lecture, two hours; discussion, one hour. Readings in original language. Exploration of Sino-phone as analytic category for literature written in Sinitic languages. Theories of Sino-phone and literary texts from Taiwan, Hong Kong, Malaysia, China, and elsewhere. Letter grading.

135. Chinese-Language Film and Culture. (4) Lecture, two hours; discussion, one hour; film viewing, three hours. Enforced requisite: course 100C or 100I or Chinese placement test. Viewing and discussion of Chinese films, along with relevant readings in Chinese. Letter grading.

C138. Travel Writing in Premodern China. (4) Lecture, three hours; discussion, one hour. Recommended preparation: course 50. Exploration of travel writing in China, with focus on English translations of works by native writers and by foreign visitors through centuries. Concurrently scheduled with course C238. Letter grading.

139. Gardens in China. (4) Lecture, three hours; discussion, one hour. Recommended preparation: course 50. Interdisciplinary survey of historic and literary gardens in China, with focus on English translations of texts by native writers and recent Western scholarship. Letter grading.

140A-140D. Readings in Classical Chinese Literature. (4 each) Lecture, three hours. Enforced requisite: course 110C. Advanced classical Chinese. Readings and discussion of works of premodern Chinese literature. Each course may be taken independently for credit. Letter grading. **140A.** Poetry; **140B.** Prose; **140C.** Fiction; **140D.** Philosophical Texts.

C150A. Lyrical Traditions. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Readings in English translation of poetic and critical writings of traditional China, with emphasis on development of subjectivity and modes of address. Concurrently scheduled with course C250A. P/NP or letter grading.

150B. Chinese Literature in Translation: Traditional Narrative and Fiction. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Readings from narrative and dramatic writings of traditional China, with emphasis on self and society, growth of fictionality, subjectivity, and gender representation. May be taken independently for credit. Letter grading.

151. Chinese Literature in Translation: Modern Literature. (4) Lecture, three hours; discussion, one hour. Requisite: English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Knowledge of Chinese not required. Lectures and reading of representative works from 1900 to present in English translation. Letter grading.

152. Topics in Contemporary Chinese Literature and Culture. (4) Lecture, two hours; discussion, one hour. Knowledge of Chinese not required. Investigation of various topics in contemporary Chinese literature and culture, including politics and poetics of Chinese postmodernism, nativism, feminism, mass culture, and media. Letter grading.

M153. Chinese Immigrant Literature and Film. (4) (Same as Asian American Studies M130B and Comparative Literature M171.) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. In-depth look at Chinese immigrant experience by reading literature and watching films. Theories of diaspora, gender, and race to inform thinking and discussion of relevant issues. P/NP or letter grading.

154. Introduction to Chinese Cinema. (4) Lecture, two hours; discussion, one hour; film viewing, three hours. Knowledge of Chinese not required. History of Chinese-language cinemas, with emphasis on mainland China. Examination of film style and aesthetics,

as well as contexts of industry, economics, politics, culture, and society. May not be repeated for credit. Letter grading.

155. Topics in Chinese Cinema. (4) Lecture, two hours; discussion, one hour; film viewing, three hours. Knowledge of Chinese not required. Critical study of films from China, Hong Kong, Taiwan, and Chinese diaspora. Examination of aesthetics, genres, directors and stars, other arts and media, and cultural and political histories. May be repeated for credit with topic change. P/NP or letter grading.

C156. Variable Topics in Culture and Society in Taiwan. (4) Lecture, three hours; discussion, one hour. Designed for seniors. Knowledge of Chinese not required. Examination of relationship between culture (art, literature, film) and society in Taiwan. Reading, audio and visual material, discussion, and development of culminating project. May be repeated for credit with topic change. Concurrently scheduled with course C257. Letter grading.

157. Contemporary Chinese Popular Culture. (4) Lecture, three hours; discussion, one hour. Examination of various aspects of modern and contemporary popular culture in China, Taiwan, and Hong Kong from cultural studies perspective. Genres and media include literature, print culture, cinema, martial arts film and fiction, television, radio, pop music, visual arts, fashion, advertising, and cyberculture. P/NP or letter grading.

CM160. Chinese Buddhism. (4) (Same as Religion M161A.) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Introduction and development of Buddhism in China, interaction between Buddhism and Chinese culture, rise of Chinese schools of Buddhism. Concurrently scheduled with course C260. Letter grading.

165. Introduction to Chinese Buddhist Texts. (4) Lecture, three hours; discussion, one hour. Recommended requisite: course 100A or 110B or Japanese 110A or Korean 100A or Chinese placement test. Readings in premodern Buddhist texts written in literary Chinese and taken from translated Indian sutras, indigenous exegetical materials, Chinese apocryphal scriptures, and Ch'an writings. Problems in translation from Indo-European languages into Chinese; evolution of Chinese Buddhist terminology. Coverage varies. May be repeated for credit with consent of instructor. Letter grading.

174. Chinese Strategic Thought. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Introduction to early Chinese narratives and theories of military, diplomatic, and rhetorical strategy. Letter grading.

C175. Introduction to Chinese Thought. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Survey of Chinese thought as represented in texts of Zhou through early Han periods (circa 1000 to 100 B.C.E.), with focus on invention of Confucian tradition (including Five Classics) and on defenses of that tradition against challenges from Mohists, Taoists, and other groups of thinkers. Concurrently scheduled with course C275. Letter grading.

175SL. Community-Based Introduction to Chinese Thought. (4) Seminar, three hours; fieldwork, two hours. Knowledge of Chinese not required. Community-based survey of Chinese thought as represented in texts of Zhou through early Han periods (circa 1000 to 100 B.C.E.), with focus on invention of Confucian tradition (including Five Classics) and on defenses of that tradition against challenges from Mohists, Taoists, and other groups of thinkers. Service learning component includes meaningful work with community partners, such as local schools, selected in advance by instructor. Letter grading.

176. Neo-Confucianism. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Examination of movement to revitalize and re-interpret teachings of Confucius during Tang, Song, Yuan, and Ming dynasties, with consideration of both neo-Confucian philosophy and social action. Letter grading.

180. Chinese Mythology and Supernatural. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Survey of corpus of traditional Chinese mythology, with focus on examples preserved in variety of early texts, later evolutions in dramatic and fictional works, and evidence from visual arts. Letter grading.

182. Archaeology of Early Global Trade and Piracy. (4) Lecture, three hours; discussion, one hour. Exploration of role of trade and piracy at threshold of globalization (13th to 17th century), with focus on continuity and transformation in Asiatic trade network in response to early global trade. Investigation based on archaeological study of porcelain, tracing movement from kilns around Chinese trading ports to shipwrecks and consumer societies in Southeast Asia and colonial Americas. As one of most important commodities on trans-Pacific voyage, close association of porcelain production and trade with international piracy in traditional historiography presents new angle for understanding dynamics of early global trade and industries. Letter grading.

M183. Archaeological Landscapes of China. (4) (Same as Anthropology M116S.) Lecture, three hours; discussion, one hour. Declassified space images from Cold War era and open remote sensing data of 21st century provide new opportunities for studying landscape transformation in historical China. Combining lectures, library research, and hands-on analysis of archaeological sites on satellite images, investigation of changing historical and archaeological landscape in China during last 5,000 years. Social processes at various scales, from emergence of early cities to rise of metropolitan centers and formation of imperial landscapes. Letter grading.

184. Crime, Law, and Punishment in Traditional China. (4) Lecture, three hours; discussion, one hour. Preventing crime and administering justice are important parts of any society, but these are not straightforward or simple processes. What is crime? Are there crimes so terrible that they merit special kinds of punishment? How is punishment decided and by whom? What happens if justice is not carried out? Consideration of these questions as they apply to premodern China from multiple perspectives: legal codes and casebooks, literary re-imaginings of trials, depictions of postmortem punishment, and tales of supernatural retribution. Discussion of how legal and penal systems of China have been represented in West. Letter grading.

185. Food and Love in Chinese Culture. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Based on studies of cultural, historical, anthropological, and archaeological materials, introduction to how Chinese have been engaging themselves in fields of food eating and love making. Letter grading.

186. Archaeology in China. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Early Chinese study of their own past, types of artifacts, beginnings of scientific archaeology, and surveys of major excavations of sites of all periods. Letter grading.

187. Chinese Etymology and Calligraphy. (4) Lecture, three hours; discussion, one hour. Recommended requisite: course 3. Coverage of (1) development of Chinese writing system from pottery inscriptions 6,000 years ago to modern simplified forms and studies of six scripts principles that were used to form Chinese characters and (2) aesthetic training of calligraphic art and its appreciation, with focus on ways of recognizing and interpreting cursive style, common form of handwriting. Letter grading.

191A. Variable Topics Research Seminars: Classical China. (4) Seminar, three hours. Designed for juniors/seniors. Research seminar on selected topics in premodern Chinese literature, thought, and culture. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

191B. Variable Topics Research Seminars: 20th-Century China and Taiwan. (4) Seminar, three hours. Designed for juniors/seniors. Research seminar on selected topics in modern and contemporary litera-

ture and culture from China and Taiwan. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

197. Individual Studies in Chinese. (4) Tutorial, to be arranged. Limited to juniors/seniors and graduate students who desire more advanced or specialized instruction in Chinese. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required; see undergraduate adviser. P/NP or letter grading.

Graduate Courses

200A. Research Methods in Chinese. (4) Seminar, three hours. Requisite: course 110C. Lectures and discussion designed to develop basic skills in using traditional Chinese research materials. Topics include classical dictionaries; sinological indices; bibliographical, biographical, and geographical sources; encyclopedias; anthologies; rare editions; illustrated matter and calligraphy. Letter grading.

200B. Proseminar: Premodern Chinese Literature. (4) Seminar, three hours. Introduction to major bibliographical and methodological resources in field of premodern Chinese literature, with focus on research tools in field and on scholarship in English on major literary genres, periods, and authors. Letter grading.

200C. Proseminar: Modern Chinese Literature and Cinema. (4) Seminar, three hours. Introduction to major bibliographical and methodological resources in fields of modern Chinese literary and cinematic studies, with focus on theoretical tools, historical knowledge, and critical trends. Letter grading.

M201. China—Seminar: Classical Historiography and Readings in Classical Studies. (4) (Same as History M281.) Seminar, three hours. Preparation: two years of classical Chinese or working knowledge of classical Chinese. Readings in historiography and selected genres of historical documents. Letter grading.

M202. China Studies: Discipline, Methods, Debates. (2) (Same as History M280.) Seminar, two hours. Introduction to study of China as practiced in humanities and social sciences disciplines. S/U grading.

205. Critical Issues in Chinese and Sinophone Literature. (4) Seminar, three hours. Methodology course intended for graduate students in 20th-century Chinese literature and culture. Discussion of major theoretical and textual issues and methods. Letter grading.

C207A-C207B. Academic/Professional Chinese. (4-4) Lecture, three hours; discussion, one hour. Enforced requisite: course 101B or Chinese placement test. Intended to improve reading and writing skills in specific academic and professional subject areas for students who have studied general Chinese at advanced level, with coverage in Chinese humanities and social sciences, science and technology, medicine, and applied linguistics. Concurrently scheduled with courses C107A-C107B. S/U or letter grading.

209. Issues in Sinophone Literature. (4) Seminar, three hours. Exploration of selected topics and issues in Sinophone literature, literature written in Sinitic languages by ethnic minority writers in China, and literature written by those living outside China across world, especially in Malaysia, Taiwan, Singapore, and the U.S. S/U or letter grading.

210. Modern Chinese Literary History. (4) Lecture, three hours. Designed for graduate students. Discussion of history of modern Chinese literature, focusing on sources, controversies, major literary genres, and critical approaches to studying relationship between literature and history. Letter grading.

211A-211B. Seminars: Classical Chinese Poetry. (4-4) Seminar, three hours. Preparation: reading knowledge of literary Chinese. Topics rotate among major textual traditions and chronological periods. Emphasis on philological, critical, and historical approaches. May be repeated for credit with consent of instructor. In Progress (211A) and letter (211B) grading.

212. Topics in Chinese Poetry. (4) Readings/discussion, three hours. Selected readings from classical poetic tradition, with focus on individual poets, themes, or other critical issues. May be repeated for credit with consent of instructor. Letter grading.

213A-213B. Chinese-Language Cinemas. (4-4) Seminar, three hours; film-viewing laboratory, two hours. Advanced topics in Chinese-language cinemas. Examination of theory and methodology, historiography, industry and institutions, style and aesthetics, major genres and artists, other arts and media, other cinematic traditions, and social contexts. May be repeated for credit with consent of instructor. In Progress (213A) and letter (213B) grading.

220A-220B. Theoretical Approaches to Chinese and Sinophone Cultures. (4-4) Seminar, three hours. Discussions to be framed by Western literary and cultural theory, investigating both challenges and limitations Western theory may pose for Chinese literary and cultural studies. Specific topics vary from year to year. In Progress (220A) and letter (220B) grading.

224A-224B. Seminars: Selected Topics in Chinese Linguistics. (4-4) Seminar, three hours. Critical reading and discussion of selected topics in Chinese functional linguistics (discourse and grammar, corpus linguistics, sociolinguistics, language change). May be repeated for credit with consent of instructor. In Progress (224A) and letter (224B) grading.

226A. Seminar: Topics in Chinese Applied Linguistics. (4) Seminar, three hours. Critical reading and discussion of selected topics in Chinese applied linguistics (teaching Chinese as a second language, second language acquisition theories and practices). May be repeated for credit with consent of instructor. S/U or letter grading.

230A-230B. Seminars: Selected Topics in Modern Chinese Literature. (4-4) Seminar, three hours. Selected readings in 20th-century Chinese literature, emphasizing fiction. Discussion of individual research projects. May be repeated for credit. In Progress (230A) and letter (230B) grading.

C238. Travel Writing in Premodern China. (4) Lecture, three hours; discussion, one hour. Recommended preparation: course 50. Exploration of travel writing in China, with focus on English translations of works by native writers and by foreign visitors through centuries. Concurrently scheduled with course C138. Letter grading.

C240. Introduction to Chinese Linguistics. (4) Lecture, three hours; discussion, one hour. Requisite: course 6, 6A, 6C, or 10. Introduction to Chinese sound system, writing system and its reform, regional differences, major structural features, language in society and in cultural practices. Concurrently scheduled with course C120. Letter grading.

241A-241B. Heaven, Earth, and Monarchy in Ancient China. (4-4) Seminar, three hours. Preparation: working knowledge of classical Chinese. Close reading of chapters from Han dynasty collection of writings on forms of music, social interaction, education, marriage, and mourning in Zhou royal court, with discussion of topics in recent cultural semiology and anthropology. In Progress (241A) and letter (241B) grading.

242A-242B. Chinese Classics and Exegetical Traditions. (4-4) Seminar, three hours. Recommended preparation: command of literary Chinese. Reading and discussions of selections from one traditional Chinese classic (Confucian Five Classics, others), with introduction to exegetical history, secondary scholarship, and research methodology. Topics vary from year to year. May be repeated for credit. In Progress (242A) and letter (242B) grading.

243. Translation Workshop: Premodern Chinese Texts. (2) Seminar, two hours. Translation, grammatical analysis, and discussion of selections from premodern Chinese texts. S/U grading.

245A-245B. Seminars: Traditional Chinese Narrative and Drama. (4-4) Seminar, three hours. Preparation: reading knowledge of colloquial and literary Chinese. Seminar topics alternate yearly between traditional narrative and drama, with emphasis on generic,

hermeneutical, and historical approaches. Topics in narrative selected from genres from Chou through Ch'ing periods. Topics in drama selected from *tsa-chü* and *ch'uan-ch'i*. May be repeated for credit with consent of instructor. In Progress (245A) and letter (245B) grading.

C250A. Lyrical Traditions. (4) Lecture, three hours; discussion, one hour. Readings of poetic and critical writings of traditional China, with emphasis on development of subjectivity and modes of address. Concurrently scheduled with course C150A. Graduate students required to read primary materials in original Chinese. S/U or letter grading.

256A-256B. Chinese Literary Criticism. (4-4) Seminar, three hours. Issues in production and interpretation of literary works, as formulated by Chinese critics from classical age onward. Letter grading.

C257. Variable Topics in Culture and Society in Taiwan. (4) Lecture, three hours; discussion, one hour. Designed for graduate students. Knowledge of Chinese not required. Examination of relationship between culture (art, literature, film) and society in Taiwan. Reading, audio and visual material, discussion, and development of culminating project. May be repeated for credit with topic change. Concurrently scheduled with course C156. Letter grading.

C260. Chinese Buddhism. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Introduction and development of Buddhism in China, interaction between Buddhism and Chinese culture, rise of Chinese schools of Buddhism. Concurrently scheduled with course CM160. Letter grading.

265A-265B. Seminars: Chinese Buddhist Texts. (4-4) Seminar, three hours. May be repeated for credit with consent of instructor. In Progress (265A) and letter (265B) grading.

C275. Introduction to Chinese Thought. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Survey of Chinese thought as represented in texts of Zhou through early Han periods (circa 1000 to 100 B.C.E.), with focus on invention of Confucian tradition (including Five Classics) and on defenses of that tradition against challenges from Mohists, Taoists, and other groups of thinkers. Concurrently scheduled with course C175. Letter grading.

285A-285B. Seminars: Readings in Chinese Religions. (4-4) Seminar, three hours. Preparation: reading knowledge of classical Chinese. Selected readings from religious traditions of China, with introduction to different disciplinary approaches, secondary scholarship, and research methodology. Topics rotate among chronological periods and major religious traditions. May be repeated for credit with consent of instructor. In Progress (285A) and letter (285B) grading.

290A-290B. Seminars: Selected Topics in Chinese Archaeology. (4-4) Seminar, three hours. Requisite: course 186. Discussion and research on major problems about Chinese archaeology and different interpretations to most important archaeological finds, with emphasis on studies of Xia and Shang cultures and Xia and Shang dynasties. May be repeated for credit. In Progress (290A) and letter (290B) grading.

291. Archaeological Process in China. (4) Seminar, three hours. Introduction to major bibliographical and methodological resources in field of Chinese archaeology to provide deeper understanding of formulation of conceptual categories archaeologists of early China used to make sense of past through interpretation of material culture. S/U or letter grading.

295A-295B. Seminars: Selected Topics in Chinese Cultural History. (4-4) Seminar, three hours. Discussion and research on major problems related to Chinese culture, such as beginnings of Chinese civilization and Chinese dynastic history. Other topics include cultural developments of ancient and medieval China. May be repeated for credit. In Progress (295A) and letter (295B) grading.

297A. Seminar: Research Topics in Premodern China. (4) Seminar, three hours. Selected topics in premodern Chinese literature, history, or religion, with emphasis on textual readings and independent research. S/U or letter grading.

297B. Seminar: Research Topics in Modern Chinese and Sinophone Culture. (4) Seminar, three hours. Selected topics in modern Chinese and Sino-phone culture, with major emphasis on independent research. S/U or letter grading.

Filipino

Lower Division Courses

1. Introductory Filipino. (5) Lecture, two hours; discussion, three hours. Coverage of basic Filipino/Tagalog grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

2. Introductory Filipino. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 1 with grade of C or better. Coverage of basic Filipino/Tagalog grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

3. Introductory Filipino. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 2 with grade of C or better. Coverage of basic Filipino/Tagalog grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

3R. Introductory Filipino Reading and Writing. (5) Lecture, five hours. Recommended preparation: speaking and listening skills in Filipino. Training in reading and writing skills at elementary level, equivalent to completion of one year of Filipino. P/NP or letter grading.

4. Intermediate Filipino. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 3 with grade of C or better. Reinforcement of basic Filipino/Tagalog grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

5. Intermediate Filipino. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 4 with grade of C or better. Reinforcement of basic Filipino/Tagalog grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

6. Intermediate Filipino. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 5 with grade of C or better. Reinforcement of basic Filipino/Tagalog grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

8. Elementary Filipino: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Intensive course equivalent to courses 1, 2, and 3. Coverage of basic Filipino/Tagalog grammar, with equal emphasis on reading, writing, conversation, and comprehension. Offered in summer only. P/NP or letter grading.

Upper Division Courses

100A. Advanced Filipino: Reading and Writing. (4) Lecture, three hours. Enforced requisite: course 6 with grade of C or better or Filipino/Tagalog placement test. Designed to move students with intermediate level of proficiency toward greater proficiency and fluency in reading, writing, speaking, and listening in Filipino language. Coverage of skills in effective use of language: description, narration, exposition, and argumentation. How to analyze different elements of writing and reading of pieces from several genres of contemporary Filipino writing. P/NP or letter grading.

109. Advanced Tutorial Instruction in Filipino. (2) Tutorial, two hours. Requisite: course 6 or Filipino/Tagalog placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Filipino. May be repeated for credit. P/NP or letter grading.

130A. Filipino Short Story. (4) Lecture, three hours. Enforced requisite: course 6 or Filipino/Tagalog placement test. General background knowledge on how Filipino writers view themselves and society, historically and diachronically. Sample of short stories written in Filipino/Tagalog language with some written in English for purposes of contrasting rhetoric, themes, and sensibilities. P/NP or letter grading.

152. Survey of Philippine Literature. (4) Lecture, three hours. Enforced requisite: course 3. Introduction to study of Philippine literature from pre-Hispanic to contemporary times. Readings of poetry, short stories, plays, novels, and historical survey to gain broad perspective of Philippine literature and understanding of literary development in Philippines. Study of effect of colonization on Filipino indigenous culture. P/NP or letter grading.

Hindi-Urdu

Lower Division Courses

1. Introductory Hindi-Urdu. (5) Lecture, two hours; discussion, three hours. Coverage of basic Hindi grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

2. Introductory Hindi-Urdu. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 1 with grade of C or better. Coverage of basic Hindi grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

3. Introductory Hindi-Urdu. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 2 with grade of C or better. Coverage of basic Hindi grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

3R. Elementary Hindi-Urdu Reading and Writing. (5) Lecture, five hours. Recommended preparation: speaking and listening skills in Hindi-Urdu. Training in reading and writing skills at elementary level, equivalent to completion of one year of Hindi. P/NP or letter grading.

4. Intermediate Hindi-Urdu. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 3 with grade of C or better. Reinforcement of basic Hindi grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

5. Intermediate Hindi-Urdu. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 4 with grade of C or better. Reinforcement of basic Hindi grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

6. Intermediate Hindi-Urdu. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 5 with grade of C or better. Reinforcement of basic Hindi grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

Upper Division Course

109. Advanced Tutorial Instruction in Hindi-Urdu. (2) Tutorial, two hours. Requisite: course 6 or Hindi-Urdu placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Hindi-Urdu. May be repeated for credit. P/NP or letter grading.

Indonesian

Lower Division Courses

1. Introductory Indonesian. (5) Lecture, five hours. Not open to students who have learned enough Indonesian to qualify for more advanced courses. Coverage of basic Indonesian grammar, with equal emphasis on reading, writing, listening, and speaking skills. P/NP or letter grading.

2. Introductory Indonesian. (5) Lecture, five hours. Enforced requisite: course 1 with grade of C or better. Not open to students who have learned enough Indonesian to qualify for more advanced courses. Coverage of basic Indonesian grammar, with equal emphasis on reading, writing, listening, and speaking skills. P/NP or letter grading.

3. Introductory Indonesian. (5) Lecture, five hours. Enforced requisite: course 2 with grade of C or better. Not open to students who have learned enough Indonesian to qualify for more advanced courses. Coverage of basic Indonesian grammar, with equal emphasis on reading, writing, listening, and speaking skills. P/NP or letter grading.

4. Intermediate Indonesian. (5) Lecture, five hours. Designed to expand language skills acquired in introductory courses and to equip students with good command of communicative competence in Indonesian. P/NP or letter grading.

5. Intermediate Indonesian. (5) Lecture, five hours. Enforced requisite: course 4 with grade of C or better. Designed to expand language skills acquired in introductory courses and to equip students with good command of communicative competence in Indonesian. P/NP or letter grading.

6. Intermediate Indonesian. (5) Lecture, five hours. Enforced requisite: course 5 with grade of C or better. Designed to expand language skills acquired in introductory courses and to equip students with good command of communicative competence in Indonesian. P/NP or letter grading.

Upper Division Courses

100A-100B-100C. Advanced Indonesian. (4-4-4) Lecture, three hours. Course 100A with grade of C or better is requisite to 100B; course 100B with grade of C or better is requisite to 100C. Preparation for more advanced study of specialized academic subjects, including but not limited to social sciences and humanities. Students read authentic materials in Indonesian concerning various issues. P/NP or letter grading.

109. Advanced Tutorial Instruction in Indonesian. (2) Tutorial, two hours. Requisite: course 6 or Indonesian placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Indonesian. May be repeated for credit. P/NP or letter grading.

Japanese

Lower Division Courses

1. Elementary Modern Japanese. (5) Lecture, two hours; discussion, three hours. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Introduction to modern Japanese with attention to conversation, grammar, and written forms. Conversation drill based on material covered in class. P/NP or letter grading.

2. Elementary Modern Japanese. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 1 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Continuation of course 1. P/NP or letter grading.

3. Elementary Modern Japanese. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 2 with grade of C or better or Japanese placement test. Not open to students who have learned,

from whatever source, enough Japanese to qualify for more advanced courses. Continuation of course 2. P/NP or letter grading.

4. Intermediate Modern Japanese. (5) Lecture, five hours. Enforced requisite: course 3 or 8 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Designed to strengthen communicative skills of listening, speaking, reading, and writing. Grammar reviews, vocabulary building skills, language learning skills, and sociocultural knowledge. P/NP or letter grading.

5. Intermediate Modern Japanese. (5) Lecture, five hours. Enforced requisite: course 4 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Continuation of course 4. P/NP or letter grading.

6. Intermediate Modern Japanese. (5) Lecture, five hours. Enforced requisite: course 5 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Continuation of course 5. P/NP or letter grading.

8. Elementary Japanese: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Intensive course equivalent to courses 1, 2, and 3. Introduction to fundamentals of standard Japanese, including pronunciation, grammar, and Japanese characters, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. Offered in summer only. P/NP or letter grading.

10. Intermediate Modern Japanese: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Enforced requisite: course 3 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Intensive course equivalent to courses 4, 5, and 6. Readings in modern Japanese, with emphasis on comprehension and structural analysis. Offered in summer only. P/NP or letter grading.

50. Japanese Civilization. (5) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Survey of development of Japanese culture and its relationship to Asiatic mainland. P/NP or letter grading.

70. Images of Japan: Literature and Film. (5) Lecture, three hours; discussion, one hour. Knowledge of Japanese culture, literature, or language not required. Introduction to visual and textual images of Japan's literary heritage, including documentary and feature films based on Japan's literary classics. Letter grading.

90. Japanese Aesthetics and Tea Ceremony. (4) Lecture, three hours. Knowledge of Japanese not required. Introduction to Japanese aesthetics in theory and practice, including study of ritual and specific trends in Japanese aesthetics such as imperfection asymmetry, suggestion, miniaturization, indirectness, *wabi*, *sabi*, *hiekare*, *yugen*, as reflected and practiced in tea ceremony. P/NP or letter grading.

Upper Division Courses

100A-100B-100C. Advanced Modern Japanese. (4-4-4) Lecture, five hours. Enforced requisite: course 6 or 10 with grade of C or better or Japanese placement test. Course 100A with grade of C or better or Japanese placement test is enforced requisite to 100B; course 100B with grade of C or better or Japanese placement test is enforced requisite to 100C. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Learning Japanese language with emphasis on sociocultural issues of contemporary Japanese society. Materials selected from contempo-

rary publications, videos, and audiotapes. Reading with focus on linguistics features, writing summaries and opinions, oral activities, and project work. P/NP or letter grading.

100R. Third-Year Advanced Reading in Modern Japanese. (4) Lecture, three hours. Enforced requisite: course 6 or Japanese placement test. Not open to students with credit for course 100A or who have learned, from whatever source, enough Japanese to qualify for more advanced courses. May be taken concurrently with course 100A. Development of overall competency in reading advanced-level Japanese materials. Instruction in understanding grammar and practical expressions, as well as expansion of *Kanji* and vocabulary to achieve higher ability in comprehension of written materials in Japanese. Translations from Japanese to English, as well as from English to Japanese. P/NP or letter grading.

100S. Advanced Modern Japanese: Intensive. (12) Lecture, 10 hours; discussion, 10 hours. Enforced requisite: course 6 or 10 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Intensive course equivalent to courses 100A, 100B, and 100C. Learning Japanese language with emphasis on sociocultural issues of contemporary Japanese society. Materials selected from contemporary publications, videos, and audiotapes. Reading with focus on linguistics features, writing summaries and opinions, oral activities, and project work. Offered in summer only. P/NP or letter grading.

101A. Kanji for Advanced Reading. (4) Lecture, three hours. Enforced requisite: course 100C or 100S. Development of ability in *kanji* recognition/writing and Sino-Japanese vocabulary, as well as advanced grammar required for reading authentic Japanese. Primarily for students with no *kanji* background prior to study of Japanese who wish to solidify and enhance firm knowledge in *kanji* and grammar before engaging in advanced reading materials used in courses 101B and 101C. Also suitable for heritage Japanese learners who need to acquire enough *kanji* knowledge before taking courses 102A and 102B. May be taken independently for credit. P/NP or letter grading.

101B-101C. Fourth-Year Japanese: Advanced Reading I, II. (4-4) Lecture, three hours; discussion, one hour. Enforced requisite: course 100C or 100S or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Advanced readings and discussion for students planning to do advanced coursework or research on Japan. Topics selected from magazines, journals, and books related to humanities and social sciences. May be repeated for credit. P/NP or letter grading.

101S. Fourth-Year Japanese: Advanced Reading—Intensive. (12) Lecture, 10 hours; discussion, 10 hours. Enforced requisite: course 100C or 100S or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Advanced readings and discussion for students planning to do advanced coursework or research on Japan. Topics selected from magazines, journals, and books related to humanities and social sciences. Offered in summer only. P/NP or letter grading.

102A-102B. Advanced Reading and Writing for Japanese-Heritage Speakers. (4-4) Lecture, three hours; discussion, one hour. Enforced preparation: Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Designed for advanced-level Japanese-heritage learners or nonheritage learners who are fluent in daily spoken Japanese. Emphasis on building vocabulary knowledge of *Kanji*, reading and writing, and formal aspects of spoken Japanese (polite and honorific/humble forms). Each course may be taken independently for credit. Students who complete courses 102A and/or 102B are not eligible to take Japanese 101 series or below. P/NP or letter grading.

103A-103B-103C. Fourth-Year Japanese: Advanced Speaking I, II, III. (4-4-4) Lecture, three hours; discussion, one hour. Enforced requisite: course 100C or 100S. Development of listening and speaking abilities for students who need focused attention to these skills. Also suitable for graduate students who need to advance their public speaking ability. Not intended for those who are at higher level in these skill areas. P/NP or letter grading.

104. Business Japanese. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 100C or 100S or Japanese placement test. Designed to improve skills in Japanese in context of business transactions. To be successful business person, one must be equipped with advanced specialized oral and written communication skills as well as high degree of cultural understanding. Oral and written business communication, social etiquette in business conduct, Japanese economic and business climate, business law and regulations, resources and environment, and business case studies. P/NP or letter grading.

108FL. Special Studies: Readings in Japanese. (2) Seminar, two hours. Enforced requisite: course 100C or 100I or Japanese placement test. Students must be concurrently enrolled in affiliated main course. Additional work in Japanese to augment work assigned in main course, including reading, writing, and other exercises. May be repeated for credit. P/NP or letter grading.

109. Advanced Tutorial Instruction in Japanese. (2) Tutorial, two hours. Requisite: course 100C or Japanese placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Japanese. May be repeated for credit. P/NP or letter grading.

110A. Introduction to Classical Japanese: Basic Grammar. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 100C or 100S or Japanese placement test. Introduction to fundamentals of classical Japanese. Grammar and reading of selected premodern texts. P/NP or letter grading.

110B. Introduction to Classical Japanese: Reading Proficiency. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 110A. Grammar and readings of selected premodern texts. P/NP or letter grading.

C112. Japanese Urban History and Culture. (4) Lecture, three hours. Knowledge of Japanese not required. Japanese urban history and culture, with special emphasis on cities of Nara, Kyoto, Edo/Tokyo, and Nagasaki. Concurrently scheduled with course C212. P/NP or letter grading.

M120. Introduction to Japanese Linguistics. (4) (Same as Linguistics M116.) Lecture, three hours; discussion, one hour. Enforced requisite: course 3 or 8 or Japanese placement test. Introduction to Japanese grammar and sociolinguistics through reading, discussion, and problem solving in phonology, syntax, semantics, and discourse pragmatics. Letter grading.

CM122. Japanese Phonology and Morphology. (4) (Same as Linguistics M176A.) Lecture, three hours; discussion, one hour. Recommended preparation: two or more years of Japanese. Survey of Japanese phonetics, phonology, and morphology. Concurrently scheduled with course C222. Letter grading.

CM123. Structure of Japanese. (4) (Same as Linguistics M176B.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese. Functional linguistic analysis of grammatical structures of Japanese, often in form of contrastive analysis of Japanese, English, and other languages. Concurrently scheduled with course C223. Letter grading.

CM127. Contrastive Analysis of Japanese and Korean. (4) (Same as Korean CM127 and Linguistics M178.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese and knowledge of Hangul, or two years of Korean and knowledge of Hiragana. Prior linguistic background also recommended. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspec-

tive of contrastive study of Japanese and Korean. Concurrently scheduled with course CM227. Letter grading.

130A-130B-130C. Readings in Modern Japanese Literature. (4-4-4) Seminar, three hours. Enforced requisite: course 100C or 100I or Japanese placement test. Readings and discussion of works by modern Japanese writers. Each course may be taken independently for credit. Letter grading.

C131. Nation in Modern Japanese Intellectual Discourse. (4) Lecture, three hours. Enforced requisite: course 100C or 100I or Japanese placement test. Reading of texts in original Japanese, with focus on early Taisho and early Showa periods. Various ways that nation (*minzoku*) was discussed in intellectual discourses of this period, particularly in relation to politics of imperialism. Concurrently scheduled with course C231. Letter grading.

140A-140B-140C. Readings in Classical Japanese Literature. (4-4-4) Seminar, three hours. Enforced requisite: course 110A. Readings and discussion of works of classical, medieval, and early modern Japanese literature. Each course may be taken independently for credit. Letter grading. **140A.** Heian; **140B.** Medieval; **140C.** Edo.

C149. Introduction to Kambun and Other Literary Styles. (4) Lecture, three hours. Enforced requisite: course 110A. Introduction to Kambun, Japanese literary rendering of premodern Sino-Japanese, and Sorobun, epistolary style. Concurrently scheduled with course C249. Letter grading.

C150. Topics in Japanese Literature and Philosophy. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Discussion of philosophical topics such as experience, identity, value, technology, in light of Japanese literary texts. Concurrently scheduled with course C250. Letter grading.

151. Japanese Literature in Translation: Modern. (4) Lecture, three hours; discussion, one hour. Requisite: English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Knowledge of Japanese not required. Survey of Japanese literature from 16th century to post-World War II. P/NP or letter grading.

154. Postwar Japanese Culture through Literature. (4) Lecture, three hours; discussion, one hour. Requisite: English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Knowledge of Japanese not required. Use of fiction and film to explore Japanese culture in postwar era in broad cross-disciplinary and cross-cultural context. P/NP or letter grading.

155. Topics in Japanese Cinema. (4) Lecture, three hours; discussion, one hour; film viewing, two hours. Knowledge of Japanese not required. Critical and historical examination of Japanese cinema. P/NP or letter grading.

M156. Literature and Technology. (4) (Same as Comparative Literature M176.) Lecture, three hours. Knowledge of Japanese not required. Examination of representation of technology in 20th-century fiction. Discussion of impact of technology on shifting images of gender, subjectivity, and national identity. P/NP or letter grading.

157. Classical Japanese Drama: Great Tradition. (4) Lecture, three hours. Knowledge of Japanese not required. Readings in major genres of Japanese theater and exploration of its influence on 20th-century drama and theater around world. Letter grading.

158. Love in Modern Japan. (4) Lecture, three hours. Examination of Japanese literary works (in English) and films that represent romantic love from late 19th century to present. P/NP or letter grading.

C159. Variable Topics in Culture and Society in Japan. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Examination of relationship between culture (art, literature, film) and society in Japan. Reading, audio and visual material, discussion, and development of culminating project.

May be repeated for credit with topic change. Concurrently scheduled with course C259. P/NP or letter grading.

CM160. Japanese Buddhism. (4) (Same as Religion M161B.) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Development of Buddhism in Japan in its cultural context, with emphasis on key ideas and teachings. Concurrently scheduled with course C260. Letter grading.

161. Religious Life in Modern Japan. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Religious transformations accompanying rapid industrialization, urbanization, militarism, and defeat in the Pacific War, including analyses of Shinto mythology, secular positivism, Buddhist reform movements, new religions, and continuing role of traditional village/family religious rites. Letter grading.

165. Introduction to Japanese Buddhist Texts. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 110A or Chinese 165 or Japanese placement test. Readings in premodern Buddhist texts written by Japanese in Sino-Japanese or Kambun and mixed Japanese/Chinese literary styles concerning textual commentaries, doctrinal treatises, hagiographies, temple histories, etc. Coverage varies. May be repeated for credit with consent of instructor. Letter grading.

170. Japanese Tales of Supernatural. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Readings of fictional works that feature supernatural beings, including Shinto gods, Buddhas, bodhisattvas, Yin-yang diviners, ghosts, various types of demons, shape-shifting foxes and raccoon dogs, snakes, and dragons. Exploration of different treatments of supernatural themes from ancient to modern times, and of relationship between supernatural literature and expressions of fear, cruelty, violence, misogyny, desire, hope, compassion, and humor. Letter grading.

C171. Topics in Japanese Studies. (4) Lecture, three hours. Enforced requisite: course 100C or Japanese placement test. Advanced course that explores Japanese culture through in-depth reading of Japanese-language texts and/or visual documents. Topics include literature, religion, folklore, cultural history, language, and society. Concurrently scheduled with course C271. P/NP or letter grading.

172. Fiction and Plays of Floating World. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 50. Examination of broad selection of popular fiction and theater from late 17th to early 19th century, with focus on theme of floating world (*ukiyo*) of entertainment, including pleasure quarters, theater district, and realm of fiction. Letter grading.

C173. Imperial Culture in Ancient Japan. (4) Lecture, three hours; discussion, one hour. Requisite: course 50. Knowledge of Japanese not required; basic knowledge of Japanese history and culture assumed. Examination of formation of imperial-style state and its culture in Asuka, Nara, and Heian periods (7th- to 10th-century Japan). Literary genres include myths, historical narrative, poetry, short tales, and diaries. Concurrently scheduled with course C273. Letter grading.

174. Classical Japanese Poetry. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Examination of classical poetry of Nara and Heian periods, with focus on poetry anthology called *Manyōshū* (Collection of Myriad Ages, 8th century) and on *Kokinwakashū* (Collection of Ancient and Modern Japanese Poems, early 10th century). Letter grading.

175. Introduction to Japanese Thought. (4) Lecture, three hours. Knowledge of Japanese not required. General survey of Japanese thought from early to modern times, including analyses of Shinto mythology, forms of Confucianism, ethic of bushido, National Learning School, and modern Japanese philosophers such as Nishida Kitaro and Watsuji Tetsuro. Attention also to representative types of contemporary thinking about Japanese thought, especially

question of what might qualify as recognizably "Japanese" in aesthetics, ethics, and philosophy. Letter grading.

C177. Introduction to Modern Japanese Aesthetics. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Introduction to field of modern and premodern Japanese aesthetics, with focus on hermeneutics of literary arts. Analysis of metalanguage in formulation of aesthetic judgment. Concurrently scheduled with course C277. P/NP or letter grading.

C180. Readings in Japanese Literary Thought. (4) Seminar, three hours. Enforced requisite: course 110A. Reading and translation of commentaries of *monogatari* and *waka* from Heian, Kamakura, Muromachi, and Edo periods. Introduction to Japanese hermeneutics. Concurrently scheduled with course C280. Letter grading.

C182. Japanese Folklore. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Lectures/discussions on native religious rituals (festivals) and observances of Japanese, with special emphasis on artistic behavior. Discussion of Shinto, Shinto/Buddhist syncretism, and other non-Buddhist belief systems. Concurrently scheduled with course C282. Letter grading.

C186. Japanese Poetry and Philosophy. (4) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese. Reading and discussion of selected topics on philosophy of literary arts. May be repeated once with consent of instructor. Concurrently scheduled with course C286. Letter grading.

187SL. Service Learning in Japanese Community. (4) Lecture, three hours; fieldwork, three hours minimum. Enforced requisite: course 6. Service learning in Japanese community. Examination of scholarly works on cultural and language factors between Japanese and American communities. Survey of intercultural communication and learning of strategies for resolving miscommunication difficulties arising from language barrier and cultural differences while using language in real interaction with native speakers of Japanese. Letter grading.

191A. Variable Topics Research Seminars: Classical Japan. (4) Seminar, three hours. Research seminar on selected topics in premodern Japanese literature and thought. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

191B. Variable Topics Research Seminars: Modern Japan. (4) Seminar, three hours. Research seminar on selected topics on modern Japan. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

191C. Variable Topics Research Seminars: Personalities in Japanese Civilization. (4) Seminar, three hours. Research seminar on selected topics. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

197. Individual Studies in Japanese. (4) Tutorial, to be arranged. Limited to juniors/seniors and graduate students who desire more advanced or specialized instruction in Japanese. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required; see undergraduate adviser. P/NP or letter grading.

Graduate Courses

200. Japanese Studies Seminar. (4) Seminar, three hours. Selected topics on introduction to major bibliographical and methodological resources in field of Japanese studies. May be repeated for credit with topic change. Letter grading.

201A-201B. Introduction to Reading Japanese Academic Texts. (4-4) Lecture, three hours. Requisite: course 100A or 100R. Course 201A is requisite to 201B. Designed for graduate students. Introduction to modern Japanese-language academic texts, both

prewar and postwar, with focus only on reading; students who need to improve other skills should take additional courses. S/U or letter grading.

210. Issues in Modern Japanese Literature. (4) Lecture, three hours. Introduction to issues in field of modern Japanese literature, with readings in primary and secondary sources. Topics vary. Letter grading.

211. No and Kyogen. (4) Lecture, three hours. Preparation: one year of classical Japanese. Readings of selected No and Kyogen texts from Muromachi and Edo periods, as well as readings of critical writings and discussion of theories. May be repeated for credit with consent of instructor. Letter grading.

C212. Japanese Urban History and Culture. (4) Lecture, three hours. Knowledge of Japanese not required. Japanese urban history and culture, with special emphasis on cities of Nara, Kyoto, Edo/Tokyo, and Nagasaki. Concurrently scheduled with course C112. S/U or letter grading.

C222. Japanese Phonology and Morphology. (4) Lecture, three hours; discussion, one hour. Recommended preparation: two or more years of Japanese. Survey of Japanese phonetics, phonology, and morphology. Concurrently scheduled with course CM122. Letter grading.

C223. Structure of Japanese. (4) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese. Functional linguistic analysis of grammatical structures of Japanese, often in form of contrastive analysis of Japanese, English, and other languages. Concurrently scheduled with course CM123. Letter grading.

224A-224B. Seminars: Selected Topics in Japanese Discourse Linguistics. (4-4) Seminar, three hours. Requisite: course CM122. Critical reading and discussion of selected topics in Japanese discourse linguistics. May be repeated for credit with consent of instructor. In Progress (224A) and letter (224B) grading.

225A-225B. Seminars: Linguistic Analysis of Japanese Narratives. (4-4) Seminar, three hours. Requisite: course CM122. Analysis of selected modern and classical Japanese narratives. Emphasis on exploration of how grammatical features such as tense, aspect, voice, and point of view are utilized to achieve desired literary effects. May be repeated for credit with consent of instructor. In Progress (225A) and letter (225B) grading.

226. Survey of Functional Linguistics. (4) Lecture, four hours. Survey of recent empirical and theoretical research in several areas of functional linguistics, that has served as backbone for development of Japanese discourse linguistics. May be repeated for credit with consent of instructor. S/U or letter grading.

CM227. Contrastive Analysis of Japanese and Korean. (4) (Same as Korean CM227.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese and knowledge of Hangeul, or two years of Korean and knowledge of Hiragana. Prior linguistic background also recommended. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. Concurrently scheduled with course CM127. Letter grading.

228. Fundamentals in Discourse Data Analysis. (4) Lecture, three hours. Designed to prepare students to conduct research in natural discourse data, both spoken and written, for linguistic analysis. Discussion of discourse taxonomy, data collection methodologies, data organization, analytical frameworks. Letter grading.

C231. Nation in Modern Japanese Intellectual Discourse. (4) Lecture, three hours. Enforced requisite: course 100C or 100I or Japanese placement test. Reading of texts in original Japanese, with focus on late Taisho and early Showa periods. Various ways that nation (*minzoku*) was discussed in intellectual discourses of this period, particularly in relation to politics of imperialism. Concurrently scheduled with course C131. Letter grading.

235A-235B. Seminars: Selected Topics in Modern Japanese Fiction. (4-4) Seminar, three hours. May be repeated for credit with consent of instructor. In Progress (235A) and letter (235B) grading.

240A-240B. Seminars: Selected Topics in Japanese Literature. (4-4) Seminar, three hours. May be repeated for credit. In Progress (240A) and letter (240B) grading.

241A-241B. Seminars: Japanese Classics. (4-4) Seminar, three hours. Prose and poetry from early times to 1868. May be repeated for credit with consent of instructor. In Progress (241A) and letter (241B) grading.

243. Translation Workshop: Premodern Japanese Texts. (2) Seminar, two hours. Requisite: course 200. Translation, grammatical analysis, and discussion of selections from premodern Japanese texts. S/U grading.

245A-245B. Seminars: Medieval Japanese Literature. (4-4) Seminar, three hours. Preparation: one year of classical Japanese. Selected readings in travel poetry, travel diaries, and other genres of Japanese travel literature of Heian, Kamakura, Nambokucho, and Muromachi periods. May be repeated for credit with consent of instructor. In Progress (245A) and letter (245B) grading.

C249. Introduction to Kambun and Other Literary Styles. (4) Lecture, three hours. Requisite: course 110A. Introduction to Kambun, Japanese literary rendering of premodern Sino-Japanese, and Sorobun, epistolary style. Concurrently scheduled with course C149. Letter grading.

C250. Topics in Japanese Literature and Philosophy. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Discussion of philosophical topics such as experience, identity, value, technology, in light of Japanese literary texts. Concurrently scheduled with course C150. Letter grading.

C259. Variable Topics in Culture and Society in Japan. (4) Lecture, three hours; discussion, one hour. Examination of relationship between culture (art, literature, film) and society in Japan. Reading, audio and visual material, discussion, and development of culminating project. May be repeated for credit with topic change. Concurrently scheduled with course C159. S/U or letter grading.

C260. Japanese Buddhism. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Development of Buddhism in Japan in its cultural context, with emphasis on key ideas and teachings. Concurrently scheduled with course CM160. Letter grading.

265A-265B. Seminars: Japanese Buddhist Texts. (4-4) Seminar, three hours. May be repeated for credit with consent of instructor. In Progress (265A) and letter (265B) grading.

270A-270B. Seminars: Japanese Ritual Arts. (4-4) Seminar, three hours. Reading knowledge of Japanese not required. Discussions and readings on ritual (performing) arts of Japan comprising music, dance, storytelling, viewing, purification, divination, disguise, mimicry, and competitive as well as acrobatic arts, with special emphasis on religio-magical purposes and symbolic structure of these arts. In Progress (270A) and letter (270B) grading.

C271. Topics in Japanese Studies. (4) Lecture, three hours. Requisite: course 100C or Japanese placement test. Advanced course that explores Japanese culture through in-depth reading of Japanese-language texts and/or visual documents. Topics include literature, religion, folklore, cultural history, language, and society. Concurrently scheduled with course C171. S/U or letter grading.

C273. Imperial Culture in Ancient Japan. (4) Lecture, three hours; discussion, one hour. Requisite: course 50. Knowledge of Japanese not required; basic knowledge of Japanese history and culture assumed. Examination of formation of imperial-style state and its culture in Asuka, Nara, and Heian periods (7th- to 10th-century Japan). Literary genres in-

clude myths, historical narrative, poetry, short tales, and diaries. Concurrently scheduled with course C173. Letter grading.

M276. Reading Modern Bodies. (4) (Same as Comparative Literature M276.) Seminar, three hours. Designed for graduate students. Exploration of construction of human body through various modern technologies and discourses, including those of disease, diet, race, gender, and sexuality. Examination of texts from variety of locales, with particular emphasis on Japan. S/U or letter grading.

C277. Introduction to Modern Japanese Aesthetics. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Introduction to field of modern and premodern Japanese aesthetics, with focus on hermeneutics of literary arts. Analysis of metalanguage in formulation of aesthetic judgment. Concurrently scheduled with course C177. S/U or letter grading.

C280. Readings in Japanese Literary Thought. (4) Seminar, three hours. Requisite: course 110A. Reading and translation of commentaries of *monogatari* and *waka* from Heian, Kamakura, Muromachi, and Edo periods. Introduction to Japanese hermeneutics. Concurrently scheduled with course C180. Letter grading.

C282. Japanese Folklore. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Lectures/discussions on native religious rituals (festivals) and observances of Japanese, with special emphasis on artistic behavior. Discussion of Shinto, Shinto/Buddhist syncretism, and other non-Buddhist belief systems. Concurrently scheduled with course C182. Letter grading.

C286. Japanese Poetry and Philosophy. (4) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese. Reading and discussion of selected topics on philosophy of literary arts. May be repeated once with consent of instructor. Concurrently scheduled with course C186. Letter grading.

288A-288B. Reading Japanese Space. (4-4) Seminar, three hours. Knowledge of Japanese required. Designed for graduate students. Examination of issues related to notion of *kansei* (*aisthesis*), with particular regard to impact that transformation of space from premodern to modern times has had on perceptions and understanding of surrounding reality. Discussion of different space formations such as spaces of privacy, intimacy, seclusion, and religiosity. Major sources from literary texts (ancient and modern), premodern debates on arts, and works by modern and contemporary Japanese philosophers. In Progress (288A) and letter (288B) grading.

297A. Seminar: Premodern Japan. (4) Seminar, three hours. Selected topics on premodern Japan. Letter grading.

297B. Seminar: Modern Japan. (4) Seminar, three hours. Selected topics on modern Japan. Letter grading.

Korean

Lower Division Courses

1. Elementary Modern Korean. (5) Lecture, two hours; discussion, three hours. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Introduction to standard spoken Korean and Korean writing, with emphasis on conversation. P/NP or letter grading.

1A. Elementary Korean for Korean-Heritage Speakers. (5) Lecture, two and one half hours; discussion, two hours. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for Korean-heritage learners who have very limited knowledge in Korean language or have had no formal instruction in it and to students with no Korean-heritage background who want more Korean speaking/

tening exposure than available in course 1. Emphasis on spelling, basic grammar, reading, writing, and daily conversation. P/NP or letter grading.

2. Elementary Modern Korean. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 1 with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 1. P/NP or letter grading.

2A. Elementary Korean for Korean-Heritage Speakers. (5) Lecture, two and one half hours; discussion, two hours. Enforced requisite: course 1A with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for students who are from Korean-speaking family background and have some limited knowledge of Korean and to students with no Korean-heritage background who want more Korean speaking/listening exposure than available in course 2. Emphasis on formal aspects of standard Korean (basic grammar, reading, daily conversation, polite forms, basic writing). P/NP or letter grading.

3. Elementary Modern Korean. (5) Lecture, two hours; discussion, three hours (when scheduled). Enforced requisite: course 2 with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 2. P/NP or letter grading.

3A. Elementary Korean for Korean-Heritage Speakers. (5) Lecture, two and one half hours; discussion, two hours. Enforced requisite: course 2A with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for students with no Korean-heritage background who want more Korean speaking/listening exposure than available in course 3. Continuation of course 2A. P/NP or letter grading.

4. Intermediate Modern Korean. (5) Lecture, three hours; discussion, two hours. Enforced requisite: course 3 or 3A with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 3. Conversation, composition, and readings with structural analysis in modern Korean. P/NP or letter grading.

4A. Intermediate Korean for Korean Speakers. (5) Lecture, five hours. Enforced requisite: course 3A with grade of C or better or Korean placement test. Not open to students who attended elementary school in Korea for more than one year or who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for students who seek training in written components of standard Korean (spelling, reading, writing, and grammar) at intermediate level. Continuation of course 3A. P/NP or letter grading.

5. Intermediate Modern Korean. (5) Lecture, three hours; discussion, two hours. Enforced requisite: course 4 with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 4. P/NP or letter grading.

5A. Intermediate Korean for Korean Speakers. (5) Lecture, five hours. Enforced requisite: course 4A with grade of C or better or Korean placement test. Not open to students who attended elementary school in Korea for more than one year or who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for Korean-heritage learners. Emphasis on four skills (spelling, grammar, readings, and conversation in modern Korean). P/NP or letter grading.

6. Intermediate Modern Korean. (5) Lecture, three hours; discussion, two hours. Enforced requisite: course 5 with grade of C or better or Korean placement test. Not open to students who have learned,

from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 5. P/NP or letter grading.

6A. Intermediate Korean for Korean Speakers. (5) Lecture, five hours. Enforced requisite: course 5A with grade of C or better or Korean placement test. Not open to students who attended elementary school in Korea for more than one year or who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for Korean-heritage learners. Emphasis on four skills (spelling, grammar, readings, and conversation in modern Korean). Continuation of course 5A. Completion of course 6A is equivalent to completion of course 6. P/NP or letter grading.

8. Elementary Korean: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Intensive course equivalent to courses 1, 2, and 3. Introduction to fundamentals of standard Korean, including pronunciation, grammar, and Korean characters, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. Offered in summer only. P/NP or letter grading.

10. Intermediate Modern Korean: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Recommended preparation: course 3, 3A, or 8, or Korean placement test, or courses equivalent to elementary-level Korean. Second-year Korean. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Intensive course equivalent to courses 4, 5, and 6. Conversation, composition, and readings with structural analysis in modern Korean. Offered in summer only. P/NP or letter grading.

40. Korean Wave: Globalization of South Korean Popular Culture. (5) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Introduction to Korean popular culture and its relationship to transnational social and political contexts. P/NP or letter grading.

50. History of Korean Civilization. (5) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. General survey of development of Korean culture within context of political, social, and economic history. P/NP or letter grading.

M60. Introduction to Korean Religions. (5) (Same as Religion M60C.) Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. General survey of history of religions in Korea—Shamanism, Buddhism, Confucianism, Daoism, Christianity, Tonghak, and some new religions—with focus on religious doctrines, practices, Korean characteristics, and social impacts. P/NP or letter grading.

Upper Division Courses

100A-100B-100C. Advanced Modern Korean. (4-4-4) Lecture, five hours. Enforced requisite: course 6, 6A, or 10 with grade of C or better or Korean placement test. Course 100A with grade of C or better or Korean placement test is enforced requisite to 100B; course 100B with grade of C or better or Korean placement test is enforced requisite to 100C. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of courses 6/6A. Readings of modern prose and poetry, with emphasis on grammar and Sino-Korean. P/NP (undergraduates), S/U (graduates), or letter grading.

101A-101B-101C. Advanced Readings in Modern Korean. (4-4-4) Lecture, three hours. Enforced requisite: course 100C or Korean placement test. Course 101A or Korean placement test is enforced requisite to 101B; course 101B or Korean placement test is enforced requisite to 101C. Advanced readings and discussion for students planning to do advanced coursework or research on Korea. Topics selected from magazines, journals, and books related to humanities and social sciences. P/NP (undergraduates), S/U (graduates), or letter grading.

101I. Advanced Readings in Modern Korean: Intensive. (12) Lecture, 15 hours. Enforced requisite: course 100C or Korean placement test. Intensive course equivalent to courses 101A, 101B, and 101C. Learning advanced Korean language with emphasis on pop culture and social issues of contemporary Korean society. Expansion of Korean literacy and cultural knowledge by examining Korean films/drama, newspapers, and other contemporary publications. Offered in summer only. P/NP or letter grading.

102A-102B-102C. Advanced Korean Conversation. (4-4-4) Lecture, three hours. Enforced requisite: course 6 or 6A or Korean placement test. Not open to students who attended elementary school in Korea for more than two years or who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed to improve spoken proficiency. Each course may be taken independently for credit. P/NP or letter grading.

103A-103B-103C. Readings in Sino-Korean Characters. (4-4-4) Lecture, three hours. Requisite: course 100C or Korean placement test. Course 103A or Korean placement test is requisite to 103B; course 103B or Korean placement test is requisite to 103C. Sino-Korean vocabulary and characters necessary for advanced and superior level of knowledge in Korean. Sino-Korean characters are used differently from same Chinese characters used in contemporary China in terms of pronunciation, meaning, and word formation. Professional-level Korean speakers need to be able to read at least 1,800 Sino-Korean characters. Reinforcement of collocation patterns and semantic association of Sino-Korean vocabulary. P/NP or letter grading.

104A-104B-104C. Korean Writing for Advanced Learners. (4-4-4) Lecture, three hours; discussion, one hour. Enforced requisite: course 101C or Korean placement test. Emphasis on academic writing in Korean, including rhetorical conventions, argument construction and coherence, and development of prose style. Readings include representative examples of diverse genres selected from magazines, journals, and books. Each course may be taken independently for credit. P/NP (undergraduates), S/U (graduates), or letter grading.

C105A-C105B-C105C. Reading Korean Academic Texts. (4-4-4) Lecture, three hours. Enforced requisite: course 101C or Korean placement test. Intended to improve reading skills for students who have studied Korean to advanced level, with coverage in Korean of materials on Korean history, culture, and society. Each course may be taken independently for credit. Concurrently scheduled with courses C205A-C205B-C205C. P/NP or letter grading.

106A-106B-106C. Superior Korean. (4-4-4) Lecture, three hours. Recommended preparation: course 101C. May not be taken concurrently with course 102A, 102B, or 102C. Use of speaking, listening, reading, and writing skills to participate effectively, or understand without difficulty any practical, social, and professional topics, whether those topics are familiar or not. Each course may be taken independently for credit. P/NP or letter grading.

106SL. Superior Korean with Service Learning. (4) Lecture, three hours; fieldwork, two hours. Recommended preparation: course 101C. May not be taken concurrently with course 102A, 102B, 102C, 106A, or 107SL. Use of speaking, listening, reading, and writing skills to participate effectively, or understand without difficulty any practical, social, and professional topics, whether those topics are familiar or not. Opportunity for students to communicate in Korean in authentic contexts while providing useful service to community. P/NP or letter grading.

107A-107B-107C. Professional/Academic Korean. (4-4-4) Lecture, three hours. Requisite: course 101C or Korean placement test. Course 107A or Korean placement test is requisite to 107B; course 107B or Korean placement test is requisite to 107C. May not be taken concurrently with course 102A, 102B, or 102C. Development of professional and academic proficiency in oral and written Korean to understand many sociolinguistic and cultural references as well as

variety of styles and forms pertinent to professional needs, meet demands of professional interactions, and carry out professional-level tasks in student specialization areas. Special attention to vocabulary development on professional level. Development of both interactive and noninteractive listening. Research projects to be assigned according to student interests. P/NP or letter grading.

107SL. Professional/Academic Korean and Community-Based Learning. (4) Lecture, three hours; fieldwork, two hours. Requisite: course 101C or Korean placement test. May not be taken concurrently with course 102A, 102B, 102C, 106A, 106SL, or 107A. Development of professional and academic proficiency in oral and written Korean to understand many sociolinguistic and cultural references as well as variety of styles and forms pertinent to professional needs, meet demands of professional interactions, and carry out professional-level tasks in student specialization areas. Special attention to vocabulary development on professional level. Research projects to be assigned according to student interests. Opportunity for students to communicate in Korean in authentic and professional contexts while providing useful service to community. P/NP or letter grading.

108FL. Special Studies: Readings in Korean. (2) Seminar, two hours. Enforced requisite: course 100C or Korean placement test. Students must be concurrently enrolled in affiliated main course. Additional work in Korean to augment work assigned in main course, including reading, writing, and other exercises. May be repeated for credit. P/NP or letter grading.

109. Advanced Tutorial Instruction in Korean. (2) Tutorial, two hours. Requisite: course 100C or Korean placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Korean. May be repeated for credit. P/NP or letter grading.

CM120. Structure of Korean. (4) (Same as Linguistics M177.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Korean, or one year of Korean and some knowledge of linguistics. Discussion of major syntactic, semantic, and pragmatic characteristics of Korean in light of linguistic universals, with brief introduction to formation, typological features, and phonological structure of Korean. Concurrently scheduled with course C220. Letter grading.

CM127. Contrastive Analysis of Japanese and Korean. (4) (Same as Japanese CM127 and Linguistics M178.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese and knowledge of Hangul, or two years of Korean and knowledge of Hiragana. Prior linguistic background also recommended. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. Concurrently scheduled with course CM227. Letter grading.

130A-130B. Readings in Modern Korean Literature. (4-4) Lecture, three hours. Enforced requisites: course 100C or Korean placement test, English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Readings and discussion of major modern Korean literary texts. Each course may be taken independently for credit. Letter grading.

C149. Readings of Sino-Korean and Korean Sources of Modern Korea. (4) Seminar, three hours. Recommended preparation: reading knowledge of Korean and basic classical Chinese. Readings and discussions of Sino-Korean and Korean texts published in modern Korean newspapers, magazines, and books from 1885 to 1970. Concurrently scheduled with course C249. Letter grading.

150. Korean Literature in Translation: Classical. (4) Lecture, three hours. Requisite: English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Knowledge of Korean not required. Survey of premodern Korean literature from beginning to 19th century. P/NP or letter grading.

C151. Korean Literature in Translation: Modern. (4) (Formerly numbered 151.) Lecture, three hours; discussion, one hour. Requisite: English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Knowledge of Korean not required. Survey of modern and contemporary Korean literature. Concurrently scheduled with course C251. P/NP or letter grading.

153. Korea West Encounters. (4) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Exploration of major cross-cultural encounters between Korea and West from late 16th to early 20th century and writings of leading historical figures. Letter grading.

154. Introduction to Korean Cinema. (4) Lecture, two hours; discussion, one hour; film viewing, two hours. Knowledge of Korean not required. Critical and historical examination of Korean cinema from its inception to present. P/NP or letter grading.

155. Topics in Korean Cinema. (4) Lecture, one hour; discussion, one hour; film viewing, three hours. Knowledge of Korean not required. Historical and critical survey of Korean cinema, examining intersection between 20th-century Korean history, politics, and filmmaking. P/NP or letter grading.

CM160. Korean Buddhism. (4) (Same as Religion M161C.) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Introduction and development of Buddhism in Korea, interactions between indigenous Korean culture and Sinitic traditions of Buddhism, Korean syntheses of imported Buddhist theological systems and meditative techniques, and independent Son (Zen) schools of Korea. Concurrently scheduled with course C260. Letter grading.

165. Introduction to Korean Buddhist Texts. (4) Lecture, three hours; discussion, one hour. Recommended requisite: course 100A or Chinese 110C or Korean placement test. Introduction to reading premodern Korean Buddhist texts written in Sino-Korean and taken from indigenous doxographic materials and philosophical writings, Korean Buddhist apocryphal scriptures, native exegetical commentaries, and Son (Zen) texts. Coverage varies. Texts may be read in either Sino-Korean or literary Chinese. May be repeated with consent of instructor. Letter grading.

172. Topics in Korean Christianity. (4) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Historical development of Christianity in Korea, beliefs and practices, impact of Christianity on modern Korean culture and society. Coverage varies. May be repeated for credit with consent of instructor. Letter grading.

175. Intellectual History of Premodern Korea. (4) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. General survey of Korean thought from earliest records to 19th century, including shamanism, Taoism, Buddhism, Christianity, and neo-Confucianism. Korean traditions and those found in India, China, Japan, and West. P/NP or letter grading.

176. Introduction to Korean Confucian Texts. (4) Lecture, three hours. Enforced requisite: course 100C or Chinese 110C or Korean placement test. Reading in premodern Koryo and Choson texts on politics, society, and culture. Coverage varies. Texts may be read in either Sino-Korean or literary Chinese. May be repeated with consent of instructor. P/NP or letter grading.

177. Intellectual History of Modern Korea. (4) Lecture, three hours; discussion, one hour. Requisite: course 50. Knowledge of Korean not required. Survey of Korean thought in late 19th and 20th centuries, including religious thought, political thought, feminism, nationalism, and economic thinking and practice. P/NP or letter grading.

178. Introduction to Modern Korean Historiography. (4) Seminar, three hours. Enforced requisite: course 101A or C105A or Korean placement test. Introduction to major Korean language historiographical works on Korean history in modern period. Coverage varies. May be repeated with consent of instructor. P/NP or letter grading.

180A-180B-180C. History of Korea. (4-4-4) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Examination of evolution of Korean culture and society within context of political and institutional industry. Consideration of both higher and popular culture. P/NP or letter grading. **180A.** Through 1259; **180B.** 1260 through 1876; **180C.** Since 1876.

181. Reading Korean Cultural Landscape. (4) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Introduction to Korean culture from historical/geographical perspective. Examination of human cultural imprint on land in religious, linguistic, rural, and urban landscapes. Letter grading.

182. 1894 Kabo Reforms: History at Crossroads of Civilizations. (4) Seminar, three hours. Knowledge of Korean not required. Examination of modernizing reforms adopted in Korea in 1894. Consideration of conflict among radical Westernizers who had studied in Japan and U.S., moderate reformers who followed Chinese model of adopting Western technology to defend Confucian order, and orthodox Confucians who strongly opposed any changes. Focus on historical and intellectual background in first half, with debates among students who assume roles in Deliberative Council that was responsible for designing reforms in second half. Letter grading.

183. Korean Folklore. (4) Lecture, three hours; discussion, one hour. Survey of Korean folklore and its perspectives and methods—oral literature, performing folk arts, social folk custom, and material culture. P/NP or letter grading.

184A. Women in History: Premodern Korea. (4) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Examination of premodern Korean history from perspective of women. Consideration of how gender roles and identities were socially (re)constructed over time, with focus on continual negotiation by women and men within larger processes of political, social, and cultural changes such as formation of centralized bureaucratic systems, rise of aristocratic social order, and propagation of Confucian social values. Letter grading.

184B. Women in History: Modern Korea. (4) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Examination of modern Korean history from perspective of women since mid-19th century. Consideration of how gender roles and identities were socially (re)constructed over time, with focus on continual negotiation by women and men within larger processes of political, social, and cultural transformations. Discussion of issues such as changes in women's education, employment, social/legal status, especially in context of colonialism, war, democratization, and economic development. P/NP or letter grading.

185. Education and Society in Korea. (4) Lecture, three hours. Knowledge of Korean not required. Coverage of historical legacies and current realities of education in Korea. Topics include Confucian background, colonial education, role of education in rapid economic development, views on education as vehicle for social mobility, and problems related to excessive emphasis on education. P/NP or letter grading.

M186. Korea and Vietnam: Comparative Modern Histories. (4) (Same as Vietnamese M186.) Seminar, three hours. Comparative survey of intertwined and parallel histories of Korea and Vietnam, organized chronologically, but structured around key themes that serve as basis for comparison. Modern experiences of colonized Vietnam and Korea have many significant parallels, including imposition of colonial control, transition to modernized societies within context of colonialism, and shared experiences of World War II. Both were also divided after war between communist regimes in north and strongly anticommunist regimes in south. Each also experienced warfare after division and direct involvement of U.S. during height of cold war between 1950s and 1970s. P/NP or letter grading.

187. Popular and Folk Religion in Korea. (4) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Introduction to history, forms, and scholarship concerning folk religion in Korea. Exploration of forms of popular and folk religion in Korea, including shamanism, ancestor worship, and contemporary religions. Consideration of fortunetelling, geomancy, and spirit belief. P/NP (undergraduates), S/U (graduates), or letter grading.

191A. Variable Topics Research Seminars: Pre-modern or Early Modern Korean History. (4) Seminar, three hours. Research seminar on selected topics of interpretation in Korean history from earliest times through mid-19th century. Coverage varies from term to term and includes such topics as state formation, international relations, or sprouts of capitalism thesis. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

191B. Variable Topics Research Seminars: Contemporary Korean History. (4) Seminar, three hours. Research seminar on selected topics in modern Korean history. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

197. Individual Studies in Korean. (4) Tutorial, to be arranged. Limited to juniors/seniors and graduate students who desire more advanced or specialized instruction in Korean. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required; see undergraduate adviser. P/NP or letter grading.

Graduate Courses

200. Bibliography and Methods of Research in Korean. (4) Lecture, three hours. Requisites: course 101C, Chinese 110C. Review of basic Western and modern Korean reference books, with concentration on Korean literature and language, and survey of basic bibliographical material. In addition, introduction to most important primary sources in student's field of specialization. Letter grading.

203. Variable Topics in Korean Culture. (4) Seminar, three hours. Advanced course that explores Korean culture through in-depth reading of Korean-language texts and/or visual documents. Topics include literature, religion, folklore, cultural history, language, and society. May be repeated for credit. S/U or letter grading.

C205A-C205B-C205C. Reading Korean Academic Texts. (4-4-4) Lecture, three hours. Requisite: course 101C or Korean placement test. Intended to improve reading skills for students who have studied Korean to advanced level, with coverage in Korean of materials on Korean history, culture, and society. Each course may be taken independently for credit. Concurrently scheduled with courses C105A-C105B-C105C. S/U or letter grading.

210. Thought and Society in Korea. (4) Readings/discussion, three hours. Preparation: reading knowledge of Korean. Designed for graduate students. Readings in Korean intellectual history and its social, political, and economic background from rise of neo-Confucianism in 14th century to 20th century. Letter grading.

211. Thought and Society in Modern Korea. (4) Discussion, three hours. Preparation: reading knowledge of Korean. Designed for graduate students. Critical examination of list of books central to field of modern Korean history, including such topics as Korean capitalism and communism, intellectual history, social movements, and Korean War. Letter grading.

212. 19th-Century Korea. (4) Seminar, three hours; discussion, one hour. Requisite: course 180B or 180C. Proseminar covering crucial period from coronation of Sunjo in 1800 to annexation of Korea by Japan in 1910, including major historical scholarship on political, diplomatic, social, economic, intellectual, and cultural history. Letter grading.

215. Korean Literary History. (4) Lecture, three hours. Designed for graduate students. Critical history of development of traditional Korean literature, with emphasis on canon and ideology, literary systems, hierarchy of genres, rise of literary kinds and forms, periodization, and critical issues in literary history. One particular area of focus to be nationalist canon that governs literary studies in Korea and West. Letter grading.

C220. Structure of Korean. (4) Lecture, three hours; discussion, two hours. Recommended preparation: two years of Korean, or one year of Korean and some knowledge of linguistics. Discussion of major syntactic, semantic, and pragmatic characteristics of Korean in light of linguistic universals, with brief introduction to formation, typological features, and phonological structure of Korean. Concurrently scheduled with course CM120. Letter grading.

224A-224B. Seminars: Selected Topics in Korean Linguistics. (4-4) Seminar, three hours. Critical reading and discussion of selected topics in Korean functional linguistics (grammaticalization, discourse, pragmatics, sociolinguistics, syntax, morphology) and pedagogy. In Progress (224A) and letter (224B) grading.

225. Korean Corpus Linguistics and Language Pedagogy. (4) Seminar, three hours. Introduction to corpus-based discourse and grammatical analysis using Korean corpora and concordancing programs. Special emphasis on development of corpus-based activities for language teaching and curriculum design. S/U or letter grading.

CM227. Contrastive Analysis of Japanese and Korean. (4) (Same as Japanese CM227.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese and knowledge of Hangul, or two years of Korean and knowledge of Hiragana. Prior linguistic background also recommended. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. Concurrently scheduled with course CM127. Letter grading.

230A-230B. Seminars: Literary Translation from Korean. (4-4) Seminar, three hours. Preparation: reading knowledge of Korean. In consultation with instructor, students select works to be translated. Devoted to skill of producing accurate and readable translations, with emphasis on problems and techniques unique to poetry and prose. At end of term, students expected to produce publishable translations. May be repeated once with consent of instructor. In Progress (230A) and letter (230B) grading.

235A-235B. Seminars: Topics in Modern Korean Literature. (4-4) Seminar, three hours. Preparation: at least five years of Korean. Recommended: reading knowledge of Chinese or Japanese. Limited to graduate students. Study of selected period, movement, theme, or author of 20th-century Korean literature, with critical review of secondary works in Western and Korean languages. May be repeated for credit with consent of instructor. In Progress (235A) and letter (235B) grading.

240A-240B. Seminars: Classical Korean Fiction. (4-4) Seminar, three hours. Preparation: reading knowledge of Korean. Formal and thematic study of tales of marvelous, romance, satirical stories, diaries, and *p'ansori* fiction. Status of fiction in society and culture, fiction as imaginative representation of writer's relationship to real conditions of existence. Latest Western theory of narratology applied in analysis. In Progress (240A) and letter (240B) grading.

243. Translation Workshop: Premodern Korean Texts. (2) Seminar, two hours. Requisite: course 200. Translation, grammatical analysis, and discussion of selections from premodern Korean texts. S/U grading.

245A-245B. Seminars: Classical Korean Poetry. (4-4) Seminar, three hours. Preparation: reading knowledge of Korean. Critical reading and analysis of classical Korean poetry, including discussion of literary and cultural contexts of poetic genres. Nature of codes, conventions that make meaning possible. Re-

view of latest Korean scholarship. May be repeated once with consent of instructor. In Progress (245A) and letter (245B) grading.

248. Reading Korean Scholarly Journals: Social and Cultural Change as Reflected in Academic Discourse. (4) Seminar, three hours. Recommended preparation: basic reading knowledge of Korean. Reading of recently published academic journal articles in Korean language. Coverage of rapidly changing multiple Korean identities and related issues in family, marriage, gender, urban poverty, and religious culture in context of globalization and neoliberalism. Special attention to minority groups. S/U or letter grading.

C249. Readings of Sino-Korean and Korean Sources of Modern Korea. (4) Seminar, three hours. Recommended preparation: reading knowledge of Korean and basic classical Chinese. Readings and discussions of Sino-Korean and Korean texts published in modern Korean newspapers, magazines, and books from 1885 to 1970. Concurrently scheduled with course C149. Letter grading.

C251. Korean Literature in Translation: Modern. (4) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Survey of modern and contemporary Korean literature. Concurrently scheduled with course C151. S/U or letter grading.

C260. Korean Buddhism. (4) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Introduction and development of Buddhism in Korea, interactions between indigenous Korean culture and Sinitic traditions of Buddhism, Korean syntheses of imported Buddhist theological systems and meditative techniques, and independent Son (Zen) schools of Korea. Concurrently scheduled with course CM160. Letter grading.

265A-265B. Seminars: Korean Buddhist Texts. (4-4) Seminar, three hours. Selected topics in Korean Buddhist texts. Coverage varies. In Progress (265A) and letter (265B) grading.

272. Seminar: Korean Christianity. (4) Seminar, three hours. Coverage of representative scholars' writings on history of Korean Christianity, with focus on Protestantism. Issues include politics, identities of Korean Christians and Western missionaries, church growth and decline, medical, educational, literary, and woman's work, and Christianity's encounters with Korean religions, and foreign missions. S/U or letter grading.

274. Seminar: Readings in Korean Christianity. (4) Seminar, three hours. Reading of recent secondary sources of Christianity in Korea, covering doctoral dissertations, journal articles, book chapters, and books in English and Korean to help graduate students understand recent scholarship on diverse topics in Korean Christianity. Letter grading.

295A-295B. Seminars: Topics in Traditional Korean Cultural History. (4-4) Seminar, three hours. Preparation: reading knowledge of Korean or literary Chinese. Discussion and research on major topics in Korean cultural history, such as Confucianization of Korean society, Practical Learning movement of late Choson dynasty, or Korean reactions to West in Eastern learning and enlightenment movements of 19th century. May be repeated for credit. In Progress (295A) and letter (295B) grading.

296A-296B. Seminars: Topics in Modern Korean Cultural History. (4-4) Seminar, three hours. Preparation: reading knowledge of Korean. Designed for graduate students. Graduate research seminar on selected topics in modern Korean history. In Progress (296A) and letter (296B) grading.

South Asian

Lower Division Course

M60. Religion in Classical India: Introduction. (5) (Same as Religion M60D.) Lecture, three hours; discussion, one hour. Introduction to religions of classical India—Vedic, Brahmanical, Hindu, Jain, and

Buddhist—paying equal attention to change and continuity, with emphasis on chronological development. P/NP or letter grading.

Upper Division Courses

110A. Elementary Sanskrit. (4) Lecture, three hours. Introduction to script and grammar, with reading exercises and attention to significance of Sanskrit for understanding of other Indo-European languages. P/NP or letter grading.

110B. Intermediate Sanskrit. (4) Lecture, three hours. Requisite: course 110A. Advanced aspects of grammar and reading of literary texts. P/NP or letter grading.

110C. Advanced Sanskrit. (4) Lecture, three hours. Requisite: course 110B. Reading of entire *Bhagavadgita* or comparable amount of other Sanskrit literature. P/NP or letter grading.

115. Readings in Sanskrit. (4) Lecture, three hours. Requisite: course 110C. Extensive reading in such texts as best serve students' needs. May be repeated for credit with consent of instructor. P/NP (undergraduates), S/U (graduates), or letter grading.

150. Classical Indian Literature in Translation. (4) Lecture, three hours. Knowledge of Asian languages not required. Survey of some landmarks of classical Indian literature from second millennium B.C.E. into second millennium C.E., including both poetry and prose, "high" art and more popular genres, and secular and religious texts, examined in their social and institutional contexts. P/NP or letter grading.

155. Topics in South Asian Cinema and Literature. (4) Lecture, three hours. Knowledge of Hindi/Urdu not required. Critical analysis of language and culture in South Asian diaspora as represented in films and/or literature. May be repeated once for credit. P/NP or letter grading.

CM160. Buddhism in India. (4) (Same as Religion M161D.) Lecture, three hours; discussion, one hour. Knowledge of Indian languages not required. Overview of social and doctrinal history of Buddhism from its origin to its disappearance in India, based not only on texts but on archaeological, art historical, and inscriptive sources. Examination of both formal doctrine and actual practices and on what learned Buddhists wrote and ordinary Buddhists did, saw, and made. Concurrently scheduled with course C260. Letter grading.

170. Variable Topics in South Asian Linguistics, Languages, and Cultures. (4) Lecture, three hours. Knowledge of Hindi/Urdu may be required. Critical analysis of language and culture in South Asian linguistic area, exploring notions of India as linguistic area and as cultural area. May be repeated for credit. P/NP or letter grading.

175. Introduction to Indic Philosophy. (4) Lecture, three hours. Survey of main trends in Indian philosophy from ancient to modern times. P/NP or letter grading.

185. Women and Gender in Ancient India. (4) Lecture, three hours. Knowledge of Asian languages not required. Examination of position and function of women in ancient India, primarily through study of key religious and legal texts. Topics include women's life cycle, relation to social institutions, and challenges to these ideals, especially in narrative literature. P/NP or letter grading.

Graduate Courses

M222A-M222B. Vedic. (4-4) (Same as Indo-European Studies M222A-M222B and Iranian M222A-M222B.) Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to course 110C. Characteristics of Vedic dialect and readings in Rig-Vedic hymns. Only course M222B may be repeated for credit. S/U or letter grading.

230. Selected Readings in Sanskrit Texts. (4) Lecture, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

234A-234B. Introduction to Panini's Grammar. (4-4) Lecture, three hours. Requisite: course 110C. Reading of selected passages of text, with introduction to Panini's technique. S/U or letter grading.

236A-236B. Pali and Prakrits. (4-4) Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to course 110B. Grammatical studies and reading of texts. Comparative considerations. S/U or letter grading. **236A.** Pali; **236B.** Prakrits.

243. Translation Workshop: Premodern Sanskrit, Pali, and/or Prakrit Texts. (2) Seminar, two hours. Requisite: course 110C. Translation, grammatical analysis, and discussion of selections from pre-modern Sanskrit, Pali, and/or Prakrit texts. S/U grading.

C260. Buddhism in India. (4) Lecture, three hours; discussion, one hour. Knowledge of Indian languages not required. Overview of social and doctrinal history of Buddhism from its origin to its disappearance in India, based not only on texts but on archaeological, art historical, and inscriptive sources. Examination of both formal doctrine and actual practices and on what learned Buddhists wrote and ordinary Buddhists did, saw, and made. Concurrently scheduled with course CM160. Letter grading.

Southeast Asian

Lower Division Courses

M20. Visible Language: Study of Writing. (5) (Same as Asian M20, Indo-European Studies M20, Near Eastern Languages M20, and Slavic M20.) Lecture, three hours; discussion, one hour. Consideration of concrete means of language representation in writing systems. Earliest representations of language known are those of Near East dating to end of 4th millennium B.C. While literate civilizations of Egypt, Indus Valley, China, and Mesoamerica left little evidence of corresponding earliest developments, their antiquity and, in case of China and Mesoamerica, their evident isolation mark these centers as loci of independent developments in writing. Basic characteristics of early scripts, assessment of modern alphabetic writing systems, and presentation of conceptual basis of semiotic language representation. Origins and development of early non-Western writing systems. How Greco-Roman alphabet arose in 1st millennium B.C. and how it compares to other modern writing systems. P/NP or letter grading.

M60. Religious Traditions in Southeast Asia. (4) (Same as Religion M60E.) Lecture, three hours. Introduction to historical development and contemporary practice of religions in Southeast Asia. Examination of indigenous religious beliefs and major textually based religions introduced to region, including Hinduism, Buddhism, Islam, and Christianity. P/NP or letter grading.

70. Modern Southeast Asian Literature. (5) Lecture, three hours; discussion, one hour. Introduction to modern literatures of Southeast Asia. Designed to expose students to range of literatures, predominantly novels and short stories, that were written across this region in response to dramatic changes caused by colonialism and its aftermath. P/NP or letter grading.

90. Modern Literatures in Southeast Asia. (4) Lecture, three hours. Knowledge of Southeast Asian languages not required. Exploration of diversity of Southeast Asia in such areas as traditional culture, modernization, politics, and literature through modern literary texts. P/NP or letter grading.

Upper Division Courses

130. Topics in Southeast Asian Literature. (4) Lecture, three hours. Requisite: one course from Comparative Literature 1A, 1B, 1C, 1D, 2AW, 2BW, 2CW, or English Composition 3 or 3H. Knowledge of Southeast Asian languages not required. Advanced exploration of Southeast Asia through in-depth reading of texts from region. Topics include censorship, politics, and literature. P/NP or letter grading.

135. Religion and Society in Southeast Asia. (4) Lecture, three hours; discussion, one hour. Critical issues related to major religious traditions in Southeast Asia, with emphasis on reading and reflecting on recent scholarship regarding complex interactions between religion, state, and society in contemporary Southeast Asia. P/NP or letter grading.

140. Zomia: Peoples, Societies, and Cultures of Upland Southeast Asia. (4) Lecture, three hours; discussion, one hour. Recommended requisite: prior course in Asian cultures or history. Multidisciplinary survey of peoples of upland Southeast Asia and critical issues affecting them. Topics include history, culture, human rights, ethnicity, religion, politics. P/NP or letter grading.

157. Gender Issues in Southeast Asia. (4) Seminar, three hours. Critical examination of gender issues in one or more Southeast Asian countries as they connect to social historical contexts nationally, regionally, or globally. May be repeated for credit. P/NP or letter grading.

170A-170B-170C. Topics in Southeast Asian Studies. (4-4-4) Lecture, three hours. Exploration of Southeast Asian culture through in-depth reading of texts and/or visual documents. Topics include literature, religion, folklore, cultural history, and society. P/NP or letter grading.

197. Individual Studies in Southeast Asian. (4) Tutorial, to be arranged. Limited to juniors/seniors and graduate students who desire more advanced or specialized treatment of one language offered in program beyond introductory and intermediate courses currently offered. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required; see academic coordinator. P/NP or letter grading.

Graduate Course

205. Southeast Asian Culture and History. (4) Seminar, three hours. Designed to expose graduate students to study of Southeast Asia as region across multiple disciplines. Discussions led by instructor and guest faculty members about core elements of their discipline's engagement with Southeast Asia, as well as latest trends in theory and research in that area. Reading of classic texts, as well as research articles representing current state of field. S/U or letter grading.

Thai

Lower Division Courses

1. Introductory Thai. (5) Lecture, five hours. Coverage of basic Thai grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

2. Introductory Thai. (5) Lecture, five hours. Enforced requisite: course 1 with grade of C or better. Coverage of basic Thai grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

3. Introductory Thai. (5) Lecture, five hours. Enforced requisite: course 2 with grade of C or better. Coverage of basic Thai grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

3R. Thai Scripts. (5) Lecture, five hours. Recommended preparation: speaking and listening skills in Thai and Thai placement test. Training in reading and writing at introductory level. Completion of course 3R is equivalent to completion of one year of college-level Thai. P/NP or letter grading.

4. Intermediate Thai. (5) Lecture, five hours. Reinforcement of basic Thai grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

5. Intermediate Thai. (5) Lecture, five hours. Enforced requisite: course 4 with grade of C or better. Reinforcement of basic Thai grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

6. Intermediate Thai. (5) Lecture, five hours. Enforced requisite: course 5 with grade of C or better. Reinforcement of basic Thai grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

Upper Division Courses

100A-100B-100C. Advanced Thai. (4-4-4) Lecture, three hours. Course 100A with grade of C or better is requisite to 100B; course 100B with grade of C or better is requisite to 100C. Reinforcement of basic grammar and vocabulary acquired at beginning and intermediate levels. Coverage of more advanced topics on various aspects of Thai society. Broadening of skills in conversation and composition. Reading of selected texts and authentic materials. P/NP or letter grading.

109. Advanced Tutorial Instruction in Thai. (2) Tutorial, two hours. Requisite: course 6 or Thai placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Thai. May be repeated for credit. P/NP or letter grading.

Vietnamese

Lower Division Courses

1. Introductory Vietnamese. (5) Lecture, two hours; discussion, three hours. Coverage of basic Vietnamese grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

1A. Introductory Vietnamese for Heritage Learners. (5) Lecture, two hours; discussion, three hours. Not open to students who have learned, from whatever source, enough Vietnamese to qualify for more advanced courses. Designed for Vietnamese-heritage learners who have some limited knowledge of Vietnamese or have had no formal instruction in Vietnamese. Emphasis on spelling, basic grammar, reading, writing, daily conversation, and polite forms. P/NP or letter grading.

2. Introductory Vietnamese. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 1 with grade of C or better. Coverage of basic Vietnamese grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

2A. Introductory Vietnamese for Heritage Learners. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 1A with grade of C or better or Vietnamese placement test. Not open to students who have learned, from whatever source, enough Vietnamese to qualify for more advanced courses. Designed for Vietnamese-heritage learners who have some limited knowledge of Vietnamese or have had no formal instruction in Vietnamese. Emphasis on spelling, basic grammar, reading, writing, daily conversation, and polite forms. P/NP or letter grading.

3. Introductory Vietnamese. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 2 with grade of C or better. Coverage of basic Vietnamese grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

3A. Introductory Vietnamese for Heritage Learners. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 2A with grade of C or better or Vietnamese placement test. Not open to students who have learned, from whatever source, enough Vietnamese to qualify for more advanced courses. Designed for Vietnamese-heritage learners who have some limited knowledge of Vietnamese or

have had no formal instruction in Vietnamese. Emphasis on spelling, basic grammar, reading, writing, daily conversation, and polite forms. P/NP or letter grading.

3R. Introductory Vietnamese Reading and Writing. (5) Lecture, five hours. Recommended preparation: speaking and listening skills in Vietnamese. Training in reading and writing skills at elementary level, equivalent to completion of one year of Vietnamese. P/NP or letter grading.

4. Intermediate Vietnamese. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 3 with grade of C or better. Reinforcement of basic Vietnamese grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

5. Intermediate Vietnamese. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 4 with grade of C or better. Reinforcement of basic Vietnamese grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

6. Intermediate Vietnamese. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 5 with grade of C or better. Reinforcement of basic Vietnamese grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

8. Elementary Vietnamese: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Intensive course equivalent to courses 1, 2, and 3. Coverage of basic Vietnamese grammar, with equal emphasis on reading, writing, conversation, and comprehension. Offered in summer only. P/NP or letter grading.

40. War in Vietnamese Popular Culture. (5) Lecture, three hours; discussion, one hour. Knowledge of Vietnamese not required. Focus on popular culture produced and consumed by, or about, people in Vietnam and diasporas. Materials include theoretical and other scholarly texts, as well as literature, music, visual art, films, and comics. Reading of scholarly writings for argument, date, and methods, and learning to apply theoretical frameworks in readings and lectures to analysis of popular cultural productions. P/NP or letter grading.

Upper Division Courses

100A-100B-100C. Advanced Vietnamese. (4-4-4) Lecture, three hours. Enforced requisite: course 6 with grade of C or better or Vietnamese placement test. Designed to strengthen and build on language skills previously acquired at beginning and intermediate levels. Content-based readings and discussion, with various aspects of Vietnam, particularly its culture. Readings include both authentic original works and simplified texts. Each course may be taken independently for credit. P/NP or letter grading.

109. Advanced Tutorial Instruction in Vietnamese. (2) Tutorial, two hours. Requisite: course 6 or Vietnamese placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Vietnamese. May be repeated for credit. P/NP or letter grading.

M155. Topics in Vietnamese Cinema and/or Literature. (4) (Same as Asian American Studies M173.) Lecture, three hours; discussion, one hour. Knowledge of Vietnamese not required. Critical and historical examination of literary and/or filmic representations connected to social practices such as empire, nation, diaspora, and globalization. Original language course materials available for interested students. P/NP or letter grading.

155FL. Readings in Vietnamese. (2) Seminar, two hours. Requisite: course 3 or 3A. Enforced corequisite: course M155. Additional work in Vietnamese to augment work assigned in course M155, including reading, writing, and other exercises in Vietnamese. P/NP or letter grading.

170. Variable Topics in Vietnamese Linguistics, Languages, and Cultures. (4) Lecture, three hours. Knowledge of Vietnamese may be required. Critical analysis of language and culture in Vietnam, exploring notion of Vietnam as culture area, surveying literary landscape through poetry and short stories. May be repeated for credit. P/NP or letter grading.

180A. Vietnam: History and Civilization to 1858. (4) Lecture, three hours; discussion, one hour. Recommended preparation: at least one Asian history course. Exploration of Vietnamese society and culture from origins to early 19th century, with emphasis on examination of ways in which interactions between indigenous and Chinese/Southeast Asian political and cultural forces helped shape religious, literary, and social conditions. P/NP or letter grading.

180B. Vietnam: History and Civilization, 1858 to Present. (4) Lecture, three hours; discussion, one hour. Recommended preparation: at least one Asian history or civilization course. Exploration of Vietnamese history and civilization during colonial and postcolonial eras, with emphasis on profound changes that swept through Vietnamese society during period of extended political and military conflict. P/NP or letter grading.

M186. Korea and Vietnam: Comparative Modern Histories. (4) (Same as Korean M186.) Seminar, three hours. Comparative survey of intertwined and parallel histories of Korea and Vietnam, organized chronologically, but structured around key themes that serve as basis for comparison. Modern experiences of colonized Vietnam and Korea have many significant parallels, including imposition of colonial control, transition to modernized societies within context of colonialism, and shared experiences of World War II. Both were also divided after war between communist regimes in north and strongly anticommunist regimes in south. Each also experienced warfare after division and direct involvement of U.S. during height of cold war between 1950s and 1970s. P/NP or letter grading.

Graduate Course

297B. Topics in Contemporary Vietnamese Culture. (4) Seminar, three hours. Selected topics in Vietnamese contemporary culture, including diasporic culture, with emphasis on cultural production. Primary materials combined with theoretical readings. S/U or letter grading.

ASTRONOMY

See Physics and Astronomy

ATMOSPHERIC AND OCEANIC SCIENCES

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Scope and Objectives

The atmospheric and oceanic sciences present a wide variety of problems of compelling scientific interest and increasing social concern. This is exemplified by efforts to improve air quality, depredations caused by severe storms and floods, attempts to control or modify weather phenomena, problems of long-range weather forecasts, climate change, and predictions, and expanding scientific frontiers into our outer atmosphere and atmospheres of other planets.

The Department of Atmospheric and Oceanic Sciences offers a broad curriculum in dynamic and synoptic meteorology, atmospheric physics and chemistry, and upper atmosphere and space physics.

The Bachelor of Science degree qualifies students for entry-level technical positions or represents valuable background for training in other professions. Master of Science and PhD degree holders work in universities, research centers, laboratories, and government services and, increasingly, in the rapidly burgeoning private sector.

Undergraduate Study

Atmospheric, Oceanic, and Environmental Sciences BS

Preparation for the Major

Required: Two courses from Atmospheric and Oceanic Sciences 1/1L, 2/2L, 3/3L; Chemistry and Biochemistry 14A and 14B, or 20A and 20B; Mathematics 3A, 3B, and 3C, or 31A, 31B, 32A, 32B, 33A, and 33B; Physics 1A or 1AH, 1B or 1BH, 1C or 1CH, 4AL, and 4BL, or 6A, 6B, and 6C; Program in Computing 10A.

Students interested in pursuing graduate studies in atmospheric and oceanic sciences or obtaining employment with the National Weather Service or other government agencies are strongly urged to select the Mathematics 31A through 33B sequence and the Physics 1 sequence.

Transfer Students

Transfer applicants to the Atmospheric, Oceanic, and Environmental Sciences major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one year of calculus, one year of calculus-based physics with laboratory, one general chemistry course with laboratory for majors, and one C++ programming course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Four courses from Atmospheric and Oceanic Sciences 101, 102, 103, 104, M105, three additional upper division atmospheric sciences courses selected in consultation with the undergraduate advisers, and two upper division courses from a list of chemistry, mathematics, physics, and statistics courses selected in consultation with the undergraduate advisers.

Students preparing for graduate studies in atmospheric chemistry should take Chemistry and Biochemistry 20B, 103, Mathematics 115A, 136, Physics 131, 132; students preparing for graduate studies in upper atmosphere and space physics should take Mathematics 115A, Physics 110A, 110B, M122; students preparing for graduate studies in atmospheric dynamics and physics should take Atmospheric and Oceanic Sciences 101, M120, Mathematics 115A, 136, Physics 131, 132.

Atmospheric and Oceanic Sciences Minor

The Atmospheric and Oceanic Sciences minor provides a formal vehicle for students specializing in other science fields to pursue interests in the atmospheric and oceanic environment. It is designed to be flexible, recognizing that many topics in this field cross traditional disciplinary boundaries.

To enter the minor, students must have an overall grade-point average of 2.0 or better

and must make an appointment with a departmental undergraduate adviser for approval in selecting a coordinated program of courses from within the department and related disciplines. For further information, contact the department at 310-825-1217.

Required Courses (28 units): Seven 4-unit courses, including (1) three from Atmospheric and Oceanic Sciences M100, 101, 102, 103, 104, M105, M106, C110, C115, M120, 130, 141, 145, 150, C160, C170, 180 and (2) four additional courses, two of which must be upper division, from any of the above atmospheric and oceanic sciences courses beyond the minimum four required or from Atmospheric and Oceanic Sciences 1, 2, 3, 186 (must be taken twice), Chemistry and Biochemistry 103, 110A, 110B, 113A, C113B, 114, Earth, Planetary, and Space Sciences 15, Ecology and Evolutionary Biology 109, C119A, 122, 123A or 123B, 147, 148, Mathematics 115A, 115B, 132, 135, 136, 146, 170A, 170B, Physics 110A, 110B, 112, M122, 131, 132. Other relevant courses from related disciplines may be substituted with prior approval of the department. At least five courses approved for the minor must be upper division.

Groups of courses relevant to specific subareas of atmospheric sciences include (1) *atmospheric chemistry*: Atmospheric and Oceanic Sciences 104, Chemistry and Biochemistry 103, 110A, 110B, C113B, 114; (2) *atmospheric chemistry and biology*: Atmospheric and Oceanic Sciences 101, 104, Ecology and Evolutionary Biology 109, C119A, 122; (3) *atmospheric dynamics*: Atmospheric and Oceanic Sciences 101, 102, Physics 112, 131, 132; (4) *atmospheric dynamics and mathematical modeling*: Atmospheric and Oceanic Sciences 101, 180, Mathematics 115A, 115B, 132, 135, 136, 142, 146; (5) *oceanography and biology*: Atmospheric and Oceanic Sciences 101, 103, 104, Ecology and Evolutionary Biology 109, 123A or 123B, 147, 148; (6) *upper atmosphere*: Atmospheric and Oceanic Sciences 101, M120, C170, Physics 110A, 110B, M122.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

One course may be taken on a Passed/Not Passed basis; each of the other minor courses must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Atmospheric and Oceanic Sciences offers Master of Science (MS), Can-

dicate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Atmospheric and Oceanic Sciences.

Atmospheric and Oceanic Sciences

Lower Division Courses

1. Climate Change: From Puzzles to Policy. (4) Lecture, three hours; discussion, one hour. Overview of fundamentals of Earth's climate, including greenhouse effect, water and chemical cycles, outstanding features of atmospheric and ocean circulation, and feedback between different system components. Exciting and contentious scientific puzzles of climate system, including causes of ice ages, greenhouse warming, and el niño. Importance of climate science and prediction to society, with emphasis on science's role in identifying, qualifying, and solving environmental problems such as ozone hole and greenhouse warming. P/NP or letter grading.

1L. Climate Change: From Puzzles to Policy—Laboratory. (1) Laboratory, one hour. Enforced corequisite: course 1. Investigations and demonstrations supporting material in course 1, including greenhouse effect, atmosphere and ocean circulation, past, present, and future climates, and role of science in climate change politics. P/NP or letter grading.

2. Air Pollution. (4) Lecture, three hours; discussion, one hour. Causes and effects of high concentrations of pollution in atmosphere. Topics include nature and sources of gaseous and particulate pollutants, their transport, dispersion, modification, and removal, with emphasis on atmospheric processes on scales ranging from individual sources to global effects; interaction with biosphere and oceans; stratospheric pollution. P/NP or letter grading.

2L. Air Pollution Laboratory. (1) Laboratory, one hour. Enforced corequisite: course 2. Investigations and demonstrations supporting material in course 2, including box model simulation, dose responses, air parcel motion and pollution dispersion, daily and seasonal variation of smog pollutants, and smog transport. P/NP or letter grading.

3. Introduction to Atmospheric Environment. (4) Lecture, three hours; discussion, one hour. Nature and causes of weather phenomena, including atmospheric circulation, clouds and storms, lightning and precipitation, fronts and cyclones, and tornadoes and hurricanes. Atmospheric radiation, global warming, and greenhouse effect. P/NP or letter grading.

3L. Introduction to Atmospheric Environment Laboratory. (1) Laboratory, one hour. Enforced corequisite: course 3. Investigations and demonstrations supporting material in course 3, including causes and effects of seasons, remote sensing and satellite picture interpretation, atmospheric stability, and weather systems (fronts and cyclones). P/NP or letter grading.

5. Climates of Other Worlds. (4) Lecture, three hours; discussion, one hour. Introduction to atmospheres of planets and their satellites in solar system using information obtained during recent planetary exploration program. Elementary description of origin and evolution of atmospheres on planets. Climates on planets, conditions necessary for evolution of life, and its resulting effect on planetary environment. P/NP or letter grading.

M10. Introduction to Environmental Science. (4) (Same as Environment M10.) Lecture, three hours; laboratory, one hour. Limited to undergraduate students. Introduction to environmental science as discipline and as way of thinking. Discussion of critical environmental issues at local and global scales. Fundamentals of physical, chemical, and biological processes important to environmental science. Laboratory exercises to augment lectures. Letter grading.

88. Lower Division Seminar. (4) Seminar, three hours. Variable topics; consult Schedule of Classes or department for topics to be offered in specific term. P/NP or letter grading.

Upper Division Courses

M100. Earth and Its Environment. (4) (Same as Environment M111.) Lecture, three hours. Overview of Earth as system of distinct, yet intimately related, physical and biological elements. Origins and characteristics of atmosphere, oceans, and land masses. Survey of history of Earth and of life on Earth, particularly in relation to evolution of physical world. Consideration of possibility of technological solutions to global environmental problems using knowledge gained during course. Letter grading.

101. Fundamentals of Atmospheric Dynamics and Thermodynamics. (5) Lecture, four hours; discussion, one hour. Requisites: Mathematics 3B or 31B, Physics 1B or 6B. Recommended: course 3. Introduction to atmospheric environment, with emphasis on thermodynamics, dynamics, and structure of atmosphere. Laws of thermodynamics; work, heat, and cyclic processes. Adiabatic processes, moisture, and atmospheric stability. Hydrostatic balance. Fundamental equations of motion, with applications to atmospheric flow. Circulation and vorticity. Letter grading.

102. Climate Change and Climate Modeling. (4) Lecture, three hours; discussion, one hour. Enforced requisites: Mathematics 3C or 32A, Physics 1B or 6C, with grades of C or better. Global environmental issues in climate change due to human activities or natural climate variations. Quantitative introduction to new science of climate modeling to understand and predict these changes. Physical processes in climate system. Atmospheric and oceanic circulation. El niño and year-to-year climate prediction. Greenhouse effect and global warming. P/NP or letter grading.

103. Physical Oceanography. (4) Lecture, three hours; discussion, one hour. Requisite: Mathematics 3B or 31B. Introductory course for physical sciences, life sciences, or engineering majors interested in environmental issues. Observations of temperature, salinity, density, and currents. Methods. Wind-driven and geostrophic currents. California Current and Gulf Stream. Internal waves. Surface waves and tides. Air/sea interactions. Coastal upwelling. Biological/physical interactions. El niño. Role of ocean in climate and global change. Santa Monica Bay field trip. Letter grading.

104. Fundamentals of Air and Water Pollution. (4) Lecture, three hours; discussion, one hour. Requisite: Chemistry 14B or 20B. Chemistry and physics of air and water pollution, including photochemistry, acid rain, air pollution meteorology and dispersion, groundwater and surface water pollution, chemical cycling, air/water interface, global atmospheric change. Letter grading.

M105. Introduction to Chemical Oceanography. (4) (Same as Ecology and Evolutionary Biology M139.) Lecture, three hours; discussion, one hour. Introductory course for physical sciences, life sciences, and engineering majors interested in oceanic environment. Chemical composition of oceans and nature of physical, chemical, and biological processes governing this composition in past and present. Cycles of major and minor oceanic constituents, with focus on those that are most important for life (i.e., carbon, nitrogen, phosphorus, silicon, and oxygen). Investigation of primary production, export production, remineralization, diagenesis, air-sea gas exchange processes. Letter grading.

M106. Applied Climatology: Principles of Climate Impact on Natural Environment. (4) (Same as Geography M106.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Exploration of knowledge and tools to solve complex problems in contemporary applied climatology, including current practices, influence of climate on environment, and human influence on changing climates. P/NP or letter grading.

C110. Advanced Dynamic and Synoptic Meteorology. (6) Laboratory, six hours. Requisite: course 101. Weather map analysis, thermodynamic diagrams, satellite interpretation, severe weather forecasting, isen-

tropic analysis, frontogenesis, quasi-geostrophic omega equation. Concurrently scheduled with course C227. P/NP or letter grading.

CM114. Aquatic Geomicrobiology. (4) (Same as Earth, Planetary, and Space Sciences CM114.) Lecture, three hours; discussion, one hour. Recommended requisite: course M105 or Earth, Planetary, and Space Sciences C107. Fundamental geomicrobiological metabolisms and biogeochemical reactions occurring in aquatic systems, how they impact their environment, and how they interact in complex ecosystems such as methane seeps, hydrothermal vents, coral reefs, microbial mats, or deep biosphere. Metabolisms include different photoautotrophic, heterotrophic, and chemoautotrophic pathways. Interpretation of geochemical profiles and understanding of how microorganisms govern mineralization and element cycling in aquatic systems. Concurrently scheduled with course CM237. P/NP or letter grading.

C115. Mesometeorology. (4) Lecture, three hours. Requisite: course 101. Observations of phenomena with length scales ranging from 20 km to 2,000 km. Topics include polar lows, airmass thunderstorms, multicell storms, supercell tornadoes, gust fronts, downbursts, microbursts, and dry line. Discussions on design of field project. Concurrently scheduled with course C228. P/NP or letter grading.

M120. Introduction to Fluid Dynamics. (4) (Same as Earth, Planetary, and Space Sciences M140.) Lecture, three hours; discussion, one hour. Corequisite: Physics 131. Fluid statics and thermodynamics. Kinematics. Conservation laws and equations of fluid motion. Circulation theorems and vorticity dynamics. Rotating frame. Irrotational flow. Letter grading.

130. California's Ocean. (4) Lecture, four hours. Recommended requisite: course 103 or M105. Circulation, biogeochemistry, biota, water quality, measurement techniques, computational modeling, conservation, and management for California's coastal ocean, including coastal measurement cruise and term project (paper and presentation). Letter grading.

141. Introduction to Atmospheric Chemistry and Air Pollution. (4) Lecture, three hours; discussion, one hour. Requisites: Chemistry 14B or 20B, Mathematics 3A or 31A, Physics 1B or 6B. Physical and chemical processes that determine composition of atmosphere and its implications for climate, ecosystems, and human welfare. Origin of atmosphere. Nitrogen, oxygen, carbon, sulfur, trace metal cycles. Climate and greenhouse effect. Atmospheric transport and turbulence. Stratospheric ozone. Oxidizing power of atmosphere. Regional air pollution: aerosols, smog, mercury, and acid rain. Letter grading.

C144. Atmospheric Boundary Layer. (4) Lecture, three hours. Enforced requisite: course 101 with grade of B+ or better. Atmospheric boundary layer is lowest portion of atmosphere, representing interface between Earth's surface and atmosphere, is strongly affected by turbulence, and plays important role in exchange of heat, momentum, trace gases, and aerosols between Earth's surface and free troposphere. Investigation of properties of atmospheric boundary layer and processes that determine them. Concurrently scheduled with course C222. P/NP or letter grading.

145. Atmospheric Physics: Radiation, Clouds, and Aerosols. (4) Lecture, three hours; discussion, one hour. Requisites: Physics 1A, 1B, and 1C, or 6A, 6B, and 6C. Theory and application of atmospheric radiation, aerosol, and cloud processes. Topics include radiative transport, cloud and rain formation, aerosol properties, impact of aerosol and clouds on climate. Letter grading.

150. Atmospheric and Oceanic Sciences Laboratory. (5) Lecture, one hour; laboratory, six hours. Requisites: Mathematics 3B or 31B, Physics 1B and 1C (or 6B and 6C). Many of today's environmental problems, such as stratospheric ozone hole, current rise of greenhouse gas concentrations, and various severe weather phenomena, were first discovered and investigated using accurate observational techniques. Direct experimental observations remain crucial component in today's efforts to better understand weather,

climate, and pollution of atmosphere and ocean. Introduction to experimental/observational approach in atmospheric and oceanic sciences. Students work in small groups to gain hands-on experience in setup, performance, analysis, and reporting of different experiments. Introduction to underlying principles of these experimental methods and basic data analysis tools. P/NP or letter grading.

155. Introduction to Ecosystem-Atmosphere Interactions. (4) Lecture, three hours; discussion, one hour. Exchanges of energy, moisture, atmospheric trace gases, and momentum between terrestrial ecosystems and atmosphere. Interactions and feedbacks between physical environment and physiological status of plants and soils. Topics include canopy structure and function, leaf energy balance, and carbon and water fluxes between plants, soils, and atmosphere. Letter grading.

C160. Remote Sensing of Atmosphere and Oceans. (4) Lecture, three hours. Requisite: Physics 1C or 6B. Theory and techniques of remote sensing; atmospheric spectroscopy, scattering, and polarization; passive and active techniques; relevant satellite systems; inversion methods; remote sensing of clouds, aerosols, temperature, precipitation, and trace constituents; remote sensing of oceans and biosphere. Concurrently scheduled with course C240B. P/NP or letter grading.

C170. Introduction to Solar System Plasmas. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 33A, Physics 1C. Introduction to basic plasma physical processes occurring in sun, solar wind, magnetospheres, and ionospheres of planets, using simple fluid (magnetohydrodynamic) models as well as individual particle (radiation belt dynamics) approach. Solar-planetary coupling processes, geomagnetic phenomena, aurora. Concurrently scheduled with course C205A. Letter grading.

180. Numerical Methods in Atmospheric Sciences. (4) Lecture, three hours; discussion, one hour. Preparation: one course in C or Fortran programming. Requisite: Mathematics 33B. Survey of numerical methods employed in atmospheric and related sciences: theory, application, and programming. Letter grading.

C182. Data Analysis in Atmospheric and Oceanic Sciences. (4) Lecture, three hours; laboratory, one hour. Enforced requisite: one course from 101 through M105. Recommended: one probability course. Overview of data analytic methods in common use in atmospheric and oceanic research. Linear models, principal component analysis (empirical orthogonal function), time-series analysis, and clustering methods. Model validation and evaluation, significance tests, error analysis, bias detection. Emphasis on practical applications, with specific examples from atmospheric and oceanic sciences. Concurrently scheduled with course C260. P/NP or letter grading.

186. Operational Meteorology. (2) Laboratory, six hours. Requisite: course C110. Limited to junior/senior Atmospheric, Oceanic, and Environmental Sciences majors. Daily contact with weather data and forecasting, satellite and radar data. Introduction to weather forecasting for aviation, air pollution, marine weather, fire weather, and public use. Includes daily weather map discussions and visits to observing, radiosonde, and radar installations. Letter grading.

190. Research Colloquia in Atmospheric and Oceanic Sciences. (2) Seminar, two hours. Preparation: basic knowledge of meteorology (equivalent to course 3) and lower division calculus, chemistry, and physics; course 101 strongly recommended. Limited to departmental majors and minors. Survey of current research projects presented by faculty members and research staff in seminar and/or panel discussion format. May be repeated for credit. P/NP grading.

197. Individual Studies in Atmospheric and Oceanic Sciences. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible

evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research in Atmospheric and Oceanic Sciences. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors and required for Mathematics/Atmospheric and Oceanic Sciences majors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Introduction to Atmospheric and Oceanic Fluid. (4) Lecture, three hours; discussion, one hour. Recommended requisite: Physics 131. Thermodynamics of two component (moist/salty) fluids. Thermodynamic diagrams and stability. Saturation and moist processes. Hydrostatics. Equations of fluid motion in rotating coordinate systems. Scales of motion and dominant balances: geostrophic, gradient, and thermal wind. Circulation and vorticity. Boundary layers and turbulence. Elementary waves. S/U or letter grading.

200B. Introduction to Dynamics of Earth System. (4) Lecture, three hours. Overview of general circulation of atmosphere and ocean; global energy balances; coupled circulations (such as el niño); meso-scale, synoptic, and tropical phenomena; boundary layers, clouds, and convection; biogeochemical cycles; climate variability and change. S/U or letter grading.

201A. Geophysical Fluid Dynamics I. (4) Lecture, three hours. Fundamental equations of motion. Atmospheric and oceanic approximations. Rotating reference frame. Density stratification. Geostrophic adjustment and balance. Potential vorticity conservation. Vortex dynamics. Acoustic, gravity, inertial, Rossby, and Kelvin waves. Barotropic and baroclinic instability. Ekman boundary layers. Oceanic wind gyres: Sverdrup balance and western boundary currents. Letter grading.

201B. Geophysical Fluid Dynamics II. (4) Lecture, three hours. Requisite: course 125 or 201A. Anelastic approximation. Small-scale gravity waves in atmosphere. Critical levels. Kelvin/Helmholtz instability. Quasi-static oscillations of planetary atmosphere. Equatorial Kelvin and mixed Rossby-gravity (Yanai) waves. Baroclinic and barotropic instabilities in continuously stratified system. General circulation of atmosphere. Jet streams, eddies, storm tracks. Propagation of planetary waves. Wave-mean flow interactions. Noninteraction theorems. Letter grading.

201C. Atmospheric and Oceanic Turbulence. (4) Lecture, three hours. Requisite: course 200A. Recommended: course 201A. Turbulent flows that occur on relatively small scales (<10 km) in both atmosphere and ocean. Classical homogeneous, shear, convective, and boundary-layer turbulence and its geophysical modification due to stratification, Earth's rotation, and water phase changes. S/U or letter grading.

202. Introduction to Ocean Science. (4) Lecture, three hours. Fundamentals of ocean physics, chemistry, and biology. Equations of motion, dynamical balances, conservation laws. Ocean circulation and material transport from small-scale eddies and waves to global circulation of thermocline and deep ocean; influences on ecosystem processes, biogeographic provinces, and chemical cycles; implications for global heat transport, sea ice, and climate. S/U or letter grading.

M203A. Introduction to Atmospheric Chemistry. (4) (Same as Civil Engineering M262A.) Lecture, three hours. Requisite for undergraduates: Chemistry 20B. Principles of chemical kinetics, thermochemistry, spectroscopy, and photochemistry; chemical composition and history of Earth's atmosphere; biogeochemical cycles of key atmospheric constituents; basic photochemistry of troposphere and stratosphere, upper atmosphere chemical processes; air pollution; chemistry and climate. S/U or letter grading.

203B. Introduction to Atmospheric Physics. (4) Lecture, three hours; discussion, one hour. Principles of radiative transfer; absorption, emission, and scattering of solar and infrared radiation; radiation budget consideration; aerosols in atmosphere; principles of water droplet and ice crystal formation; diffusion and accretion; precipitation processes; radiative forcings of clouds/aerosols and climate feedback. S/U or letter grading.

C205A. Introduction to Solar System Plasmas. (4) Lecture, three hours; discussion, one hour. Introduction to basic plasma physical processes occurring in sun, solar wind, magnetospheres, and ionospheres of planets, using simple fluid (magnetohydrodynamic) models as well as individual particle (radiation belt dynamics) approach. Solar-planetary coupling processes, geomagnetic phenomena, aurora. Concurrently scheduled with course C170. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

205B. Introduction to Solar-Terrestrial Physics. (4) Lecture, three hours; discussion, one hour. Solar, interplanetary, magnetospheric, ionospheric, auroral, geomagnetic phenomenological and theoretical background for studies in space physics. Contextual understanding and literacy in space physics terminology provided. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

205C. Planetary Upper Atmospheres. (4) Lecture, three hours; discussion, one hour. Aeronomy of upper atmospheres of Earth and other planets and some of their satellites—thermospheric structure and morphology, circulations, and disturbances; ionospheres as collisional and magnetized (unmagnetized) plasmas: currents, drifts, and instabilities. Examples of upper atmospheric interaction with lower atmosphere and magnetosphere. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

M206. Introduction to Biophysical Modeling of Land Surface Processes and Land/Atmosphere Interactions. (4) (Same as Geography M206.) Lecture, two hours; laboratory, one hour; reading period, one hour. Designed for graduate students. Presentation of introductory knowledge for graduate students to understand nature, principles, and scope of biophysical modeling of land surface processes, including ideal canopy model, radiation, heat and CO_2 fluxes transfer, and satellite data application. Laboratory sessions included. S/U or letter grading.

209. Climate Change Assessment. (4) Lecture, three hours; discussion, one hour. Corequisites: graduate atmospheric, oceanic, hydrological, or climate science courses. Lectures, readings, and projects on current issues in projections of future anthropogenic climate change; design and use of resources from Coupled Model Intercomparison Projects (CMIPs), topics from large multiscientist climate assessments, including Intergovernmental Panel on Climate Change (IPCC). Issues in modeling current climate, including natural climate variability, paleoclimate, and global change under standardized scenarios for future anthropogenic greenhouse gases and aerosols. May be repeated for credit. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

Dynamic and Synoptic Meteorology

M210. Planetary Atmospheres and Climates. (4) (Formerly numbered 210.) (Same as Earth, Planetary, and Space Sciences M229.) Lecture, three hours. Enforced requisite: Physics 1C. Planetary atmospheric structure and composition, radiative transfer, and climate dynamics. Topics include origin and evolution of atmospheres, paleoclimate of Earth and Mars, atmo-

spheric thermodynamics, plane-parallel radiative transfer, climate dynamics, climate forcings/feedbacks, bifurcation, and climate hysteresis. S/U or letter grading.

211. Planetary Wave Dynamics and Teleconnections in Atmosphere/Ocean. (4) Lecture, three hours. Requisite: course 201B. Dynamics of stationary and low-frequency waves in Earth's atmosphere and ocean with applications to remote impacts of climate variability. Propagation of barotropic and baroclinic Rossby waves in spatially varying flow. Interactions with storm tracks and mean flow. Teleconnection patterns. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

212A. Numerical Methods in Geophysical Fluid Dynamics. (4) Lecture, three hours. Requisite or corequisite: course 201A. Basic numerical methods for initial-boundary value problems in fluid dynamics, with emphasis on applications to atmospheric and oceanographic problems. Finite-difference methods and truncation error. Linear and nonlinear computational instability. Computational modes and computational boundary conditions. Nonlinear shallow-water equation model. Spectral methods. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

212B. Numerical Modeling of Atmosphere I. (4) Lecture, three hours. Requisites: courses 201B, 212A. Dynamics of numerical weather prediction and climate models and their computational design. Basic governing equations. Vertical and horizontal coordinates. Quasi-geostrophic and balanced models. Shallow-water equation model. Three-dimensional primitive equation models. Limited-area modeling. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

212C. Numerical Modeling of Atmosphere II. (4) Lecture, three hours. Requisite: course 201C. Formulation of physical processes in numerical weather prediction and climate models. Planetary boundary layer processes. Turbulence closure models. Condensation processes. Parameterization of moist-convective processes. Cloudiness parameterization. Parameterization of gravity wave drag. S/U grading.

214. Theoretical Climatic Dynamics. (4) Lecture, three hours. Radiative transfer and energy-balance models (EBMs). Multiple equilibrium climates and their stability. Coupled EBMs of atmosphere and oceans. Climatic history of our planet. Continuum mechanics of ice sheets and mantle. Oscillatory models of Quaternary glaciation cycles. Transitions from equilibrium to periodic and aperiodic climate behavior. Climatic predictability. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

215. Ocean Circulation. (4) Lecture, three hours. Requisites: courses 200A, 201A. Phenomena, theory, and modeling of ocean circulations with global to regional scope. Circulation types include thermohaline and wind-driven currents. Examination of relationships between ocean circulations and smaller-scale motions, atmospheric climate, and biogeochemical transport. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

216A. Tropical Motions with Moist Processes. (4) Lecture, three hours. Requisite: course 201C. Cumulus convection and the boundary layer in tropics. Cloud clusters and mesoscale convection systems. Interaction of cumulus convection with large-scale environment. Tropical cyclones. Monsoon meteorology. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

216B. Wave Motions in Tropical Atmosphere. (4) Lecture, three hours. Requisite: course 201B. Basic theory of equatorially trapped waves. Observations of tropical wave disturbances. Generation mechanisms of tropical waves. Tropical 30-50 day oscillation. Quasi-biennial and semiannual oscillations. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

217. Mesoclimates. (4) Lecture, three hours. Global distribution of climate regimes with spatial scales smaller than 100 km. Mechanisms maintaining mesoclimates against much larger-scale atmospheric general circulation and isolation gradients. Mesoclimate-ecosystem interaction. S/U or letter grading.

218. Dynamics of Atmosphere/Ocean System. (4) Lecture, three hours. Transfer of properties between atmosphere and ocean; wind-driven ocean currents; coastal upwelling. Air/sea interactions. Effects of oceans on climate. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

C222. Atmospheric Boundary Layer. (4) Lecture, three hours. Atmospheric boundary layer is lowest portion of atmosphere, representing interface between Earth's surface and atmosphere, is strongly affected by turbulence, and plays important role in exchange of heat, momentum, trace gases, and aerosols between Earth's surface and free troposphere. Investigation of properties of atmospheric boundary layer and processes that determine them. Concurrently scheduled with course C144. S/U or letter grading.

224A. Atmospheric Turbulence. (4) Lecture, three hours. Kinematics of homogeneous and shear flow turbulence. Surface and planetary boundary layers, including heat transfer and turbulent convection. Survey of field and laboratory observations and their interpretation by theory. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

M224B. Atmospheric Diffusion and Air Pollution. (4) (Same as Civil Engineering M262B.) Lecture, three hours. Nature and sources of atmospheric pollution; diffusion from point, line, and area sources; pollution dispersion in urban complexes; meteorological factors and air pollution potential; meteorological aspects of air pollution. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

C227. Advanced Dynamic and Synoptic Meteorology. (6) Laboratory, six hours. Requisite: course 101. Weather map analysis, thermodynamic diagrams, satellite interpretation, severe weather forecasting, isentropic analysis, frontogenesis, quasi-geostrophic omega equation. Concurrently scheduled with course C110. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

C228. Mesometeorology. (4) Lecture, three hours. Requisite: course 101. Observations of phenomena with length scales ranging from 20 km to 2,000 km. Topics include polar lows, airmass thunderstorms, multicell storms, supercell tornadoes, gust fronts, downbursts, microbursts, and dry line. Discussions on design of field project. Concurrently scheduled with course C115. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

229. Mesoscale Modeling. (4) Lecture, three hours. Requisites: courses 201C, C228. Numerical and analytical modeling of convective and mesoscale motions, from shallow heat sources to large complex systems. Model frameworks, assumptions, parameterizations, and solution techniques. Role of modeling efforts in understanding dynamic structure and be-

havior of systems. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

Atmospheric Physics and Chemistry

230A. Atmospheric Chemistry I. (4) Lecture, three hours. Requisite: course M203A. Photochemistry of troposphere; physical chemistry of surfaces and solutions; precipitation chemistry and acid rain; atmospheric organic chemistry; regional and global biogeochemical cycles; current issues in global change. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

230B. Atmospheric Chemistry II. (4) Lecture, three hours. Requisite: course M203A. Photochemistry of stratosphere and mesosphere; basic ionospheric processes; stratospheric pollution and ozone layer; physical chemistry of upper atmosphere clouds and aerosols; comparative photochemistry of planetary atmospheres; observational techniques and results. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

232. Chemical Transport Modeling. (4) Lecture, three hours. Requisites: courses M203A, 230A, 230B. Equations of tracer transport and chemical kinetics modeling in three dimensions; numerical techniques; coupled simulations of gas-phase and aerosol micro-physics and chemistry; computational versus observational results; current problems in tracer modeling. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

M235. Ocean Biogeochemical Dynamics and Climate. (4) (Same as Ecology and Evolutionary Biology M238.) Lecture, three hours. Interaction of ocean biogeochemical cycles with physical climate system. Biogeochemical processes controlling carbon dioxide and oxygen in oceans and atmosphere over time-scales from few million years to several years. Anthropogenic perturbation of global carbon cycle and climate. Response of ocean ecosystems to past and future global changes. Use of isotopes to study ocean biogeochemical cycles and climate. Interactions between biogeochemical cycles on land and in ocean. S/U or letter grading.

236. Terrestrial Biogeochemical Dynamics and Climate. (4) Lecture, three hours. Corequisites: graduate atmospheric, oceanic, hydrological, and climate science courses. Biogeochemical cycles in terrestrial biosphere. Carbon/water/energy/nutrient dynamics. Observational techniques and results. Interactions of terrestrial biogeochemical cycles with climate system on timescales of seconds to centuries. Use of isotopes to study land biogeochemical cycles and climate. Anthropogenic perturbations of global terrestrial biogeochemical cycles and climate feedbacks. Response of land ecosystems to past and future global changes. S/U or letter grading.

CM237. Aquatic Geomicrobiology. (4) (Same as Earth, Planetary, and Space Sciences CM214.) Lecture, three hours; discussion, one hour. Recommended requisite: course M105 or Earth, Planetary, and Space Sciences C107. Fundamental geomicrobial metabolisms and biogeochemical reactions occurring in aquatic systems, how they impact their environment, and how they interact in complex ecosystems such as methane seeps, hydrothermal vents, coral reefs, microbial mats, or deep biosphere. Metabolisms include different photoautotrophic, heterotrophic, and chemoaerobic pathways. Interpretation of geochemical profiles and understanding of how microorganisms govern mineralization and element cycling in aquatic systems. Concurrently scheduled with course CM114. S/U or letter grading.

240A. Radar Meteorology. (4) Lecture, three hours. Radar detection of spherical and nonspherical particles; use of radar in studying size distributions of cloud and precipitation particles, precipitation intensity and amount, updraft velocities, horizontal wind speed, and turbulence; radar observations of convective clouds, thunderstorms, tornadoes, hurricanes, squall lines, and fronts; clear air echoes. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

C240B. Remote Sensing of Atmosphere and Oceans. (4) Lecture, three hours. Requisite: Physics 1C or 6B. Theory and techniques of remote sensing; atmospheric spectroscopy, scattering, and polarization; passive and active techniques; relevant satellite systems; inversion methods; remote sensing of clouds, aerosols, temperature, precipitation, and trace constituents; remote sensing of oceans and biosphere. Concurrently scheduled with course C160. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

244A. Atmospheric Radiation. (4) Lecture, three hours. Requisite: course 203B. Presentation of computational methods for solar and thermal infrared radiative fluxes and heating rates in clear, aerosol, and cloudy atmospheres for climate studies. Topics include line-by-line and correlated k-distribution methods for treating gaseous absorption, simplified methods for radiative transfer in Rayleigh and Lorenz/Mie atmospheres, and global radiative equilibrium. Use of user-friendly computer code required to perform calculations of radiative fluxes and heating rates in various atmospheric conditions for climate applications. S/U or letter grading.

244B. Radiation and Climate. (4) Lecture, three hours; laboratory, one hour. Requisite: course 203B. Radiation budget of Earth/atmosphere system observed from satellites. Introduction to one-dimensional radiative-convective and energy-balance climate models. Climatic impact of increases in greenhouse gases and anthropogenic aerosols. Climatic impact of changes in solar constant, solar insolation, and volcanic eruption. Radiative forcing in global climate models: clouds and aerosols. Role of radiation in numerical simulation of interannual variability. S/U or letter grading.

Upper Atmosphere and Space Physics

250A. Solar System Magnetohydrodynamics. (4) Lecture, three hours. Requisite: course C205A. Derivation of MHD equations with two fluid aspects, generalized Ohm's law, small amplitude waves, discontinuities, shock waves, and instabilities. Applications to statics and dynamics of solar wind and planetary magnetospheres and to solar wind/magnetosphere/ionosphere coupling. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

250B. Solar System Microscopic Plasma Processes. (4) Lecture, three hours. Requisite: course C205A. Adiabatic charged particle dynamics; incoherent radiation processes; collective effects in plasma; propagation characteristics of electrostatic and electromagnetic waves; introduction to resonant interaction between charged particles and plasma waves. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

256. Ionospheric Electrodynamics. (4) Lecture, three hours. Ionospheric structure, currents, and electric fields; equatorial and high-latitude ionospheres; ionospheric control of magnetospheric phenomena. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

257. Radiation Belt Plasma Physics. (4) Lecture, three hours. Requisite: course 250B. Turbulent plasma instabilities and their relation to satellite observations and magnetospheric structure. Processes responsible for source, loss, and transport of energetic radiation belt particles. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

258. Sources and Losses of Magnetospheric Plasma. (4) Lecture, three hours. Transfer of plasma across magnetopause, sources for magnetotail, ionospheric plasma flow to magnetosphere, precipitation of magnetospheric particles, plasmasphere, and ring current. S/U or letter grading.

259. Space Weather. (4) Lecture, three hours. Identification, description, and theories for major disturbances in magnetosphere/ionosphere/thermosphere system. Storms, substorms, convection bays, and other disturbances. Connections to interplanetary conditions, particle injection and precipitation, currents and fields. S/U or letter grading.

C260. Data Analysis in Atmospheric and Oceanic Sciences. (4) Lecture, three hours; laboratory, one hour. Enforced requisite: one course from 101 through M105. Overview of data analytic methods in common use in atmospheric and oceanic research. Linear models, principal component analysis (empirical orthogonal function), time-series analysis, and clustering methods. Model validation and evaluation, significance tests, error analysis, bias detection. Emphasis on practical applications, with specific examples from atmospheric and oceanic sciences. Concurrently scheduled with course C182. S/U or letter grading.

Special Studies

270. Seminar: Atmospheric Sciences. (2) Seminar, one hour. May be repeated for credit. S/U or letter grading.

271. Seminar: Atmospheric Dynamics. (2) Seminar, one hour. May be repeated for credit. S/U or letter grading.

M272A-M272B-M272C. Seminars: Climate Dynamics. (2 to 4 each) (Same as Earth, Planetary, and Space Sciences M270A-M270B-M270C and Geography M270A-M270B-M270C.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout geological past. Rheology and dynamics of climatic subsystems: atmosphere and oceans, ice sheets and marine ice, lithosphere and mantle. Climate of other planets. Modeling, simulation, and prediction of modern climate on monthly, seasonal, and interannual time scale. May be repeated for credit. S/U or letter grading.

274. Seminar: Atmospheric Chemistry. (2) Seminar, one hour. May be repeated for credit. S/U or letter grading.

M275A-M275B-M275C. Seminars: Space Physics. (2-2-2) (Same as Earth, Planetary, and Space Sciences M288A-M288B-M288C.) Seminar, one hour. Problems of current interest concerning particles and fields in space. May be repeated for credit. S/U grading.

276. Seminar: Mesoscale Processes. (2) Seminar, one hour. Selected topics of current research interest in convection, extratropical cyclones, and fronts. May be repeated for credit. S/U or letter grading.

277. Seminar: Coastal Ocean. (2) Seminar, one hour. Selected topics of current interdisciplinary research in marine and coastal sciences, including physical oceanography, biogeochemistry, marine biology, coastal engineering, atmospheric processes, and health-related issues. May be repeated for credit. S/U grading.

281. Special Topics in Dynamic Meteorology. (2 to 4) Lecture, two hours. Individual meetings with instructor to be arranged. Content varies from year to year. S/U or letter grading.

282. Special Topics in Oceanography. (2 to 4) Lecture, two hours. Individual meetings with instructor to be arranged. May be repeated for credit. S/U or letter grading.

283. Special Topics in Atmospheric Physics. (2 to 4) Lecture, two hours. Individual meetings with instructor to be arranged. May be repeated for credit. S/U or letter grading.

284. Special Topics in Atmospheric Chemistry. (2 to 4) Lecture, two hours. Individual meetings with instructor to be arranged. May be repeated for credit. S/U or letter grading.

285. Special Topics in Solar Planetary Relations. (2 to 4) Lecture, two hours. Individual meetings with instructor to be arranged. Selected topics of current research interest in solar wind, magnetospheric, or ionospheric physics. S/U or letter grading.

296A-296L. Advanced Topics in Atmospheric Sciences. (2 each) Discussion, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading:

296A. Numerical Modeling of Atmosphere.

296B. Boundary Layers, Clouds, and Climate.

296C. Numerical Mesoscale Modeling.

296D. Climate Dynamics.

296E. Numerical Modeling of Atmosphere and Ocean.

296F. Hierarchical Modeling of Ocean/Atmosphere System.

296G. Upper Atmosphere and Space Physics.

296H. Recent Advances in Atmospheric Chemistry.

296I. Upper Atmospheric Dynamics.

296J. Experimental Mesoscale Meteorology.

296K. Tropical Meteorology.

296L. Geophysical Fluid Dynamics, Oceanography, and Climate.

296M. Radiation and Remote Sensing.

296N. Tropospheric Chemistry and Climate Modeling and Analysis.

296P. Atmospheric Chemistry of Air Pollution, Aerosols, and Climate.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Atmospheric and Oceanic Sciences. (2) Seminar, one hour; two-day intensive training session prior to Fall Quarter. Required of all new teaching assistants and recommended for new PhD students and graduate students intending to be teaching assistants during academic year. Introduction to classroom teaching for general education and upper division departmental courses. Topics include pedagogical techniques, preparation, academic integrity, and integration of technology and electronic communications. S/U grading.

596. Directed Studies for Graduate Students. (2 to 8) Tutorial, to be arranged. S/U grading.

597. Preparation for MS Comprehensive Examination. (2 to 8) Tutorial, to be arranged. S/U grading.

598. Research for and Preparation of MS Thesis. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for PhD Dissertation. (2 to 8) Tutorial, to be arranged. S/U grading.

BIOENGINEERING

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Jacob J. Schmidt, PhD
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Yi Tang, PhD
Michael A. Teitel, PhD
Cun-Yu Wang, DDS, PhD
Gerard C.L. Wong, PhD
Benjamin M. Wu, DDS, PhD
Yang Yang, PhD

Professor Emeritus

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Stephanie K. Seidlits, PhD

Adjunct Associate Professor

Bill J. Tawil, MBA, PhD

Adjunct Assistant Professors

Kayvan Niazi, PhD
Zachary D. Taylor, PhD
Thomas A. Zangle, PhD

Scope and Objectives

Faculty members in the Department of Bioengineering believe that the interface between biology and engineering is an exciting area for discovery and technology development in the twenty-first century. They have developed an

innovative curriculum and created state-of-the-art facilities for cutting-edge research.

The bioengineering program is a structured offering of unique forward-looking courses dedicated to producing graduates who are well-grounded in the fundamental sciences and highly proficient in rigorous analytical engineering tools necessary for lifelong success in the wide range of possible bioengineering careers. Combined with a strong emphasis on research, the program provides a unique engineering educational experience that responds to the growing needs and demands of bioengineering.

Undergraduate Study

The bioengineering program is accredited by the Engineering Accreditation Commission of ABET. See <http://www.abet.org>.

The Bioengineering major is a designated capstone major. Utilizing knowledge from previous courses and new skills learned from the capstone courses, undergraduate students work in teams to apply advanced knowledge of mathematics, science, and engineering principles to address problems at the interface of biology and engineering and to develop innovative bioengineering solutions to meet specific sets of design criteria. Coursework entails construction of student designs, project updates, presentation of projects in written and oral format, and team competition.

Bioengineering BS

Capstone Major

Preparation for the Major

Required: Bioengineering 10; Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B; Civil and Environmental Engineering M20 or Computer Science 31 or Mechanical and Aerospace Engineering M20; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL.

Students must also complete one of two life sciences sequences—either Life Sciences 2 (satisfies HSSEAS GE life sciences requirement), 3, and 23L OR 7A, 7C, and 23L. They may not substitute courses in either sequence.

The Major

Students must complete the following courses:

1. Bioengineering 100, 110, 120, 165EW (or Engineering 183EW or 185EW), 167L, 176, 180, Electrical Engineering 100; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; two capstone design courses (Bioengineering 177A, 177B)
2. Two major field elective courses (8 units) from Bioengineering C101, C106, C131, C155, M260 (a petition is required for M260)
3. Five additional major field elective courses (20 units) from Bioengineering C101 (unless taken under item 2), CM102, CM103, C104, C105, C106 (unless taken under item 2), C131 (unless taken under item 2), CM140, CM145, C147, CM150,

C155 (unless taken under item 2), C170, C171, CM178, C179, 180L, C183, C185, CM186, CM187, 199 (8 units maximum)

Three of the major field elective courses and the three technical breadth courses may also be selected from one of the following tracks. Bioengineering majors cannot take bioengineering technical breadth courses to fulfill the technical breadth requirement.

Biomaterials and Regenerative Medicine: Bioengineering C104, C105, CM140, C147, C183, C185, 199 (8 units maximum), Materials Science and Engineering 104, 110, 111, 120, 130, 132, 140, 143A, 150, 151, 160, 161. The above materials science and engineering courses may be used to satisfy the technical breadth requirement.

Biomedical Devices: Bioengineering C131, C172, 199 (8 units maximum), Electrical Engineering 102, Mechanical and Aerospace Engineering C187L. The electrical engineering or mechanical and aerospace engineering courses listed above may be used to satisfy the technical breadth requirement.

For Bioengineering 199 to fulfill a track requirement, the research project must fit within the scope of the track field, and the research report must be approved by the supervisor and vice chair.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Bioengineering offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Bioengineering.

Bioengineering

Lower Division Course

10. Introduction to Bioengineering. (2) Lecture, two hours; discussion, one hour; outside study, three hours. Preparation: high school biology, chemistry, mathematics, physics. Introduction to scientific and technological bases for established and emerging subfields of bioengineering, including biosensors, bioinstrumentation, and biosignal processing, biomechanics, biomaterials, tissue engineering, biotechnology, biological imaging, biomedical optics and lasers, neuroengineering, and biomolecular machines. Letter grading.

Upper Division Courses

100. Bioengineering Fundamentals. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Mathematics 32A, Physics 1B. Fundamental basis for analysis and design of biological and biomedical devices and systems. Classical and statistical thermodynamic analysis of biolog-

ical systems. Material, energy, charge, and force balances. Introduction to network analysis. Letter grading.

C101. Engineering Principles for Drug Delivery. (4) (Formerly numbered Biomedical Engineering C101.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Mathematics 33B, Physics 1B. Application of engineering principles for designing and understanding delivery of therapeutics. Discussion of physics and mathematics required for understanding colloidal stability. Analysis of concepts related to both modeling and experimentation of endocytosis and intracellular trafficking mechanisms. Analysis of diffusion of drugs, coupled with computational and engineering mathematics approaches. Concurrently scheduled with course C201. Letter grading.

C102. Human Physiological Systems for Bioengineering I. (4) (Formerly numbered Biomedical Engineering CM102.) (Same as Physiological Science CM102.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Broad overview of basic biological activities and organization of human body in system (organ/tissue) to system basis, with particular emphasis on molecular basis. Modeling/simulation of functional aspect of biological system included. Actual demonstration of biomedical instruments, as well as visits to biomedical facilities. Concurrently scheduled with course CM202. Letter grading.

C103. Human Physiological Systems for Bioengineering II. (4) (Formerly numbered Biomedical Engineering CM103.) (Same as Physiological Science CM103.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Molecular-level understanding of human anatomy and physiology in selected organ systems (digestive, skin, musculoskeletal, endocrine, immune, urinary, reproductive). System-specific modeling/simulations (immune regulation, wound healing, muscle mechanics and energetics, acid-base balance, excretion). Functional basis of biomedical instrumentation (dialysis, artificial skin, pathogen detectors, ultrasound, birth-control drug delivery). Concurrently scheduled with course CM203. Letter grading.

C104. Physical Chemistry of Biomacromolecules. (4) (Formerly numbered M104.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, 30A, Life Sciences 2, 3, 23L. To understand biological materials and design synthetic replacements, it is imperative to understand their physical chemistry. Biomacromolecules such as protein or DNA can be analyzed and characterized by applying fundamentals of polymer physical chemistry. Investigation of polymer structure and conformation, bulk and solution thermodynamics and phase behavior, polymer networks, and viscoelasticity. Application of engineering principles to problems involving biomacromolecules such as protein conformation, solvation of charged species, and separation and characterization of biomacromolecules. Concurrently scheduled with course C204. Letter grading.

C105. Engineering of Bioconjugates. (4) (Formerly numbered M105.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Chemistry 20A, 20B, 20L. Highly recommended: one organic chemistry course. Bioconjugate chemistry is science of coupling biomolecules for wide range of applications. Oligonucleotides may be coupled to one surface in gene chip, or one protein may be coupled to one polymer to enhance its stability in serum. Wide variety of bioconjugates are used in delivery of pharmaceuticals, in sensors, in medical diagnostics, and in tissue engineering. Basic concepts of chemical ligation, including choice and design of conjugate linkers depending on type of biomolecule and desired application, such as degradable versus nondegradable linkers. Presentation and discussion of design and synthesis of synthetic bioconjugates for some sample applications. Concurrently scheduled with course C205. Letter grading.

C106. Topics in Bioelectricity for Bioengineers. (4) (Formerly numbered M106.) Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisites: Chemistry 20B, Life Sciences 2, 3, 23L, Mathematics 33B, Physics 1C. Coverage in depth of physical processes associated with biological membranes and channel proteins, with specific emphasis on electrophysiology. Basic physical principles governing electrostatics in dielectric media, building on complexity to ultimately address action potentials and signal propagation in nerves. Topics include Nernst/Planck and Poisson/Boltzmann equations, Nernst potential, Donnan equilibrium, GHK equations, energy barriers in ion channels, cable equation, action potentials, Hodgkin/Huxley equations, impulse propagation, axon geometry and conduction, dendritic integration. Concurrently scheduled with course C206. Letter grading.

C107. Polymer Chemistry for Bioengineers. (4) (Formerly numbered M107.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course C104 or C105. Fundamental concepts of polymer synthesis, including step-growth, chain growth (ionic, radical, metal catalyzed), and ring-opening, with focus on factors that can be used to control chain length, chain length distribution, and chain-end functionality, chain copolymerization, and stereochemistry in polymerizations. Presentation of applications of use of different polymerization techniques. Concepts of step-growth, chain-growth, ring-opening, and coordination polymerization, and effects of synthesis route on polymer properties. Lectures include both theory and practical issues demonstrated through examples. Concurrently scheduled with course C207. Letter grading.

110. Biotransport and Bioreaction Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: course 100, Mathematics 33B. Introduction to analysis of fluid flow, heat transfer, mass transfer, binding events, and biochemical reactions in systems of interest to bioengineers, including cells, tissues, organs, human body, extracorporeal devices, tissue engineering systems, and bioartificial organs. Introduction to pharmacokinetic analysis. Letter grading.

120. Biomedical Transducers. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Chemistry 30A, Electrical Engineering 100, Mathematics 32B, Physics 1C. Principles of transduction, design characteristics for different measurements, reliability and performance characteristics, and data processing and recording. Emphasis on silicon-based microfabricated and nanofabricated sensors. Novel materials, biocompatibility, biostability. Safety of electronic interfaces. Actuator design and interfacing control. Letter grading.

C131. Nanopore Sensing. (4) (Formerly numbered M131.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 100, 120, Life Sciences 2, 3, 23L, Physics 1A, 1B, 1C. Analysis of sensors based on measurements of fluctuating ionic conductance through artificial or protein nanopores. Physics of pore conductance. Applications to single molecule detection and DNA sequencing. Review of current literature and technological applications. History and instrumentation of resistive pulse sensing, theory and instrumentation of electrical measurements in electrolytes, nanopore fabrication, ionic conductance through pores and GHK equation, patch clamp and single channel measurements and instrumentation, noise issues, protein engineering, molecular sensing, DNA sequencing, membrane engineering, and future directions of field. Concurrently scheduled with course C231. Letter grading.

C139A. Biomolecular Materials Science I. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Overview of chemical and physical foundations of biomolecular materials science that concern materials aspects of molecular biology, cell biology, and bioengineering. Understanding of different types of interactions that exist between biomolecules, such as van der Waals interactions, entropically modulated electrostatic interactions, hydrophobic interac-

tions, hydration and solvation interactions, polymer-mediated interactions, depletion interactions, molecular recognition, and others. Illustration of these ideas using examples from bioengineering and biomedical engineering. Students should be able to make simple calculations and estimates that allow them to engage broad spectrum of bioengineering problems, such as those in drug and gene delivery and tissue engineering. May be taken independently for credit. Concurrently scheduled with course C239A. Letter grading.

C139B. Biomolecular Materials Science II. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Course C139A is not requisite to C139B. Overview of chemical and physical foundations of biomolecular materials science that concern materials aspects of molecular biology, cell biology, and bioengineering. Understanding of different basic types of biomolecules, with emphasis on nucleic acids, proteins, and lipids. Study of how biological and biomimetic systems organize into their functional forms via self-assembly and how these structures impart biological function. Illustration of these ideas using examples from bioengineering and biomedical engineering. Case study on current topics, including drug delivery, gene therapy, cancer therapeutics, emerging pathogens, and relation of self-assembly to disease states. May be taken independently for credit. Concurrently scheduled with course C239B. Letter grading.

CM140. Introduction to Biomechanics. (4) (Same as Mechanical and Aerospace Engineering CM140.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: Mechanical and Aerospace Engineering 96, 102, and 156A or 166A. Introduction to mechanical functions of human body; skeletal adaptations to optimize load transfer, mobility, and function. Dynamics and kinematics. Fluid mechanics applications. Heat and mass transfer. Power generation. Laboratory simulations and tests. Concurrently scheduled with course CM240. Letter grading.

CM141. Mechanics of Cells. (4) (Same as Mechanical and Aerospace Engineering CM141.) Lecture, four hours. Introduction to physical structures of cell biology and physical principles that govern how they function mechanically. Review and application of continuum mechanics and statistical mechanics to develop quantitative mathematical models of structural mechanics in cells. Structure of macromolecules, polymers as entropic springs, random walks and diffusion, mechanosensitive proteins, single-molecule force-extension, DNA packing and transcriptional regulation, lipid bilayer membranes, mechanics of cytoskeleton, molecular motors, biological electricity, muscle mechanics, pattern formation. Concurrently scheduled with course CM241. Letter grading.

CM145. Molecular Biotechnology for Engineers. (4) (Formerly numbered Biomedical Engineering CM145.) (Same as Chemical Engineering CM145.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Life Sciences 3, 23L. Selected topics in molecular biology that form foundation of biotechnology and biomedical industry today. Topics include recombinant DNA technology, molecular research tools, manipulation of gene expression, directed mutagenesis and protein engineering, DNA-based diagnostics and DNA microarrays, antibody and protein-based diagnostics, genomics and bioinformatics, isolation of human genes, gene therapy, and tissue engineering. Concurrently scheduled with course CM245. Letter grading.

C147. Applied Tissue Engineering: Clinical and Industrial Perspective. (4) (Formerly numbered Biomedical Engineering C147.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: course CM102, Chemistry 20A, 20B, 20L, Life Sciences 1 or 2. Overview of central topics of tissue engineering, with focus on how to build artificial tissues into regulated clinically viable products. Topics include biomaterials selection, cell source, delivery methods, FDA approval processes, and physical/chemical and biological testing. Case studies include skin and artificial skin, bone and cartilage, blood ves-

sels, neurotissue engineering, and liver, kidney, and other organs. Clinical and industrial perspectives of tissue engineering products. Manufacturing constraints, clinical limitations, and regulatory challenges in design and development of tissue-engineering devices. Concurrently scheduled with course C247. Letter grading.

M153. Introduction to Microscale and Nanoscale Manufacturing. (4) (Same as Chemical Engineering M153, Electrical Engineering M153, and Mechanical and Aerospace Engineering M183B.) Lecture, three hours; laboratory, four hours; outside study, five hours. Enforced requisites: Chemistry 20A, Physics 1A, 1B, 1C, 4AL, 4BL. Introduction to general manufacturing methods, mechanisms, constraints, and microfabrication and nanofabrication. Focus on concepts, physics, and instruments of various microfabrication and nanofabrication techniques that have been broadly applied in industry and academia, including various photolithography technologies, physical and chemical deposition methods, and physical and chemical etching methods. Hands-on experience for fabricating microstructures and nanostructures in modern cleanroom environment. Letter grading.

C155. Fluid-Particle and Fluid-Structure Interactions in Microflows. (4) Lecture, four hours; laboratory, one hour; outside study, seven hours. Enforced requisite: course 110. Introduction to Navier/Stokes equations, assumptions, and simplifications. Analytical framework for calculating simple flows and numerical methods to solve and gain intuition for complex flows. Forces on particles in Stokes flow and finite-inertia flows. Flows induced around particles with and without finite inertia and implications for particle-particle interactions. Secondary flows induced by structures and particles in confined flows. Particle separations by fluid dynamic forces: field-flow fractionation, inertial focusing, structure-induced separations. Application concepts in internal biological flows and separations for biotechnology. Helps students become sufficiently fluent with fluid mechanics vocabulary and techniques, design and model microfluidic systems to manipulate fluids, cells, and particles, and develop strong intuition for how fluid and particles behave in arbitrarily structured microchannels over range of Reynolds numbers. Concurrently scheduled with course C255. Letter grading.

165EW. Bioengineering Ethics. (4) Lecture, four hours; discussion, three hours; outside study, five hours. All professions have ethical rules that derive from moral theory. Bioethics is well-established discipline that addresses ethical problems about life, such as when do fertilized eggs become people? Should ending of life ever be assisted? At what cost should it be maintained? Unlike physicians, bioengineers do not make these decisions in practice. Engineering ethics addresses ethical problems about producing devices from molecules to bridges, such as when do concerns about risk outweigh concerns about cost? When are weapons too dangerous to design? At what point does benefit of committing to building devices outweigh need to wait for more scientific confirmation of their effectiveness? Bioengineers must be aware of consequences of applying such devices to all living systems. Emphasis on research and writing within engineering environments. Satisfies engineering writing requirement. Letter grading.

167L. Bioengineering Laboratory. (4) Lecture, two hours; laboratory, six hours; outside study, four hours. Enforced requisite: Chemistry 20L. Laboratory experiments in fluorescence microscopy, bioconjugation, soft lithography, and cell culture culminate in design of engineered surface for cell growth. Introduction to techniques used in laboratories and their underlying physical or chemical properties. Case studies connect laboratory techniques to current biomedical engineering research and reinforce experimental design skills. Letter grading.

C170. Energy-Tissue Interactions. (4) (Formerly numbered Biomedical Engineering C170.) Lecture, three hours; outside study, nine hours. Enforced requisites: Life Sciences 2, Physics 1C. Introduction to therapeutic and diagnostic use of energy delivery devices in medical and dental applications, with em-

phasis on understanding fundamental mechanisms underlying various types of energy-tissue interactions. Concurrently scheduled with course C270. Letter grading.

C170L. Introduction to Techniques in Studying Laser-Tissue Interaction. (2) (Formerly numbered Biomedical Engineering C170L.) Laboratory, four hours; outside study, two hours. Corequisite: course C170. Introduction to simulation and experimental techniques used in studying laser-tissue interactions. Topics include computer simulations of light propagation in tissue, measuring absorption spectra of tissue/tissue phantoms, making tissue phantoms, determination of optical properties of different tissues, techniques of temperature distribution measurements. Concurrently scheduled with course C270L. Letter grading.

C171. Laser-Tissue Interaction II: Biologic Spectroscopy. (4) (Formerly numbered Biomedical Engineering C171.) Lecture, four hours; outside study, eight hours. Requisite: course C170. Designed for physical sciences, life sciences, and engineering majors. Introduction to optical spectroscopy principles, design of spectroscopic measurement devices, optical properties of tissues, and fluorescence spectroscopy biologic media. Concurrently scheduled with course C271. Letter grading.

C172. Design of Minimally Invasive Surgical Tools. (4) (Formerly numbered M172.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 30B, Life Sciences 2, 3, 23L, Mathematics 32A. Introduction to design principles and engineering concepts used in design and manufacture of tools for minimally invasive surgery. Coverage of FDA regulatory policy and surgical procedures. Topics include optical devices, endoscopes and laparoscopes, biopsy devices, laparoscopic tools, cardiovascular and interventional radiology devices, orthopedic instrumentation, and integration of devices with therapy. Examination of complex process of tool design, fabrication, testing, and validation. Preparation of drawings and consideration of development of new and novel devices. Concurrently scheduled with course C272. Letter grading.

176. Principles of Biocompatibility. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: course 100, Mathematics 33B, Physics 1C. Biocompatibility at systemic, tissue, cellular, and molecular levels. Biomechanical compatibility, stress/strain constitutive equations, cellular and molecular response to mechanical signals, biochemical and cellular compatibility, immune response. Letter grading.

177A. Bioengineering Capstone Design I. (4) Lecture, two hours; laboratory, six hours; outside study, four hours. Enforced requisites: courses 167L, 176. Lectures, seminars, and discussions on aspects of biomedical device and therapeutic design, including topics such as need finding, intellectual property, entrepreneurship, regulation, and project management. Working in teams, students develop innovative solutions to address current problems in medicine and biology. Sourcing and ordering of materials and supplies relevant to student projects. Exploration of different experimental and computational methods. Scientific presentation of progress. Letter grading.

177B. Bioengineering Capstone Design II. (4) Lecture, two hours; laboratory, six hours; outside study, four hours. Enforced requisite: course 177A. Lectures, seminars, and discussions on aspects of biomedical device and therapeutic design, including meetings with scientific/clinical advisers and guest lectures from scientists in industry. Working in teams, students develop innovative solutions to address current problems in medicine and biology. Students conduct directed experiments and computational modeling, give oral presentations, write reports, and participate in bioengineering design competition. Letter grading.

CM178. Introduction to Biomaterials. (4) (Formerly numbered Biomedical Engineering CM180.) (Same as Materials Science CM180.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, and 20L, or Materials

Science 104. Engineering materials used in medicine and dentistry for repair and/or restoration of damaged natural tissues. Topics include relationships between material properties, suitability to task, surface chemistry, processing and treatment methods, and biocompatibility. Concurrently scheduled with course CM278. Letter grading.

C179. Biomaterials-Tissue Interactions. (4) (Formerly numbered Biomedical Engineering C181.) Lecture, three hours; outside study, nine hours. Requisite: course CM178. In-depth exploration of host cellular response to biomaterials: vascular response, interface, and clotting, biocompatibility, animal models, inflammation, infection, extracellular matrix, cell adhesion, and role of mechanical forces. Concurrently scheduled with course C279. Letter grading.

180. System Integration in Biology, Engineering, and Medicine I. (4) Lecture, three hours; discussion, two hours; outside study, seven hours. Enforced requisites: courses 100, 110, 120, Life Sciences 3, Physics 1C. Corequisite: course 180L. Part I of two-part series. Molecular basis of normal physiology and pathophysiology, and engineering design principles of cardiovascular and pulmonary systems. Fundamental engineering principles of selected medical therapeutic devices. Letter grading.

180L. System Integration in Biology, Engineering, and Medicine I Laboratory. (4) Lecture, one hour; laboratory, four hours; clinical visits, four hours; outside study, three hours. Corequisite: course 180. Hands-on experimentation and clinical applications of selected medical therapeutic devices associated with cardiovascular and pulmonary disorders. Letter grading.

C183. Targeted Drug Delivery and Controlled Drug Release. (4) (Formerly numbered M183.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, 20L. New therapeutics require comprehensive understanding of modern biology, physiology, biomaterials, and engineering. Targeted delivery of genes and drugs and their controlled release are important in treatment of challenging diseases and relevant to tissue engineering and regenerative medicine. Drug pharmacodynamics and clinical pharmacokinetics. Application of engineering principles (diffusion, transport, kinetics) to problems in drug formulation and delivery to establish rationale for design and development of novel drug delivery systems that can provide spatial and temporal control of drug release. Introduction to biomaterials with specialized structural and interfacial properties. Exploration of both chemistry of materials and physical presentation of devices and compounds used in delivery and release. Concurrently scheduled with course C283. Letter grading.

M184. Introduction to Computational and Systems Biology. (2) (Formerly numbered Biomedical Engineering M184.) (Same as Computational and Systems Biology M184 and Computer Science M184.) Lecture, two hours; outside study, four hours. Enforced requisites: one course from Civil Engineering M20, Computer Science 31, Mechanical and Aerospace Engineering M20, or Program in Computing 10A, and Mathematics 3B or 31B. Survey course designed to introduce students to computational and systems modeling and computation in biology and medicine, providing motivation, flavor, culture, and cutting-edge contributions in computational biosciences and aiming for more informed basis for focused studies by students with computational and systems biology interests. Presentations by individual UCLA researchers discussing their active computational and systems biology research. P/NP grading.

C185. Introduction to Tissue Engineering. (4) (Formerly numbered Biomedical Engineering C185.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: course CM102 or CM202, Chemistry 20A, 20B, 20L. Tissue engineering applies principles of biology and physical sciences with engineering approach to regenerate tissues and organs. Guiding principles for proper selection of three basic components for tissue engineering: cells, scaffolds, and molecular signals. Concurrently scheduled with course C285. Letter grading.

CM186. Computational Systems Biology: Modeling and Simulation of Biological Systems. (5) (Formerly numbered Biomedical Engineering CM186.) (Same as Computational and Systems Biology M186 and Computer Science CM186.) Lecture, four hours; laboratory, three hours; outside study, eight hours. Corequisite: Electrical Engineering 102. Dynamic biosystems modeling and computer simulation methods for studying biological/biomedical processes and systems at multiple levels of organization. Control system, multicompartmental, predator-prey, pharmacokinetic (PK), pharmacodynamic (PD), and other structural modeling methods applied to life sciences problems at molecular, cellular (biochemical pathways/networks), organ, and organismic levels. Both theory- and data-driven modeling, with focus on translating biomodeling goals and data into mathematics models and implementing them for simulation and analysis. Basics of numerical simulation algorithms, with modeling software exercises in class and PC laboratory assignments. Concurrently scheduled with course CM102. Letter grading.

CM187. Research Communication in Computational and Systems Biology. (2 to 4) (Formerly numbered Biomedical Engineering CM187.) (Same as Computational and Systems Biology M187 and Computer Science CM187.) Lecture, four hours; outside study, eight hours. Requisite: course CM186. Closely directed, interactive, and real research experience in active quantitative systems biology research laboratory. Direction on how to focus on topics of current interest in scientific community, appropriate to student interests and capabilities. Critiques of oral presentations and written progress reports explain how to proceed with search for research results. Major emphasis on effective research reporting, both oral and written. Concurrently scheduled with course CM287. Letter grading.

188. Special Courses in Bioengineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Special topics in bioengineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. Letter grading.

194. Research Group Seminars: Bioengineering. (4) Seminar, three hours. Limited to bioengineering undergraduate students who are part of research group. Study and analysis of current topics in bioengineering. Discussion of current research literature in research specialty of faculty member teaching course. Student presentation of projects in research specialty. May be repeated for credit. Letter grading.

199. Directed Research in Bioengineering. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

Graduate Courses

C201. Engineering Principles for Drug Delivery. (4) (Formerly numbered Biomedical Engineering C201.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Mathematics 33B, Physics 1B. Application of engineering principles for designing and understanding delivery of therapeutics. Discussion of physics and mathematics required for understanding colloidal stability. Analysis of concepts related to both modeling and experimentation of endocytosis and intracellular trafficking mechanisms. Analysis of diffusion of drugs, coupled with computational and engineering mathematics approaches. Concurrently scheduled with course C101. Letter grading.

CM202. Human Physiological Systems for Bioengineering I. (4) (Formerly numbered Biomedical Engineering CM202.) (Same as Physiological Science CM204.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological

Science majors. Broad overview of basic biological activities and organization of human body in system (organ/tissue) to system basis, with particular emphasis on molecular basis. Modeling/simulation of functional aspect of biological system included. Actual demonstration of biomedical instruments, as well as visits to biomedical facilities. Concurrently scheduled with course CM102. Letter grading.

CM203. Human Physiological Systems for Bioengineering II. (4) (Formerly numbered Biomedical Engineering CM203.) (Same as Physiological Science CM203.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Molecular-level understanding of human anatomy and physiology in selected organ systems (digestive, skin, musculoskeletal, endocrine, immune, urinary, reproductive). System-specific modeling/simulations (immune regulation, wound healing, muscle mechanics and energetics, acid-base balance, excretion). Functional basis of biomedical instrumentation (dialysis, artificial skin, pathogen detectors, ultrasound, birth-control drug delivery). Concurrently scheduled with course CM103. Letter grading.

C204. Physical Chemistry of Biomacromolecules. (4) (Formerly numbered Biomedical Engineering C204.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, 30A, Life Sciences 2, 3, 23L. To understand biological materials and design synthetic replacements, it is imperative to understand their physical chemistry. Biomacromolecules such as protein or DNA can be analyzed and characterized by applying fundamentals of polymer physical chemistry. Investigation of polymer structure and conformation, bulk and solution thermodynamics and phase behavior, polymer networks, and viscoelasticity. Application of engineering principles to problems involving biomacromolecules such as protein conformation, solvation of charged species, and separation and characterization of biomacromolecules. Concurrently scheduled with course C104. Letter grading.

C205. Engineering of Bioconjugates. (4) (Formerly numbered Biomedical Engineering C205.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Chemistry 20A, 20B, 20L. Highly recommended: one organic chemistry course. Bioconjugate chemistry is science of coupling biomolecules for wide range of applications. Oligonucleotides may be coupled to one surface in gene chip, or one protein may be coupled to one polymer to enhance its stability in serum. Wide variety of bioconjugates are used in delivery of pharmaceuticals, in sensors, in medical diagnostics, and in tissue engineering. Basic concepts of chemical ligation, including choice and design of conjugate linkers depending on type of biomolecule and desired application, such as degradable versus nondegradable linkers. Presentation and discussion of design and synthesis of synthetic bioconjugates for some sample applications. Concurrently scheduled with course C105. Letter grading.

C206. Topics in Bioelectricity for Bioengineers. (4) (Formerly numbered Biomedical Engineering C206.) Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisites: Chemistry 20B, Life Sciences 2, 3, 23L, Mathematics 33B, Physics 1C. Coverage in depth of physical processes associated with biological membranes and channel proteins, with specific emphasis on electrophysiology. Basic physical principles governing electrostatics in dielectric media, building on complexity to ultimately address action potentials and signal propagation in nerves. Topics include Nernst/Planck and Poisson/Boltzmann equations, Nernst potential, Donnan equilibrium, GHK equations, energy barriers in ion channels, cable equation, action potentials, Hodgkin/Huxley equations, impulse propagation, axon geometry and conduction, dendritic integration. Concurrently scheduled with course C106. Letter grading.

C207. Polymer Chemistry for Bioengineers. (4) (Formerly numbered Biomedical Engineering C207.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course C204 or C205.

Fundamental concepts of polymer synthesis, including step-growth, chain growth (ionic, radical, metal catalyzed), and ring-opening, with focus on factors that can be used to control chain length, chain length distribution, and chain-end functionality, chain copolymerization, and stereochemistry in polymerizations. Presentation of applications of use of different polymerization techniques. Concepts of step-growth, chain-growth, ring-opening, and coordination polymerization, and effects of synthesis route on polymer properties. Lectures include both theory and practical issues demonstrated through examples. Concurrently scheduled with course C107. Letter grading.

M214A. Digital Speech Processing. (4) (Formerly numbered Biomedical Engineering M214A.) (Same as Electrical Engineering M214A.) Lecture, three hours; laboratory, two hours; outside study, seven hours. Requisite: Electrical Engineering 113. Theory and applications of digital processing of speech signals. Mathematical models of human speech production and perception mechanisms, speech analysis/synthesis. Techniques include linear prediction, filterbank models, and homomorphic filtering. Applications to speech synthesis, automatic recognition, and hearing aids. Letter grading.

M215. Biochemical Reaction Engineering. (4) (Formerly numbered Biomedical Engineering M215.) (Same as Chemical Engineering CM215.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: Chemical Engineering 101C. Use of previously learned concepts of biophysical chemistry, thermodynamics, transport phenomena, and reaction kinetics to develop tools needed for technical design and economic analysis of biological reactors. Letter grading.

M217. Biomedical Imaging. (4) (Formerly numbered Biomedical Engineering M217.) (Same as Electrical Engineering M217.) Lecture, three hours; outside study, nine hours. Requisite: Electrical Engineering 114 or 211A. Optical imaging modalities in biomedicine. Other nonoptical imaging modalities discussed briefly for comparison purposes. Letter grading.

M219. Principles and Applications of Magnetic Resonance Imaging. (4) (Formerly numbered Biomedical Engineering M219.) (Same as Physics and Biology in Medicine M219.) Lecture, three hours; discussion, one hour. Basic principles of magnetic resonance (MR), physics, and image formation. Emphasis on hardware, Bloch equations, analytic expressions, image contrast mechanisms, spin and gradient echoes, Fourier transform imaging methods, structure of pulse sequences, and various scanning parameters. Introduction to advanced techniques in rapid imaging, quantitative imaging, and spectroscopy. Letter grading.

220. Introduction to Medical Informatics. (2) (Formerly numbered Biomedical Engineering 220.) Lecture, two hours; outside study, four hours. Designed for graduate students. Introduction to research topics and issues in medical informatics for students new to field. Definition of this emerging field of study, current research efforts, and future directions in research. Key issues in medical informatics to expose students to different application domains, such as information system architectures, data and process modeling, information extraction and representations, information retrieval and visualization, health services research, telemedicine. Emphasis on current research endeavors and applications. S/U grading.

221. Human Anatomy and Physiology for Medical and Imaging Informatics. (4) (Formerly numbered Biomedical Engineering 221.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Introduction to basic human anatomy and physiology, with particular emphasis on understanding and visualization of anatomy and physiology through medical images. Topics relevant to acquisition, representation, and dissemination of anatomical knowledge in computerized clinical applications. Topics include chest, cardiac, neurology, gastrointestinal/genitourinary, endocrine, and musculoskeletal systems. Introduction to basic imaging physics (magnetic resonance, computed tomography, ultrasound, computed radiography) to provide context for im-

aging modalities predominantly used to view human anatomy. Geared toward nonphysicians who require more formal understanding of human anatomy/physiology. Letter grading.

223A-223B-223C. Programming Laboratories for Medical and Imaging Informatics I, II, III. (4-4-4) (Formerly numbered Biomedical Engineering 223A-223B-223C.) Lecture, two hours; laboratory, two hours; outside study, eight hours. Designed for graduate students. Programming laboratories to support coursework in other medical and imaging informatics core curriculum courses. Exposure to programming concepts for medical applications, with focus on basic abstraction techniques used in image processing and medical information system infrastructures. Letter grading. **223A.** Requisites: Computer Science 31, 32, Program in Computing 20A, 20B. Course 223A is requisite to 223B, which is requisite to 223C. Integrated with topics presented in course M227 to reinforce concepts presented with practical experience. Projects focus on understanding medical networking issues and implementation of basic protocols for healthcare environment, with emphasis on use of DICOM. Introduction to basic tools and methods used within informatics. **223B.** Requisite: course 223A. Integrated with topics presented in courses 223A, M227, and M228 to reinforce concepts presented with practical experience. Projects focus on medical image manipulation and decision support systems. **223C.** Requisite: course 223B. Exposure to programming concepts for medical applications, with focus on basic abstraction techniques used to extract meaningful features from medical text and imaging data and visualize results. Integrated with topics presented in courses 224B and M226 to reinforce concepts presented with practical experience. Projects focus on medical information retrieval, knowledge representation, and visualization.

224A. Physics and Informatics of Medical Imaging. (4) (Formerly numbered Biomedical Engineering 224A.) Lecture, four hours; laboratory, eight hours. Requisites: Mathematics 33A, 33B. Designed for graduate students. Introduction to principles of medical imaging and imaging informatics for nonphysicians. Overview of core imaging modalities: X ray, computed tomography (CT), and magnetic resonance (MR). Topics include signal generation, localization, and quantization. Image representation and analysis techniques such as Markov random fields, spatial characterization (atlases), denoising, energy representations, and clinical imaging workstation design. Provides basic understanding of issues related to basic medical image acquisition and analysis. Current research efforts with focus on clinical applications and new types of information made available through these modalities. Letter grading.

224B. Advances in Imaging Informatics. (4) (Formerly numbered Biomedical Engineering 224B.) Lecture, four hours; outside study, eight hours. Requisite: course 224A. Overview of information retrieval techniques in medical imaging and informatics-based applications of imaging, with focus on various advances in field. Introduction to core concepts in information retrieval (IR), reviewing seminal papers on evaluating IR systems and their use in medicine (e.g., teaching files, case-based retrieval, etc.). Medical content-based image retrieval (CBIR) as motivating application, with examination of core works in this area. Techniques to realize medical CBIR, including image feature extraction and processing, feature representation, classification schemes (via machine learning), image indexing, image querying methods, and visualization of images (e.g., perception, presentation). Discussion of more advanced methods now being pursued by researchers. Letter grading.

M225. Bioseparations and Bioprocess Engineering. (4) (Formerly numbered Biomedical Engineering M225.) (Same as Chemical Engineering CM225.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced corequisite: Chemical Engineering 101C. Separation strategies, unit operations, and economic factors used to design processes for

isolating and purifying materials like whole cells, enzymes, food additives, or pharmaceuticals that are products of biological reactors. Letter grading.

M226. Medical Knowledge Representation. (4) (Formerly numbered Biomedical Engineering M226.) (Same as Information Studies M253.) Seminar, four hours; outside study, eight hours. Designed for graduate students. Issues related to medical knowledge representation and its application in healthcare processes. Topics include data structures used for representing knowledge (conceptual graphs, frame-based models), different data models for representing spatio-temporal information, rule-based implementations, current statistical methods for discovery of knowledge (data mining, statistical classifiers, and hierarchical classification), and basic information retrieval. Review of work in constructing ontologies, with focus on problems in implementation and definition. Common medical ontologies, coding schemes, and standardized indices/terminologies (SNOMED, UMLS). Letter grading.

M227. Medical Information Infrastructures and Internet Technologies. (4) (Formerly numbered Biomedical Engineering M227.) (Same as Information Studies M254.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Introduction to networking, communications, and information infrastructures in medical environment. Exposure to basic concepts related to networking at several levels: low-level (TCP/IP, services), medium-level (network topologies), and high-level (distributed computing, Web-based services) implementations. Commonly used medical communication protocols (HL7, DICOM) and current medical information systems (HIS, RIS, PACS). Advances in networking, such as wireless health systems, peer-to-peer topologies, grid/cloud computing. Introduction to security and encryption in networked environments. Letter grading.

M228. Medical Decision Making. (4) (Formerly numbered Biomedical Engineering M228.) (Same as Information Studies M255.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Overview of issues related to medical decision making. Introduction to concept of evidence-based medicine and decision processes related to process of care and outcomes. Basic probability and statistics to understand research results and evaluations, and algorithmic methods for decision-making processes (Bayes theorem, decision trees). Study design, hypothesis testing, and estimation. Focus on technical advances in medical decision support systems and expert systems, with review of classic and current research. Introduction to common statistical and decision-making software packages to familiarize students with current tools. Letter grading.

C231. Nanopore Sensing. (4) (Formerly numbered Biomedical Engineering C231.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 100, 120, Life Sciences 2, 3, 23L, Physics 1A, 1B, 1C. Analysis of sensors based on measurements of fluctuating ionic conductance through artificial or protein nanopores. Physics of pore conductance. Applications to single molecule detection and DNA sequencing. Review of current literature and technological applications. History and instrumentation of resistive pulse sensing, theory and instrumentation of electrical measurements in electrolytes, nanopore fabrication, ionic conductance through pores and GHK equation, patch clamp and single channel measurements and instrumentation, noise issues, protein engineering, molecular sensing, DNA sequencing, membrane engineering, and future directions of field. Concurrently scheduled with course C131. Letter grading.

M233A. Medtech Innovation I: Entrepreneurial Opportunities in Medical Technology. (4) (Formerly numbered 233A.) (Same as Management M271A.) Lecture, three hours; discussion, three hours; outside study, six hours. Designed for graduate and professional students in engineering, dentistry, design, law, management, and medicine. Focus on understanding how to identify unmet clinical needs, properly filtering through these needs using various acceptance cri-

teria, and selecting promising needs for which potential medtech solutions are explored. Students work in groups to expedite traditional research and development processes to invent and implement new medtech devices that increase quality of clinical care and result in improved patient outcomes in hospital system. Introduction to intellectual property basics and various medtech business models. Letter grading.

M233B. Medtech Innovation II: Prototyping and New Venture Development. (4) (Formerly numbered 233B.) (Same as Management M271B.) Lecture, three hours; discussion, three hours; outside study, six hours. Enforced requisite: course M233A. Designed for graduate and professional students in engineering, dentistry, design, law, management, and medicine. Development of medtech solutions for unmet clinical needs previously identified in course M233A. Steps necessary to commercialize viable medtech solutions. Exploration of concept selection, business plan development, intellectual property filing, financing strategies, and device prototyping. Letter grading.

C239A. Biomolecular Materials Science I. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Overview of chemical and physical foundations of biomolecular materials science that concern materials aspects of molecular biology, cell biology, and bioengineering. Understanding of different types of interactions that exist between biomolecules, such as van der Waals interactions, entropically modulated electrostatic interactions, hydrophobic interactions, hydration and solvation interactions, polymer-mediated interactions, depletion interactions, molecular recognition, and others. Illustration of these ideas using examples from bioengineering and biomedical engineering. Students should be able to make simple calculations and estimates that allow them to engage broad spectrum of bioengineering problems, such as those in drug and gene delivery and tissue engineering. May be taken independently for credit. Concurrently scheduled with course C139A. Letter grading.

C239B. Biomolecular Materials Science II. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Course C239A is not requisite to C239B. Overview of chemical and physical foundations of biomolecular materials science that concern materials aspects of molecular biology, cell biology, and bioengineering. Understanding of different basic types of biomolecules, with emphasis on nucleic acids, proteins, and lipids. Study of how biological and biomimetic systems organize into their functional forms via self-assembly and how these structures impart biological function. Illustration of these ideas using examples from bioengineering and biomedical engineering. Case study on current topics, including drug delivery, gene therapy, cancer therapeutics, emerging pathogens, and relation of self-assembly to disease states. May be taken independently for credit. Concurrently scheduled with course C139B. Letter grading.

CM240. Introduction to Biomechanics. (4) (Same as Mechanical and Aerospace Engineering CM240.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: Mechanical and Aerospace Engineering 96, 102, and 156A or 166A. Introduction to mechanical functions of human body; skeletal adaptations to optimize load transfer, mobility, and function. Dynamics and kinematics. Fluid mechanics applications. Heat and mass transfer. Power generation. Laboratory simulations and tests. Concurrently scheduled with course CM140. Letter grading.

CM241. Mechanics of Cells. (4) (Same as Mechanical and Aerospace Engineering CM241.) Lecture, four hours. Introduction to physical structures of cell biology and physical principles that govern how they function mechanically. Review and application of continuum mechanics and statistical mechanics to develop quantitative mathematical models of structural mechanics in cells. Structure of macromolecules, polymers as entropic springs, random walks and diffusion, mechanosensitive proteins, single-molecule force-extension, DNA packing and transcriptional reg-

ulation, lipid bilayer membranes, mechanics of cytoskeleton, molecular motors, biological electricity, muscle mechanics, pattern formation. Concurrently scheduled with course CM141. Letter grading.

CM245. Molecular Biotechnology for Engineers. (4) (Formerly numbered Biomedical Engineering CM245.) (Same as Chemical Engineering CM245.) Lecture, four hours; discussion, one hour; outside study, seven hours. Selected topics in molecular biology that form foundation of biotechnology and biomedical industry today. Topics include recombinant DNA technology, molecular research tools, manipulation of gene expression, directed mutagenesis and protein engineering, DNA-based diagnostics and DNA microarrays, antibody and protein-based diagnostics, genomics and bioinformatics, isolation of human genes, gene therapy, and tissue engineering. Concurrently scheduled with course CM145. Letter grading.

C247. Applied Tissue Engineering: Clinical and Industrial Perspective. (4) (Formerly numbered Biomedical Engineering C247.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: course CM202, Chemistry 20A, 20B, 20L, Life Sciences 1 or 2. Overview of central topics of tissue engineering, with focus on how to build artificial tissues into regulated clinically viable products. Topics include biomaterials selection, cell source, delivery methods, FDA approval processes, and physical/chemical and biological testing. Case studies include skin and artificial skin, bone and cartilage, blood vessels, neurotissue engineering, and liver, kidney, and other organs. Clinical and industrial perspectives of tissue engineering products. Manufacturing constraints, clinical limitations, and regulatory challenges in design and development of tissue-engineering devices. Concurrently scheduled with course C147. Letter grading.

M248. Introduction to Biological Imaging. (4) (Formerly numbered Biomedical Engineering M248.) (Same as Pharmacology M248 and Physics and Biology in Medicine M248.) Lecture, three hours; laboratory, one hour; outside study, seven hours. Exploration of role of biological imaging in modern biology and medicine, including imaging physics, instrumentation, image processing, and applications of imaging for range of modalities. Practical experience provided through series of imaging laboratories. Letter grading.

M250B. Microelectromechanical Systems (MEMS)
Fabrication. (4) (Formerly numbered Biomedical Engineering M250B.) (Same as Electrical Engineering M250B and Mechanical and Aerospace Engineering M280B.) Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisite: course M153. Advanced discussion of micromachining processes used to construct MEMS. Coverage of many lithographic, deposition, and etching processes, as well as their combination in process integration. Materials issues such as chemical resistance, corrosion, mechanical properties, and residual/intrinsic stress. Letter grading.

M252. Microelectromechanical Systems (MEMS)
Device Physics and Design. (4) (Formerly numbered Biomedical Engineering M252.) (Same as Electrical Engineering M252 and Mechanical and Aerospace Engineering M282.) Lecture, four hours; outside study, eight hours. Introduction to MEMS design. Design methods, design rules, sensing and actuation mechanisms, microsensors, and microactuators. Designing MEMS to be produced with both foundry and nonfoundry processes. Computer-aided design for MEMS. Design project required. Letter grading.

C255. Fluid-Particle and Fluid-Structure Interactions in Microflows. (4) Lecture, four hours; laboratory, one hour; outside study, seven hours. Enforced requisite: course 110. Introduction to Navier/Stokes equations, assumptions, and simplifications. Analytical framework for calculating simple flows and numerical methods to solve and gain intuition for complex flows. Forces on particles in Stokes flow and finite-inertia flows. Flows induced around particles with and without finite inertia and implications for particle-particle interactions. Secondary flows induced by structures and particles in confined flows. Particle

separations by fluid dynamic forces: field-flow fractionation, inertial focusing, structure-induced separations. Application concepts in internal biological flows and separations for biotechnology. Helps students become sufficiently fluent with fluid mechanics vocabulary and techniques, design and model microfluidic systems to manipulate fluids, cells, and particles, and develop strong intuition for how fluid and particles behave in arbitrarily structured microchannels over range of Reynolds numbers. Concurrently scheduled with course C155. Letter grading.

257. Engineering Mechanics of Motor Proteins and Cytoskeleton. (4) (Formerly numbered Biomedical Engineering 257.) Lecture, four hours; outside study, eight hours. Requisites: Life Sciences 3, 23L, Mathematics 32A, 32B, 33A, 33B, Physics 1A, 1B, 1C. Introduction to physics of motor proteins and cytoskeleton: mass, stiffness and damping of proteins, thermal forces and diffusion, chemical forces, polymer mechanics, structures of cytoskeletal filaments, mechanics of cytoskeleton, polymerization of cytoskeletal filaments, force generation by cytoskeletal filaments, active polymerization, motor protein structure and operation. Emphasis on engineering perspective. Letter grading.

M260. Neuroengineering. (4) (Formerly numbered Biomedical Engineering M260.) (Same as Electrical Engineering M255 and Neuroscience M206.) Lecture, four hours; laboratory, three hours; outside study, five hours. Requisites: Mathematics 32A, Physics 1B or 6B. Introduction to principles and technologies of bioelectricity and neural signal recording, processing, and stimulation. Topics include bioelectricity, electrophysiology (action potentials, local field potentials, EEG, ECOG), intracellular and extracellular recording, microelectrode technology, neural signal processing (neural signal frequency bands, filtering, spike detection, spike sorting, stimulation artifact removal), brain-computer interfaces, deep-brain stimulation, and prosthetics. Letter grading.

M261A-M261B-M261C. Evaluation of Research Literature in Neuroengineering. (2-2-2) (Formerly numbered Biomedical Engineering M261A-M261B-M261C.) (Same as Electrical Engineering M256A-M256B-M256C and Neuroscience M212A-M212B-M212C.) Discussion, two hours; outside study, four hours. Critical discussion and analysis of current literature related to neuroengineering research. S/U grading.

M263. Neuroanatomy: Structure and Function of Nervous System. (4) (Formerly numbered Biomedical Engineering M263.) (Same as Neuroscience M203.) Lecture, three hours; discussion/laboratory, three hours. Anatomy of central and peripheral nervous system at cellular histological and regional systems level, with emphasis on contemporary experimental approaches to morphological study of nervous system in discussions of circuitry and neurochemical anatomy of major brain regions. Consideration of representative vertebrate and invertebrate nervous systems. Letter grading.

C270. Energy-Tissue Interactions. (4) (Formerly numbered Biomedical Engineering C270.) Lecture, three hours; outside study, nine hours. Enforced requisites: Life Sciences 2, Physics 1C. Introduction to therapeutic and diagnostic use of energy delivery devices in medical and dental applications, with emphasis on understanding fundamental mechanisms underlying various types of energy-tissue interactions. Concurrently scheduled with course C170. Letter grading.

C270L. Introduction to Techniques in Studying Laser-Tissue Interaction. (2) (Formerly numbered Biomedical Engineering C270L.) Laboratory, four hours; outside study, two hours. Corequisite: course C270. Introduction to simulation and experimental techniques used in studying laser-tissue interactions. Topics include computer simulations of light propagation in tissue, measuring absorption spectra of tissue/tissue phantoms, making tissue phantoms, determination of optical properties of different tissues, techniques of temperature distribution measurements. Concurrently scheduled with course C170L. Letter grading.

C271. Laser-Tissue Interaction II: Biologic Spectroscopy. (4) (Formerly numbered Biomedical Engineering C271.) Lecture, four hours; outside study, eight hours. Requisite: course C270. Designed for physical sciences, life sciences, and engineering majors. Introduction to optical spectroscopy principles, design of spectroscopic measurement devices, optical properties of tissues, and fluorescence spectroscopy biologic media. Concurrently scheduled with course C171. Letter grading.

C272. Design of Minimally Invasive Surgical Tools. (4) (Formerly numbered Biomedical Engineering C272.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 30B, Life Sciences 2, 3, 23L, Mathematics 32A. Introduction to design principles and engineering concepts used in design and manufacture of tools for minimally invasive surgery. Coverage of FDA regulatory policy and surgical procedures. Topics include optical devices, endoscopes and laparoscopes, biopsy devices, laparoscopic tools, cardiovascular and interventional radiology devices, orthopedic instrumentation, and integration of devices with therapy. Examination of complex process of tool design, fabrication, testing, and validation. Preparation of drawings and consideration of development of new and novel devices. Concurrently scheduled with course C172. Letter grading.

CM278. Introduction to Biomaterials. (4) (Formerly numbered Biomedical Engineering CM280.) (Same as Materials Science CM280.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, and 20L, or Materials Science 104. Engineering materials used in medicine and dentistry for repair and/or restoration of damaged natural tissues. Topics include relationships between material properties, suitability to task, surface chemistry, processing and treatment methods, and biocompatibility. Concurrently scheduled with course CM178. Letter grading.

C279. Biomaterials-Tissue Interactions. (4) (Formerly numbered Biomedical Engineering C281.) Lecture, three hours; outside study, nine hours. Requisite: course CM278. In-depth exploration of host cellular response to biomaterials: vascular response, interface, and clotting, biocompatibility, animal models, inflammation, infection, extracellular matrix, cell adhesion, and role of mechanical forces. Concurrently scheduled with course C179. Letter grading.

282. Biomaterial Interfaces. (4) (Formerly numbered Biomedical Engineering 282.) Lecture, four hours; laboratory, eight hours. Requisite: course CM178 or CM278. Function, utility, and biocompatibility of biomaterials depend critically on their surface and interfacial properties. Discussion of morphology and composition of biomaterials and nanoscales, mesoscales, and macroscales, techniques for characterizing structure and properties of biomaterial interfaces, and methods for designing and fabricating biomaterials with prescribed structure and properties *in vitro* and *in vivo*. Letter grading.

C283. Targeted Drug Delivery and Controlled Drug Release. (4) (Formerly numbered Biomedical Engineering C283.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, 20L. New therapeutics require comprehensive understanding of modern biology, physiology, biomaterials, and engineering. Targeted delivery of genes and drugs and their controlled release are important in treatment of challenging diseases and relevant to tissue engineering and regenerative medicine. Drug pharmacodynamics and clinical pharmacokinetics. Application of engineering principles (diffusion, transport, kinetics) to problems in drug formulation and delivery to establish rationale for design and development of novel drug delivery systems that can provide spatial and temporal control of drug release. Introduction to biomaterials with specialized structural and interfacial properties. Exploration of both chemistry of materials and physical presentation of devices and compounds used in delivery and release. Concurrently scheduled with course C183. Letter grading.

M284. Functional Neuroimaging: Techniques and Applications. (3) (Formerly numbered Biomedical Engineering M284.) (Same as Neuroscience M285, Physics and Biology in Medicine M285, Psychiatry M285, and Psychology M278.) Lecture, three hours. In-depth examination of activation imaging, including MRI and electrophysiological methods, data acquisition and analysis, experimental design, and results obtained thus far in human systems. Strong focus on understanding technologies, how to design activation imaging paradigms, and how to interpret results. Laboratory visits and design and implementation of functional MRI experiment. S/U or letter grading.

C285. Introduction to Tissue Engineering. (4) (Formerly numbered Biomedical Engineering C285.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: course CM102 or CM202, Chemistry 20A, 20B, 20L. Tissue engineering applies principles of biology and physical sciences with engineering approach to regenerate tissues and organs. Guiding principles for proper selection of three basic components for tissue engineering: cells, scaffolds, and molecular signals. Concurrently scheduled with course C185. Letter grading.

CM286. Computational Systems Biology: Modeling and Simulation of Biological Systems. (5) (Formerly numbered Biomedical Engineering CM286.) (Same as Computer Science CM286.) Lecture, four hours; laboratory, three hours; outside study, eight hours. Corequisite: Electrical Engineering 102. Dynamic biosystems modeling and computer simulation methods for studying biological/biomedical processes and systems at multiple levels of organization. Control system, multicompartmental, predator-prey, pharmacokinetic (PK), pharmacodynamic (PD), and other structural modeling methods applied to life sciences problems at molecular, cellular (biochemical pathways/networks), organ, and organismic levels. Both theory- and data-driven modeling, with focus on translating biomodeling goals and data into mathematics models and implementing them for simulation and analysis. Basics of numerical simulation algorithms, with modeling software exercises in class and PC laboratory assignments. Concurrently scheduled with course CM186. Letter grading.

CM287. Research Communication in Computational and Systems Biology. (2 to 4) (Formerly numbered Biomedical Engineering CM287.) (Same as Computer Science CM287.) Lecture, four hours; outside study, eight hours. Requisite: course CM286. Closely directed, interactive, and real research experience in active quantitative systems biology research laboratory. Direction on how to focus on topics of current interest in scientific community, appropriate to student interests and capabilities. Critiques of oral presentations and written progress reports explain how to proceed with search for research results. Major emphasis on effective research reporting, both oral and written. Concurrently scheduled with course CM187. Letter grading.

295A-295Z. Seminars: Research Topics in Bioengineering. (2 each) (Formerly numbered Biomedical Engineering 295A-295Z.) Seminar, two hours; outside study, four hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in research specialty of faculty member teaching course. Student presentation of projects in research specialty. May be repeated for credit. S/U grading:

295A. Biomaterial Research.

295B. Biomaterials and Tissue Engineering Research.

295C. Minimally Invasive and Laser Research.

295D. Hybrid Device Research.

295E. Molecular Cell Bioengineering Research.

295F. Biopolymer Materials and Chemistry.

295G. Biomicrofluidics and Bionanotechnology Research.

295H. Biomimetic System Research.

295J. Neural Tissue Engineering and Regenerative Medicine.

M296A. Advanced Modeling Methodology for Dynamic Biomedical Systems. (4) (Formerly numbered Biomedical Engineering M296A.) (Same as Computer Science M296A and Medicine M270C.) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering 141 or 142 or Mathematics 115A or Mechanical and Aerospace Engineering 171A. Development of dynamic systems modeling methodology for physiological, biomedical, pharmacological, chemical, and related systems. Control system, multicompartmental, noncompartmental, and input/output models, linear and nonlinear. Emphasis on model applications, limitations, and relevance in biomedical sciences and other limited data environments. Problem solving in PC laboratory. Letter grading.

M296B. Optimal Parameter Estimation and Experiment Design for Biomedical Systems. (4) (Formerly numbered Biomedical Engineering M296B.) (Same as Biomathematics M270, Computer Science M296B, and Medicine M270D.) Lecture, four hours; outside study, eight hours. Requisite: course CM286 or M296A or Biomathematics 220. Estimation methodology and model parameter estimation algorithms for fitting dynamic system models to biomedical data. Model discrimination methods. Theory and algorithms for designing optimal experiments for developing and quantifying models, with special focus on optimal sampling schedule design for kinetic models. Exploration of PC software for model building and optimal experiment design via applications in physiology and pharmacology. Letter grading.

M296C. Advanced Topics and Research in Biomedical Systems Modeling and Computing. (4) (Formerly numbered Biomedical Engineering M296C.) (Same as Computer Science M296C and Medicine M270E.) Lecture, four hours; outside study, eight hours. Requisite: course M296B. Research techniques and experience on special topics involving models, modeling methods, and model/computing in biological and medical sciences. Review and critique of literature. Research problem searching and formulation. Approaches to solutions. Individual MS- and PhD-level project training. Letter grading.

M296D. Introduction to Computational Cardiology. (4) (Formerly numbered Biomedical Engineering M296D.) (Same as Computer Science M296D.) Lecture, four hours; outside study, eight hours. Requisite: course CM186. Introduction to mathematical modeling and computer simulation of cardiac electrophysiological process. Ionic models of action potential (AP). Theory of AP propagation in one-dimensional and two-dimensional cardiac tissue. Simulation on sequential and parallel supercomputers, choice of numerical algorithms, to optimize accuracy and to provide computational stability. Letter grading.

298. Special Studies in Bioengineering. (4) (Formerly numbered Biomedical Engineering 298.) Lecture, four hours; outside study, eight hours. Study of selected topics in bioengineering taught by resident and visiting faculty members. May be repeated for credit. Letter grading.

299. Seminar: Bioengineering Topics. (2) (Formerly numbered Biomedical Engineering 299.) Seminar, two hours; outside study, four hours. Designed for graduate bioengineering students. Seminar by leading academic and industrial bioengineers from UCLA, other universities, and bioengineering companies such as Baxter, Amgen, Medtronics, and Guidant on development and application of recent technological advances in discipline. Exploration of cutting-edge developments and challenges in wound healing models, stem cell biology, angiogenesis, signal transduction, gene therapy, cDNA microarray technology, bioartificial cultivation, nano- and micro-hybrid devices, scaffold engineering, and bioinformatics. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) (Formerly numbered Biomedical Engineering 375.) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Assistant Training Seminar. (2) (Formerly numbered Biomedical Engineering 495.) Seminar, two hours; outside study, four hours. Limited to graduate bioengineering students. Required of all departmental teaching assistants. May be taken concurrently while holding TA appointment. Seminar on communicating bioengineering and biomedical engineering principles, concepts, and methods; teaching assistant preparation, organization, and presentation of material, including use of visual aids, grading, advising, and rapport with students. S/U grading.

596. Directed Individual or Tutorial Studies. (2 to 8) (Formerly numbered Biomedical Engineering 596.) Tutorial, to be arranged. Limited to graduate bioengineering students. Petition forms to request enrollment may be obtained from program office. Supervised investigation of advanced technical problems. S/U grading.

597A. Preparation for MS Comprehensive Examination. (2 to 12) (Formerly numbered Biomedical Engineering 597A.) Tutorial, to be arranged. Limited to graduate bioengineering students. Reading and preparation for MS comprehensive examination. S/U grading.

597B. Preparation for PhD Preliminary Examinations. (2 to 16) (Formerly numbered Biomedical Engineering 597B.) Tutorial, to be arranged. Limited to graduate bioengineering students. S/U grading.

597C. Preparation for PhD Oral Qualifying Examination. (2 to 16) (Formerly numbered Biomedical Engineering 597C.) Tutorial, to be arranged. Limited to graduate bioengineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

598. Research for and Preparation of MS Thesis. (2 to 12) (Formerly numbered Biomedical Engineering 598.) Tutorial, to be arranged. Limited to graduate bioengineering students. Supervised independent research for MS candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of PhD Dissertation. (2 to 16) (Formerly numbered Biomedical Engineering 599.) Tutorial, to be arranged. Limited to graduate bioengineering students. Usually taken after students have been advanced to candidacy. S/U grading.

BIOINFORMATICS

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 Yi Xing, PhD (*Microbiology, Immunology, and Molecular Genetics*)
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Scope and Objectives

Bioinformatics is defined broadly as the study of the inherent structure of biological information. It is the marriage of biology and the information sciences. Examples of current bioinformatics research include the analysis of gene and protein sequences to reveal protein evolution and alternative splicing, the development of computational approaches to study and predict protein structure to further understanding of function, the analysis of mass spectrometry data to understand the connection between phosphorylation and cancer, the development of computational methods to utilize expression data to reverse engineer gene networks in order to more completely model cellular biology, and the study of population genetics and its connection to human disease.

Graduates in bioinformatics can expect to engage in any combination of research, teaching, clinical service, and consultation. Within universities and research centers there is a growing need for bioinformatics researchers who can analyze new sources of high-throughput experimental data in biology, medicine, and bioengineering. Biotechnology and pharmaceutical companies also seek bioinformatics graduates for applied research on disease—and drug discovery. Medical centers are also increasingly hiring bioinformatics graduates as genomics data become important in medical research and clinical applications.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Bioinformatics Program offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Bioinformatics.

Bioinformatics

Graduate Courses

M202. Bioinformatics Interdisciplinary Research Seminar. (4) (Same as Chemistry M202.) Seminar, two hours; discussion, two hours. Concrete examples of how biological questions about genomics data map to and are solved by methodologies from other disciplines, including statistics, computer science, and mathematics. May be repeated for credit. S/U or letter grading.

M224. Computational Genetics. (4) (Same as Computer Science CM224 and Human Genetics CM224.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: Computer Science 32 or Program in Computing 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering

131A, Mathematics 170A, or Statistics 100A. Designed for engineering students as well as students from biological sciences and medical school. Introduction to computational analysis of genetic variation and computational interdisciplinary research in genetics. Topics include introduction to genetics, identification of genes involved in disease, inferring human population history, technologies for obtaining genetic information, and genetic sequencing. Focus on formulating interdisciplinary problems as computational problems and then solving those problems using computational techniques from statistics and computer science. Letter grading.

M252. Seminar: Advanced Methods in Computational Biology. (2) (Same as Chemistry M252 and Human Genetics M252.) Seminar, one hour; discussion, one hour. Designed for advanced graduate students. Examination of computational methodology in bioinformatics and computational biology through presentation of current research literature. How to select and apply methods from computational and mathematical disciplines to problems in bioinformatics and computational biology; development of novel methodologies. S/U or letter grading.

M255. Mitochondria in Medicine, Biology, and Chemistry. (1) (Same as Chemistry CM255.) Seminar, two hours every other week. Open to undergraduate and graduate science majors considering or currently conducting research in areas related to mitochondria. Large number of physiological and pathophysiological processes involve mitochondrial function and dysfunction. Focus on understanding how mitochondria metabolism, form, and function impact health and disease. Physiology and cell biology of healthy and dysfunctional mitochondria critically assessed at subcellular, cellular, tissue, and organismal levels. Topics include in-depth analyses of literature and critical evaluation of experimental design and methods of current research. S/U grading.

M260A. Introduction to Bioinformatics. (4) (Same as Chemistry CM260A, Computer Science CM221, and Human Genetics M260A.) Lecture, four hours; discussion, two hours. Enforced requisites: Computer Science 32 or Program in Computing 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Prior knowledge of biology not required. Designed for engineering students as well as students from biological sciences and medical school. Introduction to bioinformatics and methodologies, with emphasis on concepts and inventing new computational and statistical techniques to analyze biological data. Focus on sequence analysis and alignment algorithms. S/U or letter grading.

M260B. Algorithms in Bioinformatics and Systems Biology. (4) (Same as Chemistry CM260B and Computer Science CM222.) Lecture, four hours; discussion, two hours. Enforced requisites: Computer Science 32 or Program in Computing 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Course M260A is not requisite to M260B. Designed for engineering students as well as students from biological sciences and medical school. Development and application of computational approaches to biological questions, with focus on formulating interdisciplinary problems as computational problems and then solving these problems using algorithmic techniques. Computational techniques include those from statistics and computer science. Letter grading.

M265. Computational Methods in Genomics. (4) (Same as Computer Science M225 and Human Genetics M265.) Lecture, two and one half hours; discussion, two and one half hours; outside study, seven hours. Limited to bioinformatics, computer science, human genetics, and molecular biology graduate students. Introduction to computational approaches in bioinformatics, genomics, and computational genetics and preparation for computational interdisciplinary research in genetics and genomics. Topics include genome analysis, regulatory genomics, association analysis, association study design, isolated and

admixed populations, population substructure, human structural variation, model organisms, and genomic technologies. Computational techniques and methods include those from statistics and computer science. Letter grading.

M271. Statistical Methods in Computational Biology. (4) (Same as Biomathematics M271 and Statistics M254.) Lecture, three hours; discussion, one hour. Preparation: elementary probability concepts. Requisite: course M260A or Statistics 100A or 200A. Introduction to statistical methods developed and widely applied in several branches of computational biology, such as gene expression, sequence alignment, motif discovery, comparative genomics, and biological networks, with emphasis on understanding of basic statistical concepts and use of statistical inference to solve biological problems. Letter grading.

296. Seminar: Research Topics in Bioinformatics. (2) Seminar, to be arranged; discussion, three hours. Advanced study and analysis of current research topics in bioinformatics. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research in Bioinformatics. (2 to 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

597. Preparation for MS Comprehensive Examination or PhD Qualifying Examinations. (2 to 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

598. MS Thesis Research and Writing. (2 to 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

599. PhD Dissertation Research and Writing. (2 to 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

BIOLOGICAL CHEMISTRY

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Professors

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 Michael F. Carey, PhD
 John J. Colicelli, PhD
 Edward M.F. De Robertis, MD, PhD (*Norman F. Sprague Professor of Molecular Oncology*)
 David S. Eisenberg, DPhil (*Paul D. Boyer Professor of Molecular Biology and Biochemistry*)
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 S. Larry Zipursky, PhD

Professors Emeriti

Robert J. DeLange, PhD
 John Edmond, PhD
 Peter A. Edwards, PhD
 Judith C. Gasson, PhD
 Dohn G. Giltz, PhD
 Michael Grunstein, PhD
 Harvey R. Herschman, PhD (*Crump Professor Emeritus of Medical Engineering*)

Bruce D. Howard, MD
 Kevin McEntee, PhD
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 Sidney Roberts, PhD
 Geraldine A. Weinmaster, PhD
 Irving Zabin, PhD
 Patrice J. Zamenhof, PhD

Associate Professors

Hather R. Christofk, PhD
 Hilary A. Collier, PhD
 Alison R. Frand, PhD
 Feng Guo, PhD
 Timothy F. Lane, PhD
 James A. Wohlschlegel, PhD

Assistant Professors

Pascal F. Egea, PhD (*Alexander and Renee Kolin Endowed Professor of Molecular Biology and Biophysics*)
 Jason Ernst, PhD
 Weizhe Hong, PhD

Adjunct Professors

Lenore Arab, MSc, PhD
 Duilio D. Cascio, PhD

Adjunct Assistant Professors

Lars Dreier, PhD
 Michael B. Elowitz, PhD
 Eryn Ujita Lee, PhD

Scope and Objectives

The biological chemistry graduate program prepares students for careers as independent research scientists and scholars. Laboratory research is the central element. Biological chemistry has grown to include studies of cellular, molecular, and developmental biology, molecular genetics and genetic engineering, and many aspects of the health sciences. The research activities of the department include these areas as well as the classic topics of metabolism, enzymology, and biomolecular structure. Courses and seminar programs are designed to provide students with the necessary background and approach to encourage their continuing growth in these rapidly changing areas of science.

Interaction with other graduate programs provides access to scientists in a variety of related disciplines. Through its primary affiliation with the Geffen School of Medicine, the Department of Biological Chemistry is also involved in the basic education of students who will be physicians, dentists, and other health professionals. Many of these students become involved in laboratory research in the department. In part because of this breadth of experience students find careers in many aspects of basic and applied scientific research and education. The department emphasizes study for the PhD, but candidates for the MS degree may be accepted under special circumstances.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Biological Chemistry offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Biological Chemistry. Applicants interested in studying with faculty in the department are encouraged to apply to an appropriate home area in Graduate Programs in Bioscience. See <http://bioscience.ucla.edu>.

Biological Chemistry

Upper Division Courses

M140. Cancer Cell Biology. (5) (Same as Molecular, Cell, and Developmental Biology M140.) Lecture, three hours; discussion, one hour. Requisite: course 165A. Cancer causes and genetics. Effects of cell transformation on cell growth and metabolism. Altered cell cycle, metabolism, and differentiation pathways in cancer cells. Tumor microenvironment contributions to cancer malignancy, including angiogenesis, metastasis, and immune system evasion. Letter grading.

194. Research Group Seminars: Biological Chemistry. (2) Seminar, two hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP grading.

199. Directed Research or Senior Project in Biological Chemistry. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for maximum of 16 units. Individual contract required. P/NP or letter grading.

Graduate Courses

201A-201B. Biological Chemistry. (5-5) Lecture, five hours. Preparation: organic chemistry. Open to non-medical students with consent of instructor. Primarily for first-year medical students and runs throughout School of Medicine's second semester. General biochemistry with emphasis on mammalian systems. Structure, function, and metabolism of major cellular components. To receive credit, both courses must be taken together in same academic year. In Progress (201A) and S/U (201B) grading.

204. Human Biological Chemistry and Nutrition Laboratory. (3) Laboratory, four hours. Open to non-medical students with consent of instructor. Experiments illustrating techniques and procedures in medically related biochemistry and nutrition, analysis of experimental results. S/U or letter grading.

205. Biological Chemistry and Nutrition Lecture: Dental Students. (6) Lecture, six hours; computer laboratory. Designed for dental students. Biochemical and genetic factors influencing normal and disease states: structure and metabolism of cellular constituents, intermediary metabolism and its regulation, endocrine and neurobiochemical mechanisms, connective tissue/mineralization. Includes computer laboratory and self-instruction on dietary assessment in dentistry. S/U or letter grading.

220A-220B-220C. Research Laboratory Rotations. (2 to 8 each) Laboratory, two to eight hours. Students arrange apprenticeships in laboratories of one or more departmental faculty members and engage in

research project under close faculty direction. Allows students to acquire in-depth laboratory experience in specific research areas and facilitates informed decision on their part in selection of thesis/research adviser. S/U grading.

M229S. Seminar: Current Topics in Bioinformatics. (4) (Same as Computer Science M229S and Human Genetics M229S.) Seminar, four hours; outside study, eight hours. Designed for graduate engineering students, as well as students from biological sciences and medical school. Introduction to current topics in bioinformatics, genomics, and computational genetics and preparation for computational interdisciplinary research in genetics and genomics. Topics include genome analysis, regulatory genomics, association analysis, association study design, isolated and admixed populations, population substructure, human structural variation, model organisms, and genomic technologies. Computational techniques include those from statistics and computer science. May be repeated for credit with topic change. Letter grading.

M234. Genetic Control of Development. (4) (Same as Molecular, Cell, and Developmental Biology M234.) Lecture, four hours. Topics at forefront of molecular developmental biology, including problems in oogenesis and early embryogenesis, pattern formation, axis determination, nervous system development, cellular morphogenesis, and cell-cell and cell-matrix interactions. S/U or letter grading.

M237. Cellular and Molecular Basis of Disease. (4) (Same as Pathology M237.) Lecture, two hours; laboratory, two hours. Preparation: one course each in molecular biology, cell biology, and biological chemistry. Discussion of key issues in disease mechanisms, with emphasis on experiments leading to understanding of these mechanisms. Identification of important questions still remaining unanswered. Letter grading.

251A-251B-251C. Seminars: Transcriptional Regulation. (2-2-2) Seminar, two hours. Advanced courses on mechanics of gene transcription in both eukaryotes and prokaryotes intended for students actively working or highly interested in transcription. S/U grading.

M255. Mitochondria in Medicine, Biology, and Chemistry. (1) (Same as Chemistry CM255.) Seminar, two hours every other week. Open to undergraduate and graduate science majors considering or currently conducting research in areas related to mitochondria. Large number of physiological and pathophysiological processes involve mitochondrial function and dysfunction. Focus on understanding how mitochondria metabolism, form, and function impact health and disease. Physiology and cell biology of healthy and dysfunctional mitochondria critically assessed at subcellular, cellular, tissue, and organismal levels. Topics include in-depth analyses of literature and critical evaluation of experimental design and methods of current research. S/U grading.

266A-266B-266C. Seminars: Cell, Stem Cell, and Developmental Biology. (2-2-2) Seminar, two hours. Open to undergraduate students with consent of instructor. Advanced courses in cell, stem cell, and developmental biology intended for graduate students working or rotating in laboratories of new cell and developmental biology home area. S/U grading.

296. Research Seminar Series in Biological Chemistry. (1) Seminar, one hour. Limited to biological chemistry students. Research presentations from second- through fourth-year graduate students related to their research. Designed to be highly interactive, with time for questions from fellow graduate students, postdoctoral students, and faculty members during and after presentations. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Study and Research. (2 to 12) Tutorial, to be arranged. S/U or letter grading.

597. Preparation for Examinations. (2 to 4) Tutorial, to be arranged. Individual study for PhD qualifying examinations or MS comprehensive examination. S/U grading.

598. Preparation of MS Thesis. (4) Tutorial, to be arranged. Preparation of research data and writing of MS thesis. S/U grading.

599. Research for and Preparation of PhD Dissertation. (2 to 12) Tutorial, to be arranged. Preparation of research data and writing of PhD dissertation. S/U grading.

BIOLOGY

See Ecology and Evolutionary Biology

BIOMATHEMATICS

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Kenneth L. Lange, PhD (*Maxine and Eugene Rosenfeld Endowed Professor of Computational Genetics*)
Alexander J. Levine, PhD
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Professors Emeriti

Abdelmonem A. Afifi, PhD
Henry S.C. Huang, DSc
Robert I. Jennrich, PhD

Associate Professors

James O. Lloyd-Smith, PhD (*De Logi Professor of Biological Sciences*)
Marcus L. Roper, PhD
Van M. Savage, PhD

Adjunct Professor

David Elashoff, PhD

Adjunct Associate Professors

Eli Engel, MD, PhD
Maria-Rita R. D'Orsogna, PhD

Adjunct Assistant Professors

Ning Li, PhD
Mary E. Sehl, MD, PhD

Adjunct Instructor

Jeffrey Gornbein, DrPH

Scope and Objectives

As biology advances rapidly in quantitative research methods, both the need for and possi-

bility of closely associated theoretical research increases. On numerous medical and medical science frontiers—such as genetics, molecular biology, oncology, pharmacology, neurosciences, and physiology—biomathematics is contributing both in its basic research and the development of specialized computer software to support investigation and healthcare. UCLA has one of the few departments in this rapidly evolving field.

The department's orientation is away from abstract modeling and toward theoretical research vital to the advancement of current biomedical research frontiers. The doctoral program reflects this in requirements for advanced training in a biomedical research specialty and for the mathematical and computing skills required to contend realistically with complex phenomena encountered in biology and medicine. The art of biomathematical research is developed individually from the first year on. The master's program adapts to the needs of researchers desiring supplemental biomathematical training.

The Department of Biomathematics welcomes both undergraduate and graduate students in other majors to its courses in modeling, biomedical computing, and statistics. Premedical majors with mathematical/computer interests can receive early guidance toward an MD/PhD program in Biomathematics. The department also provides statistical and biomathematical training in the medical curriculum and post-graduate medical programs.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Biomathematics offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Biomathematics and the Master of Science (MS) degree in Clinical Research.

Biomathematics

Upper Division Courses

106. Introduction to Cellular Modeling. (4) Lecture, four hours; computer laboratory, two hours. Preparation: some computer programming. Requisite: Mathematics 32A. Designed for upper division science majors and biomedical graduate students. Introduction to modeling cells and cell systems, including intracellular biochemical networks, applications to cancer research. How to develop one's own computer models using IMSL mathematics subroutines. P/NP or letter grading.

108. Introduction to Modeling in Neurobiology. (4) Lecture, four hours; computer laboratory, two hours. Preparation: some computer programming. Requisite: Mathematics 32A. Designed for upper division science majors and biomedical graduate students. Survey of wide variety of topics in neurobiological modeling, current neuronal modeling systems. Devel-

opment of skills to formulate and program one's own studies using IMSL mathematics subroutines. P/NP or letter grading.

110. Elements of Biomathematics. (4) Lecture, three hours. Preparation: three years of high school mathematics (to algebra II). Introduction to concepts used in mathematical modeling of biological and medical problems. Emphasis on quantitative reasoning rather than computational details. P/NP or letter grading.

160. Introductory Biomathematics for Medical and Biological Research. (4) Lecture, four hours; discussion, 90 minutes. Elementary statistics course that focuses on statistical concepts and critiques literature, with emphasis on clinical research. Output from statistical computer packages discussed in class, but students do not use computer themselves. Topics include descriptive statistics, t-tests, confidence intervals, linear regression and correlation, analysis of variance, nonparametric statistics, basic experimental design, sample size determination, article interpretation. P/NP or letter grading.

170A. Introductory Biomathematics for Medical Investigators. (4) Lecture, three hours; discussion, one hour. Intensive elementary statistics course emphasizing design and applications to observational studies and experiments/clinical trials. Statistical topics include study design, descriptive statistics, elementary probability and distributions, confidence intervals and hypothesis testing, sample size and power, linear regression and correlation, analysis of variance, nonparametric statistics. Applications to biomedical literature and design of clinical trials. Letter grading.

170B. Statistical and Mathematical Modeling in Medical and Biological Research. (4) Lecture, four hours; discussion, 90 minutes. Second course in biomathematical methods. Topics include randomization methods, intermediate experimental design, contingency table analysis, analysis of variance, multiple linear regression, nonlinear regression, methods of classification, model checking, basic mathematical models including compartment models, and statistical computer software. Students have opportunity to design their own experiments and analyze them on computer, and to analyze previously collected data. P/NP or letter grading.

190HA-190HB. Honors Research in Biomathematics. (4-4) Tutorial, to be arranged. Limited to juniors/seniors. Individual research in some aspect of biomathematics designed to acquaint students in depth with mathematical models and computer applications in biology. Must be taken for at least two terms and for total of at least 8 units. Thesis required. P/NP or letter grading.

197. Individual Studies in Biomathematics. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Biomathematics. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Research Frontiers in Biomathematics. (2) Lecture, two hours. Series of presentations by faculty members on research frontiers in biomathematics. S/U grading.

201. Deterministic Models in Biology. (4) Lecture, three hours; laboratory, three hours. Preparation: knowledge of linear algebra and differential equations. Examination of conditions under which deterministic approaches can be employed and conditions where they may be expected to fail. Topics include compart-

mental analysis, enzyme kinetics, physiological control systems, and cellular/animal population models. S/U or letter grading.

202. Biological Systems: Structure, Function, Evolution. (4) Lecture, four hours. Preparation: knowledge of calculus, differential equations, and partial differential equations. Introduction to concepts, equations, and approximations that describe structure and function of biological systems, evolutionary principles, and network design and dynamics. Topics include cancer initiation and progression, gene expression, epistasis, response to fluctuating environments, network structure, and functional traits. S/U or letter grading.

M203. Stochastic Models in Biology. (4) (Same as Human Genetics M203.) Lecture, four hours. Requisite: Mathematics 170A or equivalent experience in probability. Mathematical description of biological relationships, with particular attention to areas where conditions for deterministic models are inadequate. Examples of stochastic models from genetics, physiology, ecology, and variety of other biological and medical disciplines. S/U or letter grading.

204. Biomedical Data Analysis. (4) Lecture, four hours. Quantity and quality of observations have been greatly affected by present-day extensive use of computers. Problem-oriented study of latest methods in statistical data analysis and use of such arising in laboratory and clinical research. S/U or letter grading.

206. Introduction to Mathematical Oncology. (4) Lecture, four hours; computer laboratory, two hours. Preparation: ordinary partial differential equations, one computer programming course. Deterministic and stochastic modeling of cell metabolism, colony growth, and responses to radio-, chemo-, and immuno-therapeutic agents applied to carcinogenesis, therapy, emergence of resistance to therapy. Simulation, optimization methods introduced. Current literature review. S/U or letter grading.

M207A. Theoretical Genetic Modeling. (4) (Same as Biostatistics M272 and Human Genetics M207A.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 115A, 131A, Statistics 100B. Mathematical models in statistical genetics. Topics include population genetics, genetic epidemiology, gene mapping, design of genetics experiments, DNA sequence analysis, and molecular phylogeny. S/U or letter grading.

M207B. Applied Genetic Modeling. (4) (Same as Biostatistics M237 and Human Genetics M207B.) Lecture, three hours; laboratory, one hour. Requisites: Biostatistics 110A, 110B. Methods of computer-oriented human genetic analysis. Topics include statistical methodology underlying genetic analysis of both quantitative and qualitative complex traits. Laboratory for hands-on computer analysis of genetic data; laboratory reports required. Course complements M207A; students may take either and are encouraged to take both. S/U or letter grading.

208A. Modeling in Neurobiology for Mathematicians. (4) Lecture, four hours; laboratory, two hours. Preparation: introductory ordinary partial differential equations, programming experience. Introduction to electrochemical bases for nerve function and mathematical and computational methods for studying this, appropriate for physicists, engineers, and mathematicians. Survey of current leading research areas and software systems. S/U or letter grading.

208B. Modeling in Neurobiology for Biologists. (4) Lecture, four hours; laboratory, two hours. Preparation: lower division calculus, some elementary programming experience. Introduction to neuronal modeling, including how to formulate models and study them with existing computer software (e.g., NODUS) or one's own simple programs that use IMSL subroutines. Survey of current leading research areas. S/U or letter grading.

209. Mechanisms and Modeling in Bioanalytical Assays. (4) Lecture, three hours. Preparation: knowledge of basic physical chemistry and ordinary differential equations. Recommended requisite: course 201. Review of basic physical mechanisms and mathematical analyses used in common bioanalytical as-

says. Topics include chromatography, electrophoresis, blotting, DNA sequencing, PCR, SELEX, ChIP-sequencing, FACS, FRAP, and FISH. S/U or letter grading.

210. Optimization Methods in Biology. (4) Lecture, four hours. Preparation: undergraduate mathematical analysis and linear algebra; familiarity with programming language such as Fortran or C. Modern computational biology relies heavily on finite-dimensional optimization. Survey of theory and numerical methods for discrete and continuous optimization, with applications from genetics, medical imaging, pharmacokinetics, and statistics. S/U or letter grading.

M211. Mathematical and Statistical Phylogenetics. (4) (Same as Biostatistics M239 and Human Genetics M211.) Lecture, three hours; laboratory, one hour. Requisites: Biostatistics 110A, 110B, Mathematics 170A. Theoretical models in molecular evolution, with focus on phylogenetic techniques. Topics include evolutionary tree reconstruction methods, studies of viral evolution, phyleogeography, and coalescent approaches. Examples from evolutionary biology and medicine. Laboratory for hands-on computer analysis of sequence data. S/U or letter grading.

212. Nonlinear Dynamics in Biological Systems. (4) Lecture, three hours; discussion, one hour. Required preparation: elementary knowledge of ordinary differential equations, partial differential equations, and computer programming. Mathematical bases of nonlinear dynamics and self-organization in temporal and spatial systems, with applications to biological systems. Topics range from bifurcation theory in low dimension to pattern formation in high dimension. Use of biologically important examples to illustrate applications of these dynamics, including gene regulation and protein-protein interaction networks, glycolytic and metabolic oscillations, circadian rhythms, cell cycle controls, intracellular calcium cycling, pattern formation in morphogenesis, and action potential models and electrical wave formation and propagation in nerve and cardiac systems. S/U or letter grading.

213. Modeling Vascular Networks. (4) Lecture, four hours. Recommended preparation: calculus, differential equations, complex analysis, elementary knowledge of partial differential equations. Introduction to equations that describe fluid flow dynamics and branching, and hierarchical networks to provide survey of models for structure and flow of vascular systems. Vascular systems are nearly ubiquitous in nature, occurring across animals, plants, and other organisms. Coverage of applications to tumor growth and angiogenesis, sleep, allometric scaling, and other phenomena. S/U or letter grading.

220. Kinetic and Steady State Models in Pharmacology and Physiology. (4) Lecture, four hours. Recommended preparation: knowledge of linear algebra, differential equations, statistics. Designed for biologists and theoreticians. Modeling and data analysis in pharmacokinetics, enzyme kinetics, and endocrinology. Topics include compartmental and noncompartmental approaches, steady state analysis of transport and binding processes, and optimal experiment design. S/U or letter grading.

M230. Computed Tomography: Theory and Applications. (4) (Same as Physics and Biology in Medicine M230.) Lecture, four hours. Computed tomography is three-dimensional imaging technique being widely used in radiology and is becoming active research area in biomedicine. Basic principles of computed tomography (CT), various reconstruction algorithms, special characteristics of CT, physics in CT, and various biomedical applications. S/U or letter grading.

M231. Statistical Methods for Categorical Data. (4) (Same as Biostatistics M210.) Lecture, three hours; discussion, one hour. Requisites: Biostatistics 100B or 110B, Statistics 100B. Statistical techniques for analysis of categorical data; discussion and illustration of their applications and limitations. S/U or letter grading.

M232. Statistical Analysis of Incomplete Data. (4) (Same as Biostatistics M232.) Lecture, three hours; discussion, one hour. Requisite: Statistics 100B. Discussion of statistical analysis of incomplete data sets, with material from sample survey, econometric, biometric, psychometric, and general statistical literature. Topics include treatment of missing data in statistical packages, missing data in ANOVA and regression imputation, weighting, likelihood-based methods, and nonrandom nonresponse models. Emphasis on application of methods to applied problems, as well as on underlying theory. S/U or letter grading.

M234. Applied Bayesian Inference. (4) (Same as Biostatistics M234.) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: Biostatistics 200A, and 202B (or Statistics 100C). Bayesian approach to statistical inference, with emphasis on biomedical applications and concepts rather than mathematical theory. Topics include large sample Bayes inference from likelihoods, noninformative and conjugate priors, empirical Bayes, Bayesian approaches to linear and nonlinear regression, model selection, Bayesian hypothesis testing, and numerical methods. S/U or letter grading.

M243. Condensed Matter Physics of Cells. (4) (Same as Physics M243L.) Seminar, four hours. Designed for graduate students. Basic paradigms of condensed matter physics and applications to biophysical modeling. S/U or letter grading.

258. Introduction to Clinical Trials. (2) Lecture, two hours. Requisites: courses 170A, 266A. Limited to MS in Clinical Research students. Introduction to basic principles of good clinical trial design, trial implementation, and analysis. Letter grading.

259. Controversies in Clinical Trials. (2) Lecture, one hour; discussion, one hour. Preparation: completion of professional health sciences or MD degree. Required of all MS in Clinical Research students. Discussion and analysis of eight published and well-known trials with students, one invited clinical faculty member, and course director. Development of critical ability to evaluate trial design and pitfalls. S/U or letter grading.

M260A-M260B. Methodology in Clinical Research I, II. (4-4) (Same as Medicine M260A-M260B.) Lecture, four hours. Recommended preparation: MD, PhD, or dental degree. Requisites: courses 170A, 265A. Course M260A is requisite to M260B. Presentation of principles and practices of major disciplines underlying clinical research methodology, such as biostatistics, epidemiology, pharmacokinetics. S/U or letter grading.

M260C. Methodology in Clinical Research III. (4) (Same as Medicine M260C.) Discussion, four hours. Recommended preparation: MD, PhD, or dental degree. Presentation of principles and practices of major disciplines underlying clinical research methodology, such as biostatistics, epidemiology, pharmacokinetics. S/U or letter grading.

M261. Responsible Conduct of Research Involving Humans. (2) (Same as Medicine M261.) Lecture, two hours; discussion, two hours. Preparation: completion of one basic course in protection of human research subjects through Collaborative Institutional Training Initiative. Discussion of current issues in responsible conduct of clinical research, including reporting of research, basis for authorship, issues in genetic research, principles and practice of research on humans, conflicts of interest, Institutional Review Board (IRB), and related topics. S/U or letter grading.

M262. Communication of Science. (2) (Same as Psychiatry M230.) Lecture, two hours; discussion, one hour. Presentation of various types of scientific writings and their good practice. Details of writing specific articles: methods, results, discussion. Writing of review article. Grant submissions: aims, background, results, design. Role of appendices. Communication with lay public. S/U or letter grading.

M263. Clinical Pharmacology. (2) (Same as Medicine M263 and Psychiatry M263.) Lecture, two hours. Preparation: completion of professional health sciences degree (MD, DDS, DNSc, or PhD). Overview of

principles of clinical pharmacology, especially as they relate to clinical and translational medicine and to advances in contemporary medicine such as targeting, gene therapy, and genomics. Letter grading.

265A. Data Analysis Strategies I. (4) Lecture, two hours; laboratory, two hours. Preparation: MD or PhD degree. Requisite: course 170A. Designed to provide students with hands-on experience developing and testing hypotheses using various types of databases. Topics include developing testable hypothesis, data management, and analysis strategies and written presentation of findings. Experience with full process of hypothesis generation, operationalization of variables, selection of analysis techniques, and presentation of findings so students are better prepared to complete data analysis, interpretation of results, and written presentation of their findings (e.g., for master's thesis and subsequent articles). Students encouraged to provide their own data. Databases provided for use in completing exercises for those without available data. Letter grading.

265B. Data Analysis Strategies II. (2) Lecture, one hour; laboratory, one hour. Requisite: course 265A. Continuation of course 265A; use of SAS computer language. Letter grading.

266A. Applied Regression Analysis in Medical Sciences. (4) Lecture, three hours; laboratory, one hour. Requisite: course 170A. Proficiency in applied regression analysis, with focus on interpretation of results and performing computation. Primary topics include simple linear regression, multiple regression, regression model selection, analysis of variance, logistic regression, and survival analysis. Letter grading.

266B. Advanced Biostatistics. (4) Lecture, three hours; discussion, one hour. Requisite: course 266A. Continuation of course 266A. Some traditional multivariate methods, such as principle components, factor analysis, cluster analysis, and more contemporary methods, including recursive partitioning and missing data. Multilevel and longitudinal analysis. Letter grading.

M270. Optimal Parameter Estimation and Experiment Design for Biomedical Systems. (4) (Same as Bioengineering M296B, Computer Science M296B, and Medicine M270D.) Lecture, four hours; outside study, eight hours. Requisite: course 220 or Bioengineering CM286 or M296A. Estimation methodology and model parameter estimation algorithms for fitting dynamic system models to biomedical data. Model discrimination methods. Theory and algorithms for designing optimal experiments for developing and quantifying models, with special focus on optimal sampling schedule design for kinetic models. Exploration of PC software for model building and optimal experiment design via applications in physiology and pharmacology. Letter grading.

M271. Statistical Methods in Computational Biology. (4) (Same as Bioinformatics M271 and Statistics M254.) Lecture, three hours; discussion, one hour. Preparation: elementary probability concepts. Requisite: Bioinformatics M260A or Statistics 100A or 200A. Introduction to statistical methods developed and widely applied in several branches of computational biology, such as gene expression, sequence alignment, motif discovery, comparative genomics, and biological networks, with emphasis on understanding of basic statistical concepts and use of statistical inference to solve biological problems. Letter grading.

273. Stochastic Modeling in Molecular Cellular Biophysics. (4) Lecture, three hours; discussion, one hour. Requisite: Mathematics 170A or equivalent experience in probability, lower division physics, or physical chemistry. Most molecular systems are large collections of molecules; behavior of such systems is stochastic. Mathematical descriptions of biochemical reactions with and without energy dissipation, molecular structures, and biophysical techniques that measure various biological processes. S/U or letter grading.

M280. Statistical Computing. (4) (Same as Biostatistics M280 and Statistics M230.) Lecture, three hours. Requisites: Mathematics 115A, Statistics

100C. Introduction to theory and design of statistical programs: computing methods for linear and nonlinear regression, dealing with constraints, robust estimation, and general maximum likelihood methods. Letter grading.

M281. Survival Analysis. (4) (Same as Biostatistics M215.) Lecture, three hours; discussion, one hour. Requisite: Biostatistics 202B or Statistics 100C. Statistical methods for analysis of survival data. S/U or letter grading.

M282. Longitudinal Data. (4) (Same as Biostatistics M236.) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: Biostatistics 200A, one other 200-level biostatistics or statistics course. Longitudinal data analysis, graphing longitudinal data, specifying predictors, modeling variances and covariance, inference, computing, hierarchical models, and random effects. S/U or letter grading.

M284. Methodology of Clinical Trials. (4) (Same as Biostatistics M238.) Lecture, three hours; discussion, two hours. Requisites: course M281, Biostatistics 200A. Methodological principles of clinical trials, actual practice and principles of trials. Considerable focus on phase two trials and multiclinical phase three trials. Emphasis on major inferential issues. S/U or letter grading.

285. Introduction to High-Throughput Data Analysis. (4) Seminar, three hours. Requisites: courses M260A, M260B. Introduction to high-throughput data analysis, including DNA microarray technologies and next-generation sequencing technology. Presentation of statistical methods and software for handling complex data produced by experiments using these technologies. Some hands-on training on data analysis provided. S/U or letter grading.

296A-296B. Advanced Topics in Clinical Pharmacology. (2 to 2) Lecture, one hour; discussion, one hour. Review of pharmacokinetics, drug metabolism and transport, assessment of drug effects, drug therapy in special populations, and contemporary drug development. S/U or letter grading.

299. Special Topics in Clinical Research. (2 to 6) Seminar, three hours. Requisites: courses M260A, M260B. Advanced study and analysis of current topics in clinical research. Discussion of current research and literature in research specialty of faculty member teaching course. Content varies from term to term and may include lectures from visiting scientists. May be repeated for credit with consent of instructor. S/U or letter grading.

596. Directed Individual Study or Research in Biomathematics. (2 to 12) Tutorial, to be arranged. Individual study on topics not yet covered by offerings of department. May be repeated for credit with topic change. S/U or letter grading.

597. Preparation for MS or PhD Comprehensive Examination or PhD Qualifying Examinations. (2 to 8) Tutorial, to be arranged. Individual study. S/U grading.

599. Research for and Preparation of PhD Dissertation. (2 to 12) Tutorial, to be arranged. S/U grading.

BIOMEDICAL RESEARCH

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College of Letters and Science*

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Utpal Banerjee, PhD, Chair

Faculty Committee

Utpal Banerjee, PhD (*Biological Chemistry; Molecular, Cell, and Developmental Biology*)
Paul H. Barber, PhD (*Ecology and Evolutionary Biology*)
Michael F. Carey, PhD (*Biological Chemistry*)
Ellen M. Carpenter, PhD (*Psychiatry and Biobehavioral Sciences*)
John J. Colicelli, PhD (*Biological Chemistry*)
Albert J. Courey, PhD (*Chemistry and Biochemistry*)
Soraya de Chadarevian, PhD (*History, Institute for Society and Genetics*)
Frank A. Laski, PhD (*Molecular, Cell, and Developmental Biology*)
Aldons J. Lusis, PhD (*Human Genetics; Medicine, Microbiology, Immunology, and Molecular Genetics*)
Kelsey C. Martin, MD, PhD (*Biological Chemistry, Psychiatry and Biobehavioral Sciences*)
Jeffery F. Miller, PhD (*Microbiology, Immunology, and Molecular Genetics*)
Caius G. Radu, MD (*Molecular and Medical Pharmacology*)
Dwayne D. Simmons, PhD (*Integrative Biology and Physiology*)
Stephen T. Smale, PhD (*Microbiology, Immunology, and Molecular Genetics*)

Scope and Objectives

The Biomedical Research minor is designed to incorporate research into undergraduate science education at UCLA. Applications may be submitted by any UCLA student who meets the admission requirements and has the potential to satisfy the requirements. Students explore the scientific questions and experimental approaches of biomedical research. Faculty members and staff facilitate early placement of students into laboratories on campus for independent research. Students are trained to analyze research literature, present their research in oral and poster formats, and appreciate the ethical, historical, and philosophical issues facing biomedical research.

Undergraduate Study

Biomedical Research Minor

Admission to the Biomedical Research minor is competitive, and application follows completion of Biomedical Research 5HA, 10H, Honors Collegium 70A, or an approved alternative course. Applications (see <http://www.biomedresearchminor.ucla.edu>) must be submitted no later than the first term of the junior year. Students must be in good academic standing and demonstrate a genuine interest in research. All degree requirements, including the specific re-

BIOMEDICAL PHYSICS

See Physics and Biology in Medicine

uirements for this minor, must be fulfilled within the unit maximum set forth by the College of Letters and Science.

Required Lower Division Courses (9 units): Biomedical Research 5HB (or an approved alternative course) and Molecular, Cell, and Developmental Biology 60.

Required Upper Division Courses (24 units): (1) Sixteen units (four courses) of approved laboratory research through either course 198 or 199; (2) one history of science or philosophy of science course selected from History 179A, 179B, 180A, Neurobiology M168, M169, Philosophy 124, 125, 137, or 155; and (3) Biomedical Research 193H and 194H, or the required journal club seminars (such as Chemistry and Biochemistry 193A) for students in the Howard Hughes Undergraduate Research Program, MARC, or UC LEADS.

Students are expected to file a senior research thesis after completion of their 16 research units and must participate in at least one conference in which they present their research. Up to 8 units of research may be applied toward departmental requirements for the major. The research project and thesis may be the same as those for departmental honors.

Transfer credit for any required course is subject to approval. Students with a grade of less than B (3.0) in any minor course or a cumulative grade-point average of less than 3.0 are subject to dismissal from the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade. Successful completion of the minor is indicated on the transcript and diploma.

Biomedical Research

Lower Division Courses

5HA. Biomedical Research: Concepts and Strategies. (4) Lecture, three hours. Designed for freshmen/sophomores. Exploration of scientific concepts and experimental approaches through seminars by UCLA faculty members on their cutting-edge research. Topics may include areas of study such as cancer, stem cells, and infectious disease, as well as more basic research in cell and molecular biology. Letter grading.

5HB. Biomedical Research: Essential Skills and Concepts. (4) Lecture, three hours; discussion, one hour. Requisite: course 5HA. Designed for freshmen/sophomores. Exploration of scientific concepts and experimental approaches through seminars by UCLA faculty members on their cutting-edge research. Topics may include areas of study such as cancer, stem cells, and infectious disease, as well as more basic research in cell and molecular biology. Student investigation of one or more laboratories on campus and presentation of brief synopsis of single research project from one laboratory. Letter grading.

10H. Research Training in Genes, Genetics, and Genomics. (6) (Formerly numbered Life Sciences 10H.) Lecture, 90 minutes; laboratory, six hours; computer laboratory, 90 minutes. Limited to 30 students. Basic training in biological research, including techniques in genetics, model organism, bioinformatics, functional genomics, electron microscopy. Part of Undergraduate Research Consortium in Functional Genomics sponsored by Howard Hughes Medical Institute Professors Program. Letter grading.

Upper Division Courses

193H. Journal Club Seminars: Current Topics in Biomedical Research. (2) Seminar, three hours. Limited to Biomedical Research minor students. Presentation and discussion of recent papers from primary literature in biosciences. Letter grading.

194H. Research Group Seminars: Data Presentation in Biomedical Research. (2) Seminar, three hours. Requisite: course 193H. Limited to Biomedical Research minor students. Preparation of oral presentations based on student laboratory research at UCLA. May be repeated for credit. Letter grading.

199. Directed Biomedical Research. (4) Tutorial, 12 hours. Limited to Biomedical Research minor students. Supervised individual research under guidance of faculty mentor. Culminating report describing progress and signed by student and faculty mentor required. May be repeated for credit. Individual contract required. Letter grading.

BIOSTATISTICS

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Associate Professors

Catherine M. Crespi, PhD, *in Residence*
Damla Senturk, PhD, *in Residence*
Catherine A. Sugar, PhD, *in Residence*
Donatello Telesca, PhD
Hua Zhou, PhD

Assistant Professor

Grace H.J. Kim, PhD, *in Residence*

Lecturer

Fei Yu, PhD

Adjunct Professors

David Elashoff, PhD
David W. Gjertson, PhD
Martin L. Lee, PhD
James W. Sayre, DrPH

Adjunct Associate Professor

Karabi Nandy, PhD

Adjunct Assistant Professor

Angela P. Presson, PhD

Scope and Objectives

In recent years biostatistics has become one of the most stimulating areas of applied statistics. The field encompasses the methodology and theory of statistics as applied to problems in the life and health sciences. Biostatisticians are trained in the skilled application of statistical methods to the solution of problems encountered in public health and medicine. They collaborate with scientists in nearly every area related to health and have made major contributions to our understanding of AIDS, cancer, genetics, bioinformatics, and immunology, as well as other areas. Further, biostatisticians spend a considerable amount of time developing and evaluating the statistical methodology used in those projects. The Department of Biostatistics offers MS and PhD degrees in Biostatistics and, through the Fielding School of Public Health, the MPH and DrPH degrees with a specialization in biostatistics (see Public Health Schoolwide Programs). All students receive a balanced education, blending theory and practice.

A degree in biostatistics prepares students for work in a wide variety of challenging positions in government, industry, and education. Graduates have found careers involving teaching, research, and consulting in such fields as medicine, public health, life sciences, and survey research. There has always been a strong demand for well-trained biostatisticians; graduates have had little difficulty finding employment well suited to their particular interests.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Biostatistics offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Biostatistics.

Biostatistics

Upper Division Courses

100A. Introduction to Biostatistics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Preparation: one biological or physical sciences course. Suitable for juniors/seniors. Students who have completed courses in statistics may enroll only with consent of instructor. Not open for credit to students with credit for course 110A. Introduction to methods and concepts of statistical analysis. Sampling situations, with special attention to those occurring in biological sciences. Topics include distributions, tests of hypotheses, estimation, types of error, significance and confidence levels, sample size. P/NP or letter grading.

100B. Introduction to Biostatistics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 100A. Not open for credit to students with credit for course 110B. Introduction to analysis of variance, linear regression, and correlation analysis. P/NP or letter grading.

110A. Basic Biostatistics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: Mathematics 31B. Not open for credit to students with credit for course 100A. Basic concepts of statistical analysis applied to biological sciences. Topics include random variables, sampling distributions, parameter estimates, statistical inference. P/NP or letter grading.

110B. Basic Biostatistics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 110A. Not open for credit to students with credit for course 100B. Topics include elementary analysis of variance, simple linear regression; topics related to analysis of variance and experimental designs. P/NP or letter grading.

197. Individual Studies in Biostatistics. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Biostatistics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 100A and 100B, or 110A and 110B. Topics in methodology of applied statistics, such as design, analysis of variance, regression. S/U or letter grading.

200B-200C. Biostatistics. (4-4) Lecture, three hours; discussion, one hour; laboratory, one hour. S/U or letter grading. **200B.** Requisite: course 200A. Multiple linear regression, including model validation, influence of observations, regression diagnostics; discriminant analysis; principal components; factor analysis and clinical trials. **200C.** Requisites: courses 200A, 200B. Measures of association and analysis of categorical data, theory of generalized linear models.

201A. Topics in Applied Regression. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 100A and 100B, or 110A and 110B. Designed for master's and doctoral students in fields outside biostatistics. Topics in linear regression and other related methods. When and how to use linear regression and related methods and how to properly interpret results. Heavy emphasis on practical application as opposed to theoretical development. S/U or letter grading.

201B. Topics in Applied Regression. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 201A. Further studies in multiple linear regression, including applied multiple regression models, regression diagnostics and model assessment, factorial and repeated measure analysis of variance models, nonlinear regression, logistic regression, propensity scores, matching versus stratification, Poisson regression, and classification trees. Applications to biomedical and public health scientific problems. Letter grading.

202A. Theoretical Principles of Biostatistics. (4) Lecture, three hours; discussion, one hour. Recommended preparation: two years of calculus and linear algebra. Introduction to main principles of probability, random variables, discrete and continuous distributions, bivariate distributions, and distributions of functions of random variables. Letter grading.

202B. Topics in Estimation. (4) Lecture, three hours; discussion, one hour. Requisite: course 202A. Basic concepts, sufficiency, biasedness, approximation methods in statistics, nonparametric models and estimation methods, maximum likelihood estimation, M-estimation, Bayesian estimation, and hypotheses testing. Letter grading.

M208. Introduction to Demographic Methods. (4) (Same as Community Health Sciences M208, Economics M208, and Sociology M213A.) Lecture, four hours. Preparation: one introductory statistics course. Introduction to methods of demographic analysis. Topics include demographic rates, standardization, decomposition of differences, life tables, survival analysis, cohort analysis, birth interval analysis, models of population growth, stable populations, population projection, and demographic data sources. Letter grading.

M209. Statistical Modeling in Epidemiology. (4) (Same as Epidemiology M212.) Lecture, four hours. Preparation: two terms of statistics (three terms recommended). Recommended: Epidemiology M204 or M211. Principles of modeling, including meanings of models, a priori model specification, translation of models into explicit population assumptions, model selection, model diagnostics, hierarchical (multilevel) modeling. S/U or letter grading.

M210. Statistical Methods for Categorical Data. (4) (Same as Biomathematics M231.) Lecture, three hours; discussion, one hour. Requisites: course 100B or 110B, Statistics 100B. Statistical techniques for analysis of categorical data; discussion and illustration of their applications and limitations. S/U or letter grading.

M211. Statistical Methods for Epidemiology. (4) (Same as Epidemiology M211 and Statistics M250.) Lecture, four hours. Preparation: two terms of statistics (such as courses 100A, 100B). Requisites: Epidemiology 200B, 200C. Concepts and methods tailored for analysis of epidemiologic data, with emphasis on tabular and graphical techniques. Expansion of topics introduced in Epidemiology 200B and 200C and introduction of new topics, including principles of epidemiologic analysis, trend analysis, smoothing and sensitivity analysis. S/U or letter grading.

212. Distribution Free Methods. (4) Lecture, three hours; discussion, one hour. Requisites: course 100B or 110B, Statistics 100B. Theory and application of distribution free methods in biostatistics. S/U or letter grading.

213. Introduction to Computational Methods in Biostatistics. (4) Lecture, three hours; discussion, one hour. Requisites: course 110B, Statistics 100B. Introduction to computational methods for biostatistical inference: simulation techniques, numerical integration, numerical optimization. S/U or letter grading.

214. Finite Population Sampling. (4) Lecture, three hours. Requisites: course 110B, Statistics 100B. Theory and methods for sampling finite populations and estimating population characteristics. S/U or letter grading.

M215. Survival Analysis. (4) (Same as Biomathematics M281.) Lecture, three hours; discussion, one hour. Requisite: course 202B or Statistics 100C. Statistical methods for analysis of survival data. S/U or letter grading.

219. Special Topics: Supplemental Topics. (4) Lecture, three hours; discussion, one hour. Requisite: course 202B. Topics in biostatistics not covered in other courses. Letter grading.

230. Statistical Graphics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 110A, 110B. Graphical data analysis emphasizes use of visual displays of quantitative data to gain insight into data structure by exploring patterns and relationships, and to enhance classical numerical analyses, especially assumption validity checking. Principles of graph construction, graphical methods, and perception issues. S/U or letter grading.

231. Statistical Power and Sample Size Methods for Health Research. (4) Lecture, three hours; laboratory, one hour. Enforced requisites: courses 110A, 110B. Limited to graduate students. Principles and methods for calculating statistical power and sample size requirements for variety of study designs in health sciences. S/U or letter grading.

M232. Statistical Analysis of Incomplete Data. (4) (Same as Biomathematics M232.) Lecture, three hours; discussion, one hour. Requisite: Statistics 100B. Discussion of statistical analysis of incomplete data sets, with material from sample survey, econometric, biometric, psychometric, and general statistical literature. Topics include treatment of missing data in statistical packages, missing data in ANOVA and regression imputation, weighting, likelihood-based methods, and nonrandom nonresponse models. Emphasis on application of methods to applied problems, as well as on underlying theory. S/U or letter grading.

233. Statistical Methods in AIDS. (2) Lecture, two hours. Requisites: courses 110A, 110B, M215. Coverage of methods necessary to address statistical problems in AIDS research, including projection methods for size of AIDS epidemic and methods for estimating incubation distribution. S/U or letter grading.

M234. Applied Bayesian Inference. (4) (Same as Biomathematics M234.) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 200A, and 202B (or Statistics 100C). Bayesian approach to statistical inference, with emphasis on biomedical applications and concepts rather than mathematical theory. Topics include large sample Bayes inference from likelihoods, noninformative and conjugate priors, empirical Bayes, Bayesian approaches to linear and nonlinear regression, model selection, Bayesian hypothesis testing, and numerical methods. S/U or letter grading.

M235. Causal Inference. (4) (Same as Psychiatry M232.) Lecture, three hours; discussion, one hour. Requisite: course 200A. Selection bias, confounding, ecological paradox, contributions of Fisher and Neyman. Rubin model for causal inference, propensity scores. Analysis of clinical trials with noncompliance. Addressing confounding in longitudinal studies. Path analysis, structural equation, and graphical models. Decision making when causality is disputed. Letter grading.

M236. Longitudinal Data. (4) (Same as Biomathematics M282.) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: course 200A, one other 200-level biostatistics or statistics course. Longitudinal data analysis, graphing longitudinal data, specifying predictors, modeling variances and covariance, inference, computing, hierarchical models, and random effects. S/U or letter grading.

M237. Applied Genetic Modeling. (4) (Same as Biomathematics M207B and Human Genetics M207B.) Lecture, three hours; laboratory, one hour. Requisites: courses 110A, 110B. Methods of computer-oriented human genetic analysis. Topics include statistical methodology underlying genetic analysis of both quantitative and qualitative complex traits. Laboratory for hands-on computer analysis of genetic data; laboratory reports required. Course complements M272; students may take either and are encouraged to take both. S/U or letter grading.

M238. Methodology of Clinical Trials. (4) (Same as Biomathematics M284.) Lecture, three hours; discussion, two hours. Requisites: courses 200A, M215. Methodological principles of clinical trials, actual practice and principles of trials. Considerable focus on phase two trials and multiclinical phase three trials. Emphasis on major inferential issues. S/U or letter grading.

M239. Mathematical and Statistical Phylogenetics. (4) (Same as Biomathematics M211 and Human Genetics M211.) Lecture, three hours; laboratory, one hour. Requisites: courses 110A, 110B, Mathematics 170A. Theoretical models in molecular evolution, with focus on phylogenetic techniques. Topics include evolutionary tree reconstruction methods, studies of viral evolution, phylogeography, and coalescent approaches. Examples from evolutionary biology and medicine. Laboratory for hands-on computer analysis of sequence data. S/U or letter grading.

240. Master's Seminar and Research Resources for Graduating Biostatistics MS Students. (4) Seminar, three hours. Introduction to resources for finding statistical literature. Discussion of principles of making statistical presentations and how to write statistical reports, including writing abstracts and choice of key words. Discussion of journal article preparation and submission format and refereeing process to help students make progress on their master's reports. Letter grading.

245. Advanced Seminar: Biostatistics. (2) Seminar, two hours. Requisite: course 200C. Current research in biostatistics. May be repeated for credit. S/U grading.

250A-250B. Linear Statistical Models. (4-4) Lecture, three hours; discussion, one hour. Preparation: one upper division three-term theoretical statistics course. Topics include linear algebra applied to linear statistical models, distribution of quadratic forms, Gauss/Markov theorem, fixed and random component models, balanced and unbalanced designs. Letter grading.

251. Multivariate Biostatistics. (4) Lecture, three hours; discussion, one hour. Requisite: course 250A. Multivariate analysis as used in biological and medical situations. Topics from multivariate distributions, component analysis, factor analysis, discriminant analysis, MANOVA, MANCOVA, longitudinal models with random coefficients. S/U or letter grading.

255. Advanced Probability in Biostatistics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 202A, 202B, Mathematics 131A. Survey of probability theory, with special emphasis on applications to biostatistics. Topics include probability spaces and random variables, generating functions, modes of convergence, common limit theorems, conditioning, discrete- and continuous-time martingales, Markov chains. S/U or letter grading.

256. Advanced Methods of Mathematical Statistics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 202A, 202B, 255. Survey of advanced topics in mathematical statistics, with special emphasis on applications to biostatistics. Topics include finite sample and asymptotic criteria in decision theory, basic concepts from empirical processes theory, minimum distance estimation in parametric and nonparametric models, minimax and Bayes procedures, testing hypotheses and confidence procedures, resampling methods. S/U or letter grading.

270. Stochastic Processes. (4) Lecture, three hours. Preparation: upper division mathematics (including statistics and probability). Stochastic processes applicable to medical and biological research. Letter grading.

M272. Theoretical Genetic Modeling. (4) (Same as Biomathematics M207A and Human Genetics M207A.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 115A, 131A, Statistics 100B. Mathematical models in statistical genetics. Topics include population genetics, genetic epidemiology, gene mapping, design of genetics experiments, DNA sequence analysis, and molecular phylogeny. S/U or letter grading.

273. Classification and Regression Trees (CART) and Other Algorithms. (4) Lecture, three hours. Requisite: course 200C. Instruction in use of statistical tools in analysis of large datasets. Classification and regression trees as well as other adaptive algorithms. Implementation of CART software and other programs to real datasets. S/U or letter grading.

275. Advanced Survival Analysis. (4) Lecture, three hours; discussion, one hour. Requisites: courses 250A, 255. Time-to-event data arise in many fields, such as medicine, reliability theory, demography, sociology, economics, and astronomy. Overview of common stochastic process models and methods for analysis of such data. Examples include continuous-time Markov chain and semi-Markov models, and frailty and copula models. S/U or letter grading.

276. Inferential Techniques that Use Simulation. (4) Lecture, three hours; discussion, one hour. Requisites: Statistics 200A, 200B. Recommended: course 213. Theory and application of recently developed

techniques for statistical inference that use computer simulation. Topics include bootstrap, multiple imputation, data augmentation, stochastic relaxation, and sampling/importance resampling algorithm. S/U or letter grading.

277. Robustness and Modern Nonparametrics. (4) Lecture, three hours. Requisite: Statistics 200A. Topics include M-estimation, influence curves, breakdown point, bootstrap, jackknife, smoothing, nonparametric regression, generalized additive models, density estimation. S/U or letter grading.

279. Optimal Design Theory and Application. (4) Lecture, three hours. Preparation: basic programming skills. Requisite: Statistics 200B. Presentation of design methodology for regression problems, with applications to biostatistical problems. Letter grading.

M280. Statistical Computing. (4) (Same as Biomathematics M280 and Statistics M230.) Lecture, three hours. Requisites: Mathematics 115A, Statistics 100C. Introduction to theory and design of statistical programs: computing methods for linear and nonlinear regression, dealing with constraints, robust estimation, and general maximum likelihood methods. Letter grading.

285. Advanced Topics: Recent Developments. (4) Lecture, three hours; discussion, one hour. Advanced topics and developments in biostatistics not covered in Biostatistics M210 through 219 or 270 through 276 or in other courses. Possible topics include time-series analysis, classification procedures, correspondence analysis, etc. S/U or letter grading.

288. Seminar: Statistics in AIDS. (2) Seminar, two hours. Requisite: course 200C. Designed for doctoral students. Recent statistical developments in analysis of AIDS data. Participants or outside speakers present their own research or discuss articles from literature. S/U grading.

296. Seminar: Research Topics in Biostatistics. (1 to 4) Seminar, two hours. Advanced study and analysis of current topics in biostatistics. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

400. Field Studies in Biostatistics. (4) Fieldwork, to be arranged. Field observation and studies in selected community organizations for health promotion or medical care. Students must file field placement and program training documentation on form available from Student Affairs Office. May not be applied toward MS minimum course requirement; 4 units may be applied toward 44-unit minimum total required for MPH degree. Letter grading.

402A. Principles of Biostatistical Consulting. (2) Lecture, one hour; discussion, one hour. Requisite: course 100B or 110B. Presentation of structural format for statistical consulting. Role of statistician and client. Reviews of actual statistician/client interactions and case studies. S/U or letter grading.

402B. Biostatistical Consulting. (4) Discussion, two hours; laboratory, two hours. Requisite: course 402A. Principles and practices of biostatistical consulting. May be repeated for credit. S/U grading.

403A. Computer Management of Health Data. (4) Lecture, three hours; laboratory, two hours. Preparation: one statistics course. Concepts of health data management, design and maintenance of large databases on various media as well as across networks; computer programming tools and techniques facilitating data entry, transmission, data retrieval for statistical analyses, tabulation and report generation useful to biostatisticians, health planners, and other health professionals. Letter grading.

M403B. Computer Management and Analysis of Health Data Using SAS. (4) (Same as Epidemiology M403.) Lecture, two hours; laboratory, two hours. Requisites: courses 100A, 100B (100B may be taken concurrently). Introduction to practical issues in management and analysis of health data using SAS programming language. Cross-sectional and longitudinal population-based data sets to be used throughout to illustrate principles of data management and analysis for addressing biomedical and health-related hypotheses. Letter grading.

406. Applied Multivariate Biostatistics. (4) Lecture, three hours; laboratory, one hour. Preparation: at least two upper division research courses. Requisite: course 100B. Use of multiple regression, principal components, factor analysis, discriminant function analysis, logistic regression, and canonical correlation in biomedical data analysis. S/U (optional only for nondivision majors) or letter grading.

409. Doctoral Statistical Consulting Seminar. (2) Seminar, one hour; laboratory, four hours. Designed for doctoral students. Development of experience and expertise in collaborating with faculty in Schools of Public Health and Medicine. Students meet with investigators and develop design and protocol for data analysis, implement data protocol when data is obtained, and write up study with lead investigators. S/U grading.

410. Statistical Methods in Clinical Trials. (4) Lecture, three hours; discussion, two hours. Requisites: courses 100A, 100B. Design of studies in animals to assess antitumor response; randomization, historical controls, p-values, size of study, and stratification in human experimentation; various types of controls; prognostic factors, survivorship studies, and design of prognostic studies; organization of clinical trials—administration, comparability, protocols, clinical standards, data collection and management. S/U (optional only for nonmajors) or letter grading.

411. Analysis of Correlated Data. (4) Lecture, three hours. Requisite: course 200A. Statistical techniques designed for analysis of correlated data, including cluster samples, multilevel models, and longitudinal studies. Computations done on SAS and STATA. Mixed models and generalized estimation equations (GEE). Emphasis on application, not theory. S/U or letter grading.

413. Introduction to Pharmaceutical Statistics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 100A, 100B. Exploration of various types of statistical techniques used in pharmaceutical and related industries. Topics include bioassay and other assay techniques (e.g., ELISAs and FACS analysis), quality control techniques, and pharmacokinetic and pharmacodynamic modeling. S/U or letter grading.

414. Principles of Sampling. (4) Lecture, three hours; discussion, one hour. Requisites: course 100B, Epidemiology 100. Statistical aspects of design and implementation of sample survey. Techniques for analysis of data, including estimates and standard errors. Avoiding improper use of survey data. Letter grading.

495. Teacher Preparation in Biostatistics. (2) Seminar, two hours. Preparation: 18 units of cognate courses in area of specialization. May not be applied toward master's degree minimum total course requirement. May be repeated for credit. S/U grading.

595. Effective Integration of Biostatistical Concepts in Public Health Research. (4) Tutorial, to be arranged. Enforced requisites: courses 110A, 110B, 400, 402A. Students meet weekly with their adviser and also work independently on their proposed projects. Course fosters ability of students to select relevant design and analysis techniques, synthesize knowledge, and apply insights to address public health problems. Oral examination and written report describing how students have used biostatistical methods to assess data from public health study required. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward MPH and MS minimum total course requirement. May be repeated for credit. Letter grading.

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

599. Doctoral Dissertation Research. (2 to 12) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

CHEMICAL AND BIOMOLECULAR ENGINEERING

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A.R. Frank Wazzan, PhD, *Dean Emeritus*

Assistant Professors

Yvonne Y. Chen, PhD
Philip A. Romero, PhD
Dante S. Simonetti, PhD

Scope and Objectives

The Department of Chemical and Biomolecular Engineering conducts undergraduate and graduate programs of teaching and research that focus on the areas of biomolecular engineering, systems engineering, and advanced materials processing and span the general themes of energy/environment and nanoengineering. Aside from the fundamentals of chemical engineering (thermodynamics, transport phenomena, kinetics, reactor engineering and separations), particular emphasis is given to metabolic engineering, protein engineering, synthetic biology, bio-nano-technology, biomaterials, air pollution, environmental modeling, pollution prevention, molecular simulation, process systems engineering, membrane sci-

ence, semiconductor processing, chemical vapor deposition, plasma processing, and polymer engineering.

Students are trained in the fundamental principles of these fields while acquiring sensitivity to society's needs—a crucial combination needed to address the challenge of continued industrial growth and innovation in an era of economic, environmental, and energy constraints.

The undergraduate curriculum leads to a BS in Chemical Engineering and includes the standard core curriculum, as well as biomedical engineering, biomolecular engineering, environmental engineering, and semiconductor manufacturing engineering options. The department also offers graduate courses and research leading to MS and PhD degrees. Both graduate and undergraduate programs closely relate teaching and research to important industrial problems.

Undergraduate Study

The chemical engineering program is accredited by the Engineering Accreditation Commission of ABET. See <http://www.abet.org>.

The Chemical Engineering major is a designated capstone major. The capstone project requires students to first work individually and learn how to integrate chemical engineering fundamentals taught in prior required courses; they then work in groups to produce a paper design of a realistic chemical process using appropriate software tools. Graduates should be able to design a chemical or biological system, component, or process that meets technical and economical design objectives, with consideration of environmental, social, and ethical issues, as well as sustainable development goals. In addition, they should be able to apply their knowledge of mathematics, physics, chemistry, biology, and chemical and biological engineering to analysis and design of chemical and biochemical processes and products; function on multidisciplinary teams; identify, formulate, and solve complex chemical and biological engineering problems; and communicate effectively, both orally and in writing.

Chemical Engineering BS

Capstone Major

The chemical engineering curricula provide a high quality, professionally oriented education in modern chemical engineering. The biomedical engineering, biomolecular engineering, environmental engineering, and semiconductor manufacturing engineering options provide students an opportunity for exposure to a sub-field of chemical and biomolecular engineering. In all cases, balance is sought between engineering science and practice.

Chemical Engineering Core Option

Preparation for the Major

Required: Chemical Engineering 10; Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B; Civil and Environmental Engineering M20 or Mechanical and Aerospace Engineering M20; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL.

M20; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL.

The Major

Required: Chemical Engineering 45, 100, 101A, 101B, 101C, 102A, 102B, 103, 104A, 104B, 106, 107, 109; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; two capstone analysis and design courses (Chemical Engineering 108A, 108B); and two elective courses (8 units) from Chemical Engineering 110, C111, C112, 113, C114, C115, C116, C118, C119, C121, C125, C128, C135, C140.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Biomedical Engineering Option

Preparation for the Major

Required: Chemical Engineering 10; Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B; Civil and Environmental Engineering M20 or Mechanical and Aerospace Engineering M20; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL.

The Major

Required: Chemical Engineering 45, 100, 101A, 101B, 101C, 102A, 102B, 103, 104A, 104B, 106, 107, 109, Chemistry and Biochemistry 153A; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; two capstone analysis and design courses (Chemical Engineering 108A, 108B); and one biomedical elective course (4 units) from Chemical Engineering C115, C121, C124, C125, CM127, C135, or CM145 (another chemical engineering elective may be substituted for one of these with approval of the faculty adviser).

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Biomolecular Engineering Option

Preparation for the Major

Required: Chemical Engineering 10; Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B; Civil and Environmental Engineering M20 or Mechanical and Aerospace Engineering M20; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL.

The Major

Required: Chemical Engineering 45, 100, 101A, 101B, 101C, 102A, 102B, 104A, 104D, 107, 109, C115, C125, Chemistry and Biochemistry 153A; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; two capstone analysis and design courses (Chemical Engineering 108A, 108B); and one biomolecular elective course (4 units) from Chemical Engineering C124, CM127, C135, or CM145 (course CM145 is recommended; another chemical engineering elective may be substituted with approval of the faculty adviser).

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Environmental Engineering Option

Preparation for the Major

Required: Chemical Engineering 10; Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B; Civil and Environmental Engineering M20 or Mechanical and Aerospace Engineering M20; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL.

The Major

Required: Chemical Engineering 45, 100, 101A, 101B, 101C, 102A, 102B, 103, 104A, 104B, 106, 107, 109; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; two capstone analysis and design courses (Chemical Engineering 108A, 108B); and two elective courses (8 units) from Chemical Engineering 113, C118, C119, C121, C128, C135, C140 (another chemical engineering elective may be substituted with approval of the faculty adviser).

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Semiconductor Manufacturing Engineering Option

Preparation for the Major

Required: Chemical Engineering 10; Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B; Civil and Environmental Engineering M20 or Mechanical and Aerospace Engineering M20; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL.

The Major

Required: Chemical Engineering 100, 101A, 101B, 101C, 102A, 102B, 103, 104A, 104C, 104CL, 106, 107, 109, C116; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; two capstone analysis and design courses (Chemical Engineering 108A, 108B); and one elective course (4 units) from chemical engineering or from Materials Science and Engineering 104, 120, 121, 122, or 150.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Chemical and Biomolecular Engineering offers Master of Science (MS) and

Doctor of Philosophy (PhD) degrees in Chemical Engineering.

Chemical Engineering

Lower Division Courses

2. Technology and Environment. (4) Lecture, four hours; outside study, eight hours. Natural and anthropogenic flows of materials at global and regional scales. Case studies of natural cycles include global warming (CO_2 cycles), stratospheric ozone depletion (chlorine and ozone cycles), and global nitrogen cycles. Flow of materials in industrial economies compared and contrasted with natural flows; presentation of lifecycle methods for evaluating environmental impact of processes and products. P/NP or letter grading.

10. Introduction to Chemical and Biomolecular Engineering. (1) Lecture, one hour; outside study, two hours. General introduction to field of chemical and biomolecular engineering. Description of how chemical and biomolecular engineering analysis and design skills are applied for creative solution of current technological problems in production of microelectronic devices, design of chemical plants for minimum environmental impact, application of nanotechnology to chemical sensing, and genetic-level design of recombinant microbes for chemical synthesis. Letter grading.

45. Biomolecular Engineering Fundamentals. (4) Lecture, four hours; outside study, eight hours. Fundamentals of modern biomolecular engineering. Topics include structure and function of biomolecules, central dogma of molecular biology, cellular information and energy processing, and experimental methods, with strong emphasis on applications in medicine, industry, and bioenergy. Letter grading.

Upper Division Courses

100. Fundamentals of Chemical and Biomolecular Engineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Chemistry 20B, 20L (not enforced), Mathematics 32B (may be taken concurrently), Physics 1A. Introduction to analysis and design of industrial chemical processes. Material and energy balances. Introduction to programming in MATLAB. Letter grading.

101A. Transport Phenomena I. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Mathematics 33A, 33B. Enforced corequisite: course 109. Introduction to analysis of fluid flow in chemical, biological, materials, and molecular processes. Fundamentals of momentum transport, Newton law of viscosity, mass and momentum conservation in laminar flow, Navier/Stokes equations, and engineering analysis of flow systems. Letter grading.

101B. Transport Phenomena II: Heat Transfer. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 101A. Introduction to analysis of heat transfer in chemical, biological, materials, and molecular processes. Fundamentals of thermal energy transport, molecular-level heat transfer in gases, liquids, and solids, forced and free convection, radiation, and engineering analysis of heat transfer in process systems. Letter grading.

101C. Mass Transfer. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 101B. Introduction to analysis of mass transfer in systems of interest to chemical engineering practice. Fundamentals of mass species transport, Fick law of diffusion, diffusion in chemically reacting flows, interphase mass transfer, multicomponent systems. Letter grading.

102A. Thermodynamics I. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Introduction to thermodynamics of chemical and biological processes. Work, energy, heat, and first law of thermodynamics. Second law, extremum principles,

entropy, and free energy. Ideal and real gases, property evaluation. Thermodynamics of flow systems. Applications of first and second laws in biological processes and living organisms. Letter grading.

102B. Thermodynamics II. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 102A. Fundamentals of classical and statistical thermodynamics in chemical and biological sciences. Phase equilibria in single and multicomponent systems. Thermodynamics of ideal and nonideal solutions. Chemical reaction equilibria. Statistical ensembles and partition functions. Statistical thermodynamics of ideal gases. Intermolecular interactions and liquid state. Thermodynamics of polymers and biological macromolecules. Letter grading.

103. Separation Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 100, 101B. Application of principles of heat, mass, and momentum transport to design and operation of separation processes such as distillation, gas absorption, filtration, and reverse osmosis. Letter grading.

104A. Chemical and Biomolecular Engineering Laboratory I. (4) Lecture, two hours; laboratory, six hours; outside study, four hours. Enforced requisite: course 100. Enforced corequisite: course 101B. Recommended: course 102B. Investigation of basic transport phenomena in 10 predetermined experiments, collection of data for statistical analysis and individually written technical reports and group presentations. Design and performance of one original experimental study involving transport, separation, or another aspect of chemical and biomolecular engineering. Basic statistics: mean, standard deviation, confidence limits, comparison of two means and of multiple means, single and multiple variable linear regression, and brief introduction to factorial design of experiments. Oral and poster presentations. Technical writing of sections of technical reports and their contents; writing clearly, concisely, and consistently; importance of word choices and punctuation in multicultural engineering environment and of following required formatting. Letter grading.

104B. Chemical and Biomolecular Engineering Laboratory II. (6) Lecture, four hours; laboratory, eight hours; outside study, four hours; other, two hours. Enforced requisites: courses 101C, 103, 104A. Course consists of four experiments in chemical engineering unit operations, each of two weeks duration. Students present their results both written and orally. Written report includes sections on theory, experimental procedures, scaleup and process design, and error analysis. Letter grading.

104C. Semiconductor Processing. (3) Lecture, four hours; outside study, five hours. Enforced requisite: course 101C. Enforced corequisite: course 104CL. Basic engineering principles of semiconductor unit operations, including fabrication and characterization of semiconductor devices. Investigation of processing steps used to make CMOS devices, including wafer cleaning, oxidation, diffusion, lithography, chemical vapor deposition, plasma etching, metallization, and statistical design of experiments and error analysis. Presentation of student results in both written and oral form. Letter grading.

104CL. Semiconductor Processing Laboratory. (3) Laboratory, four hours; outside study, five hours. Enforced requisite: course 101C. Enforced corequisite: course 104C. Series of experiments that emphasize basic engineering principles of semiconductor unit operations, including fabrication and characterization of semiconductor devices. Investigation of processing steps used to make CMOS devices, including wafer cleaning, oxidation, diffusion, lithography, chemical vapor deposition, plasma etching, and metallization. Hands-on device testing includes transistors, diodes, and capacitors. Letter grading.

104D. Molecular Biotechnology Laboratory: From Gene to Product. (6) Lecture, two hours; laboratory, eight hours; outside study, eight hours. Enforced requisites: courses 101C, C125. Integration of molecular and engineering techniques in modern biotechnology.

Cloning of protein-coding gene into plasmid, transformation of construct into *E. coli*, production of gene product in bioreactor, downstream processing of bioreactor broth to purify recombinant protein, and characterization of purified protein. Letter grading.

106. Chemical Reaction Engineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 100, 101C, 102B. Fundamentals of chemical kinetics and catalysis. Introduction to analysis and design of homogeneous and heterogeneous chemical reactors. Letter grading.

107. Process Dynamics and Control. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 101C, 103 (or C125), 106 (or C115). Principles of dynamics modeling and start-up behavior of chemical engineering processes. Chemical process control elements. Design and applications of chemical process computer control. Letter grading.

108A. Process Economics and Analysis. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 103 (or C125), 104A, 106 (or C115). Integration of chemical engineering fundamentals such as transport phenomena, thermodynamics, separation operations, and reaction engineering and simple economic principles for purpose of designing chemical processes and evaluating alternatives. Letter grading.

108B. Chemical Process Computer-Aided Design and Analysis. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 103 (or C125), 106 (or C115), 108A, Civil and Environmental Engineering M20 (or Mechanical and Aerospace Engineering M20). Introduction to application of some mathematical and computing methods to chemical engineering design problems; use of simulation programs as automated method of performing steady state material and energy balance calculations. Letter grading.

109. Numerical and Mathematical Methods in Chemical and Biological Engineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: Civil and Environmental Engineering M20 or Mechanical and Aerospace Engineering M20. Enforced corequisite: course 101A. Numerical methods for computation of solution of systems or linear and nonlinear algebraic equations, ordinary differential equations, and partial equations. Chemical and biomolecular engineering examples used throughout to illustrate application of these methods. Use of MATLAB as platform (programming environment) to write programs based on numerical methods to solve various problems arising in chemical engineering. Letter grading.

110. Intermediate Engineering Thermodynamics. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 102B. Principles and engineering applications of statistical and phenomenological thermodynamics. Determination of partition function in terms of simple molecular models and spectroscopic data; nonideal gases; phase transitions and adsorption; nonequilibrium thermodynamics and coupled transport processes. Letter grading.

C111. Cryogenics and Low-Temperature Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 102A, 102B (or Materials Science 130). Fundamentals of cryogenics and cryoengineering science pertaining to industrial low-temperature processes. Basic approaches to analysis of cryofluids and envelopes needed for operation of cryogenic systems; low-temperature behavior of matter, optimization of cryosystems and other special conditions. Concurrently scheduled with course C211. Letter grading.

C112. Polymer Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 101A, Chemistry 30A. Formation of polymers, criteria for selecting reaction scheme, polymerization techniques, polymer characterization. Mechanical properties. Rheology of macromolecules, polymer process engineering. Diffusion in polymeric

systems. Polymers in biomedical applications and in microelectronics. Concurrently scheduled with course C212. Letter grading.

113. Air Pollution Engineering. (4) Lecture, four hours; preparation, two hours; outside study, six hours. Enforced requisites: courses 101C, 102B. Integrated approach to air pollution, including concentrations of atmospheric pollutants, air pollution standards, air pollution sources and control technology, and relationship of air quality to emission sources. Links air pollution to multimedia environmental assessment. Letter grading.

C114. Electrochemical Processes and Corrosion. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 102A, 102B (or Materials Science 130). Fundamentals of electrochemistry and engineering applications to industrial electrochemical processes and metallic corrosion. Primary emphasis on fundamental approach to analysis of electrochemical and corrosion processes. Specific topics include corrosion of metals and semiconductors, electrochemical metal and semiconductor surface finishing, passivity, electrodeposition, electroless deposition, batteries and fuel cells, electrosynthesis and bioelectrochemical processes. May be concurrently scheduled with course C214. Letter grading.

C115. Biochemical Reaction Engineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 101C. Use of previously learned concepts of biophysical chemistry, thermodynamics, transport phenomena, and reaction kinetics to develop tools needed for technical design and economic analysis of biological reactors. May be concurrently scheduled with course CM215. Letter grading.

C116. Surface and Interface Engineering. (4) Lecture, four hours; discussion, one hour; outside study, eight hours. Enforced requisite: Chemistry 113A. Introduction to surfaces and interfaces of engineering materials, particularly catalytic surface and thin films for solid-state electronic devices. Topics include classification of crystals and surfaces, analysis of structure and composition of crystals and their surfaces and interfaces. Examination of engineering applications, including catalytic surfaces, interfaces in microelectronics, and solid-state laser. May be concurrently scheduled with course C216. Letter grading.

C118. Multimedia Environmental Assessment. (4) Lecture, four hours; discussion, one hour; preparation, two hours; outside study, five hours. Recommended requisites: courses 101C, 102B. Pollutant sources, estimation of source releases, waste minimization, transport and fate of chemical pollutants in environment, intermedia transfers of pollutants, multimedia modeling of chemical partitioning in environment, exposure assessment and fundamentals of risk assessment, risk reduction strategies. Concurrently scheduled with course C218. Letter grading.

C119. Pollution Prevention for Chemical Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 108A. Systematic methods for design of environment-friendly processes. Development of methods at molecular, unit-operation, and network levels. Synthesis of mass exchange, heat exchange, and reactor networks. Concurrently scheduled with course C219. Letter grading.

C121. Membrane Science and Technology. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 101A, 101C, 103. Fundamentals of membrane science and technology, with emphasis on separations at micro, nano, and molecular/angstrom scale with membranes. Relationship between structure/morphology of dense and porous membranes and their separation characteristics. Use of nanotechnology for design of selective membranes and models of membrane transport (flux and selectivity). Examples provided from various fields/applications, including biotechnology, microelectronics, chemical processes, sensors, and biomedical devices. Concurrently scheduled with course C221. Letter grading.

C124. Cell Material Interactions. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Life Sciences 2, 3, 23L. Introduction to design and synthesis of biomaterials for regenerative medicine, in vitro cell culture, and drug delivery. Biological principles of cellular microenvironment and design of extracellular matrix analogs using biological and engineering principles. Biomaterials for growth factor, and DNA and siRNA delivery as therapeutics and to facilitate tissue regeneration. Use of stem cells in tissue engineering. Concurrently scheduled with course C224. Letter grading.

C125. Bioseparations and Bioprocess Engineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced corequisite: course 101C. Separation strategies, unit operations, and economic factors used to design processes for isolating and purifying materials like whole cells, enzymes, food additives, or pharmaceuticals that are products of biological reactors. Concurrently scheduled with course CM225. Letter grading.

CM127. Synthetic Biology for Biofuels. (4) (Same as Chemistry CM127.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Chemistry 153A, Life Sciences 3, 23L. Engineering microorganisms for complex phenotype is common goal of metabolic engineering and synthetic biology. Production of advanced biofuels involves designing and constructing novel metabolic networks in cells. Such efforts require profound understanding of biochemistry, protein structure, and biological regulations and are aided by tools in bioinformatics, systems biology, and molecular biology. Fundamentals of metabolic biochemistry, protein structure and function, and bioinformatics. Use of systems modeling for metabolic networks to design microorganisms for energy applications. Concurrently scheduled with course CM227. Letter grading.

C128. Hydrogen. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: Chemistry 20A. Electronic, physical, and chemical properties of hydrogen. Various methods of production, including production through methane steam reforming, electrolysis, and thermochemical cycles. Description in depth of several uses of hydrogen, including hydrogen combustion and hydrogen fuel cells. Concurrently scheduled with course C228. Letter grading.

C135. Advanced Process Control. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 107. Introduction to advanced process control. Topics include (1) Lyapunov stability for autonomous nonlinear systems including converse theorems, (2) input to state stability, interconnected systems, and small gain theorems, (3) design of nonlinear and robust controllers for various classes of nonlinear systems, (4) model predictive control of linear and nonlinear systems, (5) advanced methods for tuning of classical controllers, and (6) introduction to control of distributed parameter systems. Concurrently scheduled with course C235. Letter grading.

C140. Fundamentals of Aerosol Technology. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 101C. Technology of particle/gas systems with applications to gas cleaning, commercial production of fine particles, and catalysis. Particle transport and deposition, optical properties, experimental methods, dynamics and control of particle formation processes. Concurrently scheduled with course C240. Letter grading.

CM145. Molecular Biotechnology for Engineers. (4) (Same as Bioengineering CM145.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Life Sciences 3, 23L. Selected topics in molecular biology that form foundation of biotechnology and biomedical industry today. Topics include recombinant DNA technology, molecular research tools, manipulation of gene expression, directed mutagenesis and protein engineering, DNA-based diagnostics and DNA microarrays, antibody and protein-based diagnostics, genomics and bioin-

formatics, isolation of human genes, gene therapy, and tissue engineering. Concurrently scheduled with course CM245. Letter grading.

M153. Introduction to Microscale and Nanoscale Manufacturing. (4) (Same as Bioengineering M153, Electrical Engineering M153, and Mechanical and Aerospace Engineering M183B.) Lecture, three hours; laboratory, four hours; outside study, five hours. Enforced requisites: Chemistry 20A, Physics 1A, 1B, 1C, 4AL, 4BL. Introduction to general manufacturing methods, mechanisms, constraints, and microfabrication and nanofabrication. Focus on concepts, physics, and instruments of various microfabrication and nanofabrication techniques that have been broadly applied in industry and academia, including various photolithography technologies, physical and chemical deposition methods, and physical and chemical etching methods. Hands-on experience for fabricating microstructures and nanostructures in modern cleanroom environment. Letter grading.

188. Special Courses in Chemical Engineering. (4) Seminar, four hours; outside study, eight hours. Special topics in chemical engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. Letter grading.

194. Research Group Seminars: Chemical Engineering. (4) Seminar, four hours; outside study, eight hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field. May be repeated for credit. Letter grading.

199. Directed Research in Chemical Engineering. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation of selected topic under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

Graduate Courses

200. Advanced Engineering Thermodynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 102B. Phenomenological and statistical thermodynamics of chemical and physical systems with engineering applications. Presentation of role of atomic and molecular spectra and intermolecular forces in interpretation of thermodynamic properties of gases, liquids, solids, and plasmas. Letter grading.

201. Methods of Molecular Simulation. (4) Lecture, four hours; outside study, eight hours. Requisite: course 200 or Chemistry C223A or Physics 215A. Modern simulation techniques for classical molecular systems. Monte Carlo and molecular dynamics in various ensembles. Applications to liquids, solids, and polymers. Letter grading.

210. Advanced Chemical Reaction Engineering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 101C, 106. Principles of chemical reactor analysis and design. Particular emphasis on simultaneous effects of chemical reaction and mass transfer on noncatalytic and catalytic reactions in fixed and fluidized beds. Letter grading.

C211. Cryogenics and Low-Temperature Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 102A, 102B (or Materials Science 130). Fundamentals of cryogenics and cryoengineering science pertaining to industrial low-temperature processes. Basic approaches to analysis of cryofluids and envelopes needed for operation of cryogenic systems; low-temperature behavior of matter, optimization of cryosystems and other special conditions. Concurrently scheduled with course C111. Letter grading.

C212. Polymer Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 101A, Chemistry 30A. Formation of polymers, criteria for selecting reaction scheme, polymerization techniques, polymer characterization. Mechanical properties. Rheology of macromolecules,

polymer process engineering. Diffusion in polymeric systems. Polymers in biomedical applications and in microelectronics. Concurrently scheduled with course C112. Letter grading.

C214. Electrochemical Processes and Corrosion. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 102A, 102B (or Materials Science 130). Fundamentals of electrochemistry and engineering applications to industrial electrochemical processes and metallic corrosion. Primary emphasis on fundamental approach to analysis of electrochemical and corrosion processes. Specific topics include corrosion of metals and semiconductors, electrochemical metal and semiconductor surface finishing, passivity, electrodeposition, electroless deposition, batteries and fuel cells, electrosynthesis and bioelectrochemical processes. May be concurrently scheduled with course C114. Letter grading.

CM215. Biochemical Reaction Engineering. (4) (Same as Bioengineering M215.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 101C. Use of previously learned concepts of biophysical chemistry, thermodynamics, transport phenomena, and reaction kinetics to develop tools needed for technical design and economic analysis of biological reactors. May be concurrently scheduled with course C115. Letter grading.

C216. Surface and Interface Engineering. (4) Lecture, four hours; discussion, one hour; outside study, eight hours. Enforced requisite: Chemistry 113A. Introduction to surfaces and interfaces of engineering materials, particularly catalytic surface and thin films for solid-state electronic devices. Topics include classification of crystals and surfaces, analysis of structure and composition of crystals and their surfaces and interfaces. Examination of engineering applications, including catalytic surfaces, interfaces in microelectronics, and solid-state laser. May be concurrently scheduled with course C116. Letter grading.

217. Electrochemical Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: course C114. Transport phenomena in electrochemical systems; relationships between molecular transport, convection, and electrode kinetics, along with applications to industrial electrochemistry, fuel cell design, and modern battery technology. Letter grading.

C218. Multimedia Environmental Assessment. (4) Lecture, four hours; discussion, one hour; preparation, two hours; outside study, five hours. Recommended requisites: courses 101C, 102B. Pollutant sources, estimation of source releases, waste minimization, transport and fate of chemical pollutants in environment, intermedia transfers of pollutants, multimedia modeling of chemical partitioning in environment, exposure assessment and fundamentals of risk assessment, risk reduction strategies. Concurrently scheduled with course C118. Letter grading.

C219. Pollution Prevention for Chemical Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 108A. Systematic methods for design of environment-friendly processes. Development of methods at molecular, unit-operation, and network levels. Synthesis of mass exchange, heat exchange, and reactor networks. Concurrently scheduled with course C119. Letter grading.

220. Advanced Mass Transfer. (4) Lecture, four hours; outside study, eight hours. Requisite: course 101C. Advanced treatment of mass transfer, with applications to industrial separation processes, gas cleaning, pulmonary bioengineering, controlled release systems, and reactor design; molecular and constitutive theories of diffusion, interfacial transport, membrane transport, convective mass transfer, concentration boundary layers, turbulent transport. Letter grading.

C221. Membrane Science and Technology. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 101A, 101C, 103. Fundamentals of membrane science and technology, with emphasis on separations at micro, nano, and molecular/angstrom scale with mem-

branes. Relationship between structure/morphology of dense and porous membranes and their separation characteristics. Use of nanotechnology for design of selective membranes and models of membrane transport (flux and selectivity). Examples provided from various fields/applications, including biotechnology, microelectronics, chemical processes, sensors, and biomedical devices. Concurrently scheduled with course C121. Letter grading.

222A. Stochastic Modeling and Simulation of Chemical Processes. (4) Lecture, four hours; outside study, eight hours. Introduction, definition, rationale of stochastic processes. Distribution, moments, correlation. Mean square calculus. Wiener process, white noise, Poisson process. Generalized functions. Linear systems with stochastic inputs, ergodicity. Application to chemical process modeling and simulation. Markov chains and processes. Ito integrals, stochastic difference, and differential equations. S/U or letter grading.

222B. Stochastic Optimization and Control. (4) Lecture, four hours; outside study, eight hours. Requisite: course 222A. Introduction to linear and nonlinear systems theory and estimation theory. Prediction, Kalman filter, smoothing of discrete and continuous systems. Stochastic control, systems with multiplicative noise. Applications to control of chemical processes. Stochastic optimization, stochastic linear and dynamic programming. S/U or letter grading.

223. Design for Environment. (4) Lecture, four hours; outside study, eight hours. Limited to graduate chemical engineering, materials science and engineering, or Master of Engineering program students. Design of products for meeting environmental objectives; lifecycle inventories; lifecycle impact assessment; design for energy efficiency; design for waste minimization, computer-aided design tools, materials selection methods. Letter grading.

C224. Cell Material Interactions. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Life Sciences 2, 3, 23L. Introduction to design and synthesis of biomaterials for regenerative medicine, in vitro cell culture, and drug delivery. Biological principles of cellular microenvironment and design of extracellular matrix analogs using biological and engineering principles. Biomaterials for growth factor, and DNA and siRNA delivery as therapeutics and to facilitate tissue regeneration. Use of stem cells in tissue engineering. Concurrently scheduled with course C124. Letter grading.

CM225. Bioseparations and Bioprocess Engineering. (4) (Same as Bioengineering M225.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced corequisite: course 101C. Separation strategies, unit operations, and economic factors used to design processes for isolating and purifying materials like whole cells, enzymes, food additives, or pharmaceuticals that are products of biological reactors. Concurrently scheduled with course C125. Letter grading.

CM227. Synthetic Biology for Biofuels. (4) (Same as Chemistry CM227.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Chemistry 153A, Life Sciences 3, 23L. Engineering microorganisms for complex phenotype is common goal of metabolic engineering and synthetic biology. Production of advanced biofuels involves designing and constructing novel metabolic networks in cells. Such efforts require profound understanding of biochemistry, protein structure, and biological regulations and are aided by tools in bioinformatics, systems biology, and molecular biology. Fundamentals of metabolic biochemistry, protein structure and function, and bioinformatics. Use of systems modeling for metabolic networks to design microorganisms for energy applications. Concurrently scheduled with course CM127. S/U or letter grading.

C228. Hydrogen. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: Chemistry 20A. Electronic, physical, and chemical properties of hydrogen. Various methods of production, including production through methane steam reforming, electrolysis, and thermochemical cycles.

Description in depth of several uses of hydrogen, including hydrogen combustion and hydrogen fuel cells. Concurrently scheduled with course C128. Letter grading.

230. Reaction Kinetics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 106, 200. Macroscopic descriptions: reaction rates, relaxation times, thermodynamic correlations of reaction rate constants. Molecular descriptions: kinetic theory of gases, models of elementary processes. Applications: absorption and dispersion measurements, unimolecular reactions, photochemical reactions, hydrocarbon pyrolysis and oxidation, explosions, polymerization. Letter grading.

231. Molecular Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 106 or 110. Analysis and design of molecular-beam systems. Molecular-beam sampling of reactive mixtures in combustion chambers or gas jets. Molecular-beam studies of gas-surface interactions, including energy accommodations and heterogeneous reactions. Applications to air pollution control and to catalysis. Letter grading.

232. Combustion Processes. (4) Lecture, four hours; outside study, eight hours. Requisite: course 106, 200, or Mechanical and Aerospace Engineering C132A. Fundamentals: change equations for multi-component reactive mixtures, rate laws. Applications: combustion, including burning of (1) premixed gases or (2) condensed fuels. Detonation. Sound absorption and dispersion. Letter grading.

233. Frontiers in Biotechnology. (2) (Formerly numbered CM233.) Lecture, one hour. Requisite: Life Sciences 3. Integration of science and business in biotechnology. Academic research leading to licensing and founding of companies that turn research breakthroughs into marketable products. Invited lecturers from academia and industry cover emerging areas of biotechnology from combination of science, engineering, and business points of view. S/U or letter grading.

234. Plasma Chemistry and Engineering. (4) Lecture, four hours; outside study, eight hours. Designed for graduate chemistry or engineering students. Application of chemistry, physics, and engineering principles to design and operation of plasma and ion-beam reactors used in etching, deposition, oxidation, and cleaning of materials. Examination of atomic, molecular, and ionic phenomena involved in plasma and ion-beam processing of semiconductors, etc. Letter grading.

C235. Advanced Process Control. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 107. Introduction to advanced process control. Topics include (1) Lyapunov stability for autonomous nonlinear systems including converse theorems, (2) input to state stability, interconnected systems, and small gain theorems, (3) design of nonlinear and robust controllers for various classes of nonlinear systems, (4) model predictive control of linear and nonlinear systems, (5) advanced methods for tuning of classical controllers, and (6) introduction to control of distributed parameter systems. Concurrently scheduled with course C135. Letter grading.

236. Chemical Vapor Deposition. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 210, C216. Chemical vapor deposition is widely used to deposit thin films that comprise microelectronic devices. Topics include reactor design, transport phenomena, gas and surface chemical kinetics, structure and composition of deposited films, and relationship between process conditions and film properties. Letter grading.

C240. Fundamentals of Aerosol Technology. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 101C. Technology of particle/gas systems with applications to gas cleaning, commercial production of fine particles, and catalysis. Particle transport and deposition, optical properties, experimental methods, dynamics and control of particle formation processes. Concurrently scheduled with course C140. Letter grading.

CM245. Molecular Biotechnology for Engineers. (4) (Same as Bioengineering CM245.) Lecture, four hours; discussion, one hour; outside study, seven hours. Selected topics in molecular biology that form foundation of biotechnology and biomedical industry today. Topics include recombinant DNA technology, molecular research tools, manipulation of gene expression, directed mutagenesis and protein engineering, DNA-based diagnostics and DNA microarrays, antibody and protein-based diagnostics, genomics and bioinformatics, isolation of human genes, gene therapy, and tissue engineering. Concurrently scheduled with course CM145. Letter grading.

246. Systems Biology: Intracellular Network Identification and Analysis. (4) Lecture, four hours; outside study, eight hours. Requisites: course CM245, Life Sciences 1, 2, 3, 4, 23L, Mathematics 31A, 31B, 32A, 33B. Systems approach to intracellular network identification and analysis. Transcriptional regulatory networks, protein networks, and metabolic networks. Data from genome sequencing, large-scale expression analysis, and other high-throughput techniques provide bases for systems identification and analysis. Discussion of gene-metabolic network synthesis. Letter grading.

250. Computer-Aided Chemical Process Design. (4) Lecture, four hours; outside study, eight hours. Requisite: course 108B. Application of optimization methods in chemical process design; computer aids in process engineering; process modeling; systematic flowsheet invention; process synthesis; optimal design and operation of large-scale chemical processing systems. Letter grading.

259. Theory of Applied Mathematics for Chemical Engineers. (4) Lecture, four hours. Recommended preparation: multivariable calculus. Review of functional analysis concepts. Vector spaces, norms, convexity, convergence, continuity, Banach/Hilbert/Sobolev spaces. Linear functionals. Orthonormal sets, linear operators and their spectrum. Minimum distance problems, least squares. Lagrange multipliers, nonlinear duality, variational methods. Finite difference and finite element approximation of partial differential equations (PDEs). Letter grading.

260. Non-Newtonian Fluid Mechanics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 102A. Principles of non-Newtonian fluid mechanics. Stress constitutive equations. Rheology of polymeric liquids and dispersed systems. Applications in viscometry, polymer processing, biorheology, oil recovery, and drag reduction. Letter grading.

270. Principles of Reaction and Transport Phenomena. (4) Lecture, four hours; laboratory, eight hours. Fundamentals in transport phenomena, chemical reaction kinetics, and thermodynamics at molecular level. Topics include Boltzmann equation, microscopic chemical kinetics, transition state theory, and statistical analysis. Examination of engineering applications related to state-of-art research areas in chemical engineering. Letter grading.

270R. Advanced Research in Semiconductor Manufacturing. (6) Laboratory, nine hours; outside study, nine hours. Limited to graduate chemical engineering students in MS semiconductor manufacturing option. Supervised research in processing semiconductor materials and devices. Letter grading.

M280A. Linear Dynamic Systems. (4) (Same as Electrical Engineering M240A and Mechanical and Aerospace Engineering M270A.) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering 141 or Mechanical and Aerospace Engineering 171A. State-space description of linear time-invariant (LTI) and time-varying (LTV) systems in continuous and discrete time. Linear algebra concepts such as eigenvalues and eigenvectors, singular values, Cayley/Hamilton theorem, Jordan form; solution of state equations; stability, controllability, observability, realizability, and minimality. Stabilization design via state feedback and observers; separation principle. Connections with transfer function techniques. Letter grading.

M280C. Optimal Control. (4) (Same as Electrical Engineering M240C and Mechanical and Aerospace Engineering M270C.) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering 240B or Mechanical and Aerospace Engineering 270B. Applications of variational methods, Pontryagin maximum principle, Hamilton/Jacobi/Bellman equation (dynamic programming) to optimal control of dynamic systems modeled by nonlinear ordinary differential equations. Letter grading.

M282A. Nonlinear Dynamic Systems. (4) (Same as Electrical Engineering M242A and Mechanical and Aerospace Engineering M272A.) Lecture, four hours; outside study, eight hours. Requisite: course M280A or Electrical Engineering M240A or Mechanical and Aerospace Engineering M270A. State-space techniques for studying solutions of time-invariant and time-varying nonlinear dynamic systems with emphasis on stability. Lyapunov theory (including converse theorems), invariance, center manifold theorem, input-to-state stability and small-gain theorem. Letter grading.

283C. Analysis and Control of Infinite Dimensional Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses M280A, M282A. Designed for graduate students. Introduction to advanced dynamical analysis and controller synthesis methods for nonlinear infinite dimensional systems. Topics include (1) linear operator and stability theory (basic results on Banach and Hilbert spaces, semigroup theory, convergence theory in function spaces), (2) nonlinear model reduction (linear and nonlinear Galerkin method, proper orthogonal decomposition), (3) nonlinear and robust control of nonlinear hyperbolic and parabolic partial differential equations (PDEs), (4) applications to transport-reaction processes. Letter grading.

284A. Optimization in Vector Spaces. (4) Lecture, four hours; outside study, eight hours. Requisites: Electrical Engineering 236A, 236B. Review of functional analysis concepts. Convexity, convergence, continuity. Minimum distance problems for Hilbert and Banach spaces. Lagrange multiplier theorem in Banach spaces. Nonlinear duality theory. Letter grading.

290. Special Topics. (2 to 4) Seminar, four hours. Requisites for each offering announced in advance by department. Advanced and current study of one or more aspects of chemical engineering, such as chemical process dynamics and control, fuel cells and batteries, membrane transport, advanced chemical engineering analysis, polymers, optimization in chemical process design. May be repeated for credit with topic change. Letter grading.

M297. Seminar: Systems, Dynamics, and Control Topics. (2) (Same as Electrical Engineering M248S and Mechanical and Aerospace Engineering M299A.) Seminar, two hours; outside study, six hours. Limited to graduate engineering students. Presentations of research topics by leading academic researchers from fields of systems, dynamics, and control. Students who work in these fields present their papers and results. S/U grading.

298A-298Z. Research Seminars. (2 to 4 each) Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

299. Departmental Seminar. (2) Seminar, two hours. Limited to graduate chemical engineering students. Seminars by leading academic and industrial chemical engineers on development or application of recent technological advances in discipline. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495A. Teaching Assistant Training Seminar. (2) Seminar, two hours; outside study, four hours; one-day intensive training at beginning of Fall Quarter. Limited to graduate chemical engineering students. Required of all new teaching assistants. Special seminar on communicating chemical engineering principles, concepts, and methods; teaching assistant preparation, organization, and presentation of material, including use of grading, advising, and rapport with students. S/U grading.

495B. Teaching with Technology for Teaching Assistants. (2) Seminar, two hours; outside study, four hours. Limited to graduate chemical engineering students. Designed for teaching assistants interested in learning more about effective use of technology and ways to incorporate that technology into their classrooms for benefit of student learning. S/U grading.

596. Directed Individual or Tutorial Studies. (2 to 8) Tutorial, to be arranged. Limited to graduate chemical engineering students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

597A. Preparation for MS Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate chemical engineering students in MS semiconductor manufacturing option. Reading and preparation for MS comprehensive examination. S/U grading.

597B. Preparation for PhD Preliminary Examinations. (2 to 16) Seminar, to be arranged. Limited to graduate chemical engineering students. S/U grading.

597C. Preparation for PhD Oral Qualifying Examination. (2 to 16) Tutorial, to be arranged. Limited to graduate chemical engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

598. Research for and Preparation of MS Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate chemical engineering students. Supervised independent research for MS candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of PhD Dissertation. (2 to 16) Tutorial, to be arranged. Limited to graduate chemical engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

David S. Eisenberg, DPhil (*Paul D. Boyer Professor of Molecular Biology and Biochemistry*)
Juli F. Feigon, PhD (*Christopher S. Foote Term Professor*)

Peter M. Felker, PhD
Miguel A. García-Garibay, PhD
Neil K. Garg, PhD
Robin L. Garrell, PhD
William M. Gelbart, PhD
James K. Gimzewski, PhD
James W. Gober, PhD
Patrick G. Harran, PhD (*D.J. and J.M. Cram Professor of Organic Chemistry*)
Kendall N. Houk, PhD (*Saul Winstein Professor of Organic Chemistry*)
Wayne L. Hubbell, PhD (*Jules Stein Professor of Ophthalmology*)
Michael E. Jung, PhD
Richard B. Kaner, PhD
Carla M. Koehler, PhD
Ohyun Kwon, PhD
Christopher J. Lee, PhD
Alexander J. Levine, PhD
Raphael D. Levine, PhD
James C. Liao, PhD (*Ralph M. Parsons Foundation Professor of Chemical Engineering*)
Joseph A. Loo, PhD
Thomas G. Mason, PhD
Heather D. Maynard, PhD
Sabeeha Merchant, PhD
Daniel Neuhauser, PhD
Emil Reisler, PhD
Yves F. Rubin, PhD
Philippe Sautet, PhD
Benjamin J. Schwartz, PhD
Yi Tang, PhD
Sarah H. Tolbert, PhD
Paul S. Weiss, PhD (*Presidential Professor of Chemistry*)
Shimon Weiss, DSc (*Dean M. Willard Professor of Chemistry*)
Gerard C.L. Wong, PhD
Todd O. Yeates, PhD
Jeffrey I. Zink, PhD

Professors Emeriti

Frank A.L. Anet, PhD
Daniel E. Atkinson, PhD
Kyle D. Bayes, PhD
Paul D. Boyer, PhD (*Nobel laureate*)
Richard E. Dickerson, PhD
Mostafa A. El-Sayed, PhD
Jay D. Gralla, PhD
E. Russell Hardwick, PhD
M. Frederick Hawthorne, PhD (*University Professor Emeritus*)
Charles M. Knobler, PhD
Harold G. Martinson, PhD
C. Kumar N. Patel, PhD
Verne N. Schumaker, PhD
Robert L. Scott, PhD
Roberts A. Smith, PhD
J. Fraser Stoddart, PhD
Charles E. Strouse, PhD
Joan S. Valentine, PhD
John T. Wasson, PhD
Charles A. West, PhD
Richard L. Weiss, PhD

Associate Professors

Anastassia N. Alexandrova, PhD
Delroy A. Baugh, PhD
Yung-Ya Lin, PhD
Craig A. Merlic, PhD
Margot E. Quinlan, PhD
Jorge Z. Torres, PhD

Assistant Professors

Louis S. Bouchard, PhD
Sriram Kosuri, PhD (*Linda and Fred Wudl Term Professor*)
Hosea M. Nelson, PhD
Ellen M. Sletten, PhD (*John McTague Career Development Professor*)
Alexander M. Spokoyny, PhD

Senior Lecturer S.O.E.

Arlene A. Russell, PhD

Senior Lecturers

Steven A. Hardinger, PhD
Laurence Lavelle, PhD

Lecturer

Eric R. Scerri, PhD

Adjunct Professor

Omar M. Yaghi, PhD

Scope and Objectives

Chemistry is concerned with the composition, structure, and properties of substances, the transformations of these substances into others by reactions, and the kinds of energy changes that accompany these reactions. The Department of Chemistry and Biochemistry is organized in four interrelated and overlapping subdisciplines that deal primarily with the chemistry of inorganic substances (inorganic chemistry), the chemistry of carbon compounds (organic chemistry), the chemistry of living systems (biochemistry), and the physical behavior of substances in relation to their structures and chemical properties (physical chemistry). The Chemistry/Materials Science major is designed for students who are interested in the applications of chemistry for the design, synthesis, and study of new materials.

Undergraduate Study

Admission

Students entering UCLA directly from high school who declare a Chemistry, Biochemistry, or Chemistry/Materials Science major at the time of application are automatically admitted to that major.

UCLA students who wish to enter one of the majors must have a minimum grade of C- in each of the preparation for the major courses completed and a combined grade-point average of at least 2.0 in those courses. Grades in any completed courses for the major must also average at least 2.0.

Transfer Students

Transfer applicants to the departmental majors with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general chemistry with laboratory for majors, one and one half years of calculus, and either one year of calculus-based physics with laboratory or one year of organic chemistry for majors. Biochemistry majors must also complete courses equivalent to Life Sciences 2, 3, and 4 OR 7A, 7B, and 7C; Chemistry majors should have completed the equivalent of Mathematics 32B; Chemistry/Materials Science majors in the organic materials concentration must complete a full year of organic chemistry with laboratory in addition to the other courses listed above.

Entering transfer students who have successfully completed a year course (including laboratory) in general college chemistry intended for science and engineering students should enter course 30A. Transfer students should consult the Undergraduate Advising Office in

CHEMISTRY AND BIOCHEMISTRY

College of Letters and Science

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310-825-4219
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e-mail: info@chem.ucla.edu
<http://www.chemistry.ucla.edu>

Miguel A. García-Garibay, PhD, Chair

Professors

Anne M. Andrews, PhD, *in Residence (Shirley M. Hatos Professor)*

David B. Bensimon, PhD

James U. Bowie, PhD

Robijn F. Bruinsma, PhD

Guillaume F. Chanfreau, PhD

Catherine F. Clarke, PhD

Steven G. Clarke, PhD (*Elizabeth R. and Thomas E. Plotz Professor of Gerontology*)

Robert T. Clubb, PhD

Albert J. Courey, PhD

Timothy J. Deming, PhD

Paula L. Diaconescu, PhD

Xiangfeng Duan, PhD

4006 Young Hall for assistance with the articulation of transfer coursework.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

Advanced Placement in Chemistry

Students who have taken the Advanced Placement (AP) Chemistry Examination and obtained a score of 4 or 5 receive 8 units of chemistry credit and may petition for chemistry and biochemistry equivalency, or may take course 20A at UCLA. If students received a score of 3 on the AP Chemistry Examination, they receive 8 units of chemistry credit but no course equivalency.

Credit Limitations

Students may not take or repeat a chemistry or biochemistry course for credit if it is a requisite for a more advanced course for which they already have credit. This applies in particular to the repetition of courses (e.g., if students wish to repeat Chemistry and Biochemistry 20A, they must do so before completing course 20B).

Undergraduate Majors

The department offers four majors: Chemistry (with concentrations in chemistry and physical chemistry), Biochemistry, General Chemistry, and Chemistry/Materials Science. The Chemistry and Biochemistry majors are designed to prepare students for graduate studies in each field, for entry into professional schools in the health sciences, and for careers in industries and businesses that depend on chemically and biochemically based technology. The General Chemistry major is intended for students who wish to acquire considerable chemical background in preparation for careers outside chemistry. The Chemistry/Materials Science major provides appropriate preparation for graduate studies in fields that emphasize research involving chemistry, engineering, and applied science.

Each course used to fulfill any of the requirements for any of the departmental majors must be taken for a letter grade. Seminar courses, individual study courses, and research courses (e.g., 194, 199) may not be applied toward the requirements for the majors.

Requirements for the majors are outlined below. For additional information, contact the Undergraduate Advising Office in 4006 Young Hall.

Chemistry BS

The Chemistry major is for students who intend to pursue a career in chemistry.

Chemistry Concentration

Preparation for the Major

Required: Chemistry and Biochemistry 20A (or 20AH), 20B (or 20BH), 20L, 30A, 30AL, 30B, 30BL, 30C, 30CL; Mathematics 31A, 31B, 32A, 32B, 33B; Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 4BL.

The Major

Required: Chemistry and Biochemistry 110A, either 110B or C113B, 113A, 114 (or 114H), either 136 or 144, 153A, 153L, 171, 172, and two other upper division or graduate courses in the department, including at least one additional laboratory course from 136, 144, 154, C174, 184, 185.

Physical Chemistry Concentration

The physical chemistry concentration is designed primarily for students who are interested in attending graduate school in physical chemistry/physics or related areas.

Preparation for the Major

Required: Chemistry and Biochemistry 20A (or 20AH), 20B (or 20BH), 20L, 30A, 30AL, 30B, 30BL; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 4BL.

The Major

Required: Chemistry and Biochemistry 110A, 110B, 113A, C113B, 114 (or 114H), 153A, 171, 172; one additional upper division chemistry, electrical engineering, or physics laboratory course; and three elective upper division or graduate courses approved by the physical chemistry adviser. Refer to the Undergraduate Advising Office website at <http://www.chemistry.ucla.edu/undergraduate> for a list of approved electives.

By the junior year, students are strongly encouraged to join a research group within the physical chemistry division to obtain firsthand experience with state-of-the-art physical chemistry research.

Biochemistry BS

The Biochemistry major is for students preparing for careers in biochemistry or other fields requiring extensive preparation in both chemistry and biology.

Preparation for the Major

Required: Chemistry and Biochemistry 20A (or 20AH), 20B (or 20BH), 20L, 30A, 30AL, 30B, 30BL, 30C; Mathematics 31A, 31B, 32A (33A strongly recommended); Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH) and 4BL, or 6A, 6B, and 6C (or 6AH, 6BH, and 6CH).

Students must also complete one of two life sciences sequences—either Life Sciences 2, 3, 4, and 23L OR 7A, 7B, 7C, and 23L. They may not substitute courses in either sequence.

The Major

Required: Chemistry and Biochemistry 110A, 153A, 153B, 153C, 153L, 154, 156; one additional upper division or graduate course in chemistry and biochemistry; and three elective upper division or graduate courses (12 units) approved by the undergraduate adviser (Microbiology, Immunology, and Molecular Genetics 101 highly recommended). Refer to the Undergraduate Advising Office website at <http://www.chemistry.ucla.edu/undergraduate> for a list of approved electives.

General Chemistry BS

The General Chemistry major is for students who wish to acquire considerable chemical background in preparation for careers outside chemistry. The requirements are accordingly quite flexible. The major may be appropriate for some students who plan to enter professional schools, such as those of pharmacy, dentistry, or public health. This major cannot be taken as part of a double major. Students must declare the major before reaching 135 units.

Preparation for the Major

Required: Chemistry and Biochemistry 20A (or 20AH), 20B (or 20BH), 20L, 30A, 30AL, 30B, 30BL, 30C, 30CL; Mathematics 31A, 31B, 32A, 33B; Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 4BL.

Students must complete the preparation courses with at least a 2.0 grade-point average.

The Major

Required: Chemistry and Biochemistry 110A, 153A, 153L, 171; three additional upper division courses in the department (at least one must be a laboratory course); six additional upper division courses. A 2.0 grade-point average is required in all upper division courses in the department. Acceptance into the major is based on an original written proposal that is coherent in terms of student interests and objectives. The proposal should specify which courses students plan to apply toward the major and requires the approval of the faculty adviser.

Chemistry/Materials Science BS

The Chemistry/Materials Science major is designed for students who are interested in chemistry with an emphasis on material properties and provides students the opportunity to gain expertise in both chemistry and the science and engineering in materials such as semiconductors, photonic materials, polymers, biomaterials, ceramics, and nano-scale structures. Students explore the reactivity of such materials in different environments and gain understanding of how chemical compositions affect properties. The major provides appropriate preparation for graduate studies in many fields emphasizing interdisciplinary research, including chemistry, engineering, and applied science.

Preparation for the Major

Required: Chemistry and Biochemistry 20A (or 20AH), 20B (or 20BH), 20L, 30A, 30AL, Mathematics 31A, 31B, 32A, 32B, 33B, Physics 1A, 1B, 1C, 4BL.

The Major

Required: Chemistry and Biochemistry 110A, 113A, 171, 172 or C180 or C181, 185, 4 units from 110B, C113B, 172, C174, C175, C176, C180, C181; Materials Science and Engineering 104, 110, 110L, 120, 121 or 150 or 160, 131, 8 units from 111, 121, 122, 132, 150, 160, 162, CM180; 7 laboratory units from Chemistry

and Biochemistry 114, 184, Materials Science and Engineering 121L, 131L, 161L.

The following courses may be applied only once toward the major: Chemistry and Biochemistry 172, C180, C181, Materials Science and Engineering 121, 150, 160.

Organic Materials Concentration

Preparation for the Major

Required: Chemistry and Biochemistry 20A (or 20AH), 20B (or 20BH), 20L, 30A, 30AL, 30B, 30BL, 30C, 30CL, Mathematics 31A, 31B, 32A, 32B, 33B, Physics 1A, 1B, 1C, 4BL.

The Major

Required: Chemistry and Biochemistry 110A, 113A, 136, 171, 185, 4 units from 110B, C113B, C143A, 144, 172, C174, C175, C176, C180, C181; Materials Science and Engineering 104, 110, 110L, 120, 150, 4 units from 111, 121, 122, 131, 132, 160, 162, CM180; 7 laboratory units from Chemistry and Biochemistry 114, 184, Materials Science and Engineering 121L, 131L, 161L.

Honors Program

Admission

The honors program provides exceptional Chemistry and Biochemistry Department majors with the opportunity to do research culminating in an honors thesis. Junior and senior majors who have completed all university-level coursework, including all preparation courses and requirements for the major, with an overall grade-point average of 3.0 or better and a 3.5 GPA or better in the required major courses, may apply for admission. Students must have the sponsorship of an approved faculty adviser.

For further information and application forms, students should consult the Undergraduate Advising Office, 4006 Young Hall, early in their educational planning. Completed applications must be submitted at least two weeks prior to the term in which students plan to begin the honors program.

Requirements

The core of the program consists of at least one approved undergraduate seminar course from Chemistry and Biochemistry 193A or 193B and three research courses (12 units minimum) from 196A, 196B, or 199, culminating in a thesis.

To qualify for graduation with departmental honors, students must satisfactorily complete all requirements for the honors program and the major and obtain a cumulative grade-point average of 3.5 or better in coursework required for the major. On recommendation of the faculty sponsor, and with the approval of the thesis by the departmental honors committee, students are awarded no honors, honors, or highest honors.

Students who have a grade-point average of 3.6 or better, both overall and in the major, and demonstrated exceptional accomplishment on the research thesis are awarded highest hon-

ors at the discretion of the departmental honors committee.

Computing Specialization

Majors in Chemistry and Biochemistry may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major, (2) completing Program in Computing 10A, 10B, and one course from 10C, 15, 20A, 30, or 60, and (3) completing two computational chemistry courses from Chemistry and Biochemistry C126A, C145, CM160A. Courses need to be completed with a combined grade-point average of at least 2.0. Students must petition for admission to the program and are advised to do so after they complete Program in Computing 10B (petitions should be filed in the Undergraduate Office). Students graduate with a bachelor's degree in their major and a specialization in Computing.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Chemistry and Biochemistry offers Master of Science (MS), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Chemistry and Master of Science (MS), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Biochemistry, Molecular and Structural Biology.

Chemistry and Biochemistry

Lower Division Courses

2. Introductory Chemistry. (4) Lecture, two hours; discussion, two hours. Not open to students with credit for course 14A or 20A. Concept of submicroscopic world of chemistry, ranging from protons to proteins in subject matter. P/NP or letter grading.

7. Nanoscience and Nanotechnology Laboratory. (2) Seminar, discussion, and laboratory, 32 hours. Limited to high school students. Key concepts of nanoscience and nanotechnology, including various approaches to nanofabrication (bottom-up and top-down). Fabrication of nanostructures and devices, collection of scientific data using those devices, analysis of data, and presentations of student results. Offered in summer only. P/NP grading.

14A. Atomic and Molecular Structure, Equilibria, Acids, and Bases. (4) Lecture, three hours; discussion, one hour. Preparation: high school chemistry or equivalent background and three and one half years of high school mathematics. Enforced corequisite: Life Sciences 30A or Mathematics 3A or 31A or score of 35 or better on Mathematics Diagnostic Test. Not open to students with credit for course 20A. Introduction to physical and general chemistry principles; atomic structure based on quantum mechanics; atomic properties; trends in periodic table; chemical bonding (Lewis structures, VSEPR theory, hybridization, and molecular orbital theory); gaseous and

aqueous equilibria; properties of inorganic and organic acids, bases, buffers; titrations. P/NP or letter grading.

14B. Thermodynamics, Electrochemistry, Kinetics, and Organic Chemistry. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 14A with grade of C- or better. Enforced requisite or corequisite: Life Sciences 30B or Mathematics 3B or 31B with grade of C- or better. Not open to students with credit for course 20A, 20B, or 30A. Phase changes; thermochemistry; first, second, and third laws of thermodynamics; free energy changes; electrochemistry and its role as energy source; chemical kinetics, including catalysis, reaction mechanisms, and enzymes; coordination compounds; general classes and naming of organic molecules; structure, conformations, and relative energies of organic molecules; application of thermodynamics and kinetics to organic and biochemical reactions; use of molecular modeling software to illustrate molecular structures and their relative energies. P/NP or letter grading.

14BL. General and Organic Chemistry Laboratory I. (3) Lecture, one hour; laboratory, three hours. Enforced requisite: course 14A with grade of C- or better. Enforced corequisite: course 14B. Not open to students with credit for course 20L. Introduction to volumetric, spectrophotometric, and potentiometric analysis. Use and preparation of buffers and pH meters. Synthesis and kinetics techniques using compounds of interest to students in life sciences. P/NP or letter grading.

14C. Structure of Organic Molecules. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 14B with grade of C- or better. Not open to students with credit for course 30A. Continuing studies in structure of organic molecules, with emphasis on biological applications. Resonance, stereochemistry, conjugation, and aromaticity; spectroscopy (NMR, IR, and mass spectrometry); introduction to effects of structure on physical and chemical properties; survey of biomolecular structure. P/NP or letter grading.

14CL. General and Organic Chemistry Laboratory II. (4) Lecture, one hour; laboratory, six hours. Enforced requisites: courses 14B and 14BL, with grades of C- or better. Enforced corequisite: course 14C. Synthesis and analysis of compounds; purification by extraction, chromatography, recrystallization, and sublimation; characterization by mass spectroscopy, UV, NMR, and IR spectroscopy, optical activity, electrochemistry, pH titration. P/NP or letter grading.

14D. Organic Reactions and Pharmaceuticals. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 14C with grade of C- or better. Organic reactions, nucleophilic and electrophilic substitutions and additions; electrophilic aromatic substitutions, carbonyl reactions, catalysis, molecular basis of drug action, and organic chemistry of pharmaceuticals. P/NP or letter grading.

17. Chemical Principles. (4) Lecture, three hours; discussion, one hour. Introduction to chemical principles: numbers, measurements, chemical calculations, gas laws, solutions, acids, bases, and salts, molecular structure, and nomenclature. Collaborative learning and problem solving; introduction to chemistry laboratory practice. P/NP or letter grading.

20A. Chemical Structure. (4) Lecture, three hours; discussion, one hour. Preparation: high school chemistry or equivalent background and three and one half years of high school mathematics. Recommended preparation: high school physics. Enforced corequisite: Mathematics 31A. First term of general chemistry. Survey of chemical processes, quantum chemistry, atomic and molecular structure and bonding, molecular spectroscopy. P/NP or letter grading.

20AH. Chemical Structure (Honors). (4) Lecture, three hours; discussion, one hour. Preparation: high school chemistry or equivalent background, high school physics, and three and one half years of high school mathematics. Enforced corequisite: Mathematics 31A. Honors course parallel to course 20A. P/NP or letter grading.

20B. Chemical Energetics and Change. (4) Lecture, three hours; discussion, one hour. Enforced requisites: course 20A or 20AH, and Mathematics 31A, with grades of C- or better. Enforced corequisite: Mathematics 31B. Second term of general chemistry. Intermolecular forces and organization, phase behavior, chemical thermodynamics, solutions, equilibria, reaction rates and laws. P/NP or letter grading.

20BH. Chemical Energetics and Change (Honors). (4) Lecture, three hours; discussion, one hour. Enforced requisites: course 20A and Mathematics 31A with grades of B+ or better or 20AH with grade of B or better. Enforced corequisite: Mathematics 31B. Honors course parallel to course 20B. Letter grading.

20L. General Chemistry Laboratory. (3) Lecture, one hour; laboratory, three hours. Enforced requisite: course 20A with grade of C- or better. Enforced corequisite: course 20B. Use of balance, volumetric techniques, volumetric and potentiometric analysis; Beer's law, applications for environmental analysis and materials science. P/NP or letter grading.

30A. Organic Chemistry I: Structure and Reactivity. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 20B with grade of C- or better. First term of organic chemistry for Chemistry, Biochemistry, and engineering majors. Covalent bonding, shapes, stereochemistry, and acid/base properties of organic molecules. Properties, synthesis, and reactions of alkanes, cycloalkanes, alkenes, and alkynes. SN2, SN1, elimination, and radical reactions. P/NP or letter grading.

30AH. Organic Chemistry I: Structure and Reactivity (Honors). (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 20B or 20BH, with grade of B+ or better. Honors course parallel to course 30A. P/NP or letter grading.

30AL. General Chemistry Laboratory II. (4) Lecture, one hour; laboratory, six hours. Enforced requisites: courses 20B (or 20BH), 20L, and 30A (or 30AH), with grades of C- or better. Qualitative and quantitative analysis of chemical reactions and compounds, kinetics, separations, and spectroscopy. P/NP or letter grading.

30B. Organic Chemistry II: Reactivity, Synthesis, and Spectroscopy. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 30A or 30AH, with grade of C- or better. Second term of organic chemistry for Chemistry, Biochemistry, and engineering majors. Properties, synthesis, and reactions of alcohols, ethers, sulfur compounds, aldehydes, ketones, carboxylic acids, and carboxylic acid derivatives. Organometallic compounds. Organic spectroscopy, including mass spectrometry, infrared spectroscopy, and proton and carbon nuclear magnetic resonance spectroscopy. P/NP or letter grading.

30BL. Organic Chemistry Laboratory I. (3) Lecture, one hour; laboratory, four hours. Enforced requisites: courses 30A (or 30AH) and 30AL, with grades of C- or better. Enforced corequisite: course 30B. Basic experimental techniques in organic synthesis (distillation, extraction, crystallization, and performing reactions) and organic analytical chemistry (melting and boiling point, refractive index, chromatography, IR, NMR, GC). Single and multistep synthesis of known organic molecules on microscale level. P/NP or letter grading.

30C. Organic Chemistry III: Reactivity, Synthesis, and Biomolecules. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 30B with grade of C- or better. Third term of organic chemistry for Chemistry, Biochemistry, and engineering majors. Chemistry of enolates, enamines, dicarbonyl compounds, and amines. Molecular orbital theory and conjugated pi systems; UV/vis spectroscopy. Aromaticity and reactions of aromatic molecules. Heterocycles, pericyclic reactions, carbohydrates, and lipids. P/NP or letter grading.

30CL. Organic Chemistry Laboratory II. (4) Lecture, two hours; laboratory, six hours. Enforced requisites: courses 30B and 30BL, with grades of C- or better. Enforced corequisite: course 30C. Modern techniques in synthetic organic and analytical organic chemistry. Semi-preparative scale, multistep syn-

thesis of organic and organometallic molecules, including asymmetric catalysts. One- and two-dimensional multinuclear NMR techniques. Written reports and proposals. P/NP or letter grading.

88A-88Z. Lower Division Seminars. (2-2) Seminar, two hours. Limited to freshmen/sophomores. General introduction to frontiers of molecular sciences or intensive exploration of particular theme or topic. Consult Schedule of Classes for topics and instructors. P/NP or letter grading.

88A. Serendipity in Science. (2) Seminar, two hours. Limited to 20 freshmen. Inquiry into unexpected discoveries in science that have had significant impact on society and analysis of circumstances that brought these about, beginning with discovery of helium in sun by Janssen in 1868 (using newly developed field of spectroscopy). Discovery of X rays by Röntgen in 1895 and of radioactivity by Becquerel in 1896. Other topics include discoveries important to medicine, such as penicillin by Fleming in 1928 and *cis*-platin by Rosenberg in 1969. P/NP or letter grading.

96. Special Courses in Chemistry. (1 to 4) Tutorial, to be arranged. May be repeated for maximum of 8 units. P/NP or letter grading.

98XA. PEERS Collaborative Learning Workshops for Life Sciences Majors. (1) Laboratory, three hours. Corequisite: associated undergraduate lecture course in chemistry and biochemistry for life sciences majors. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated four times, but only 1 unit may be applied toward graduation. P/NP grading.

98XB. PEERS Collaborative Learning Workshops for Physical Sciences and Engineering Majors. (1) Laboratory, three hours. Corequisite: associated undergraduate lecture course in chemistry and biochemistry for physical sciences and engineering majors. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated four times, but only 1 unit may be applied toward graduation. P/NP grading.

Upper Division Courses

C100. Genomics and Computational Biology. (5) Lecture, three hours; discussion, one hour. Enforced requisite: course 153B, Microbiology 132, Molecular Cell, and Developmental Biology 144, or 165B. Introduction for biochemistry students of technologies and experimental data of genomics, as well as computational tools for analyzing them. Biochemistry and molecular biology dissected life into its component parts, one gene at a time, but lacked integrative mechanisms for putting this information back together to predict what happens in complete organism (e.g., over 80 percent of drug candidates fail in clinical trials). High-throughput technologies such as sequencing, microarrays, mass-spec, and robotics have given biologists incredible new capabilities to analyze complete genomes, expression patterns, functions, and interactions across whole organisms, populations, and species. Use and analysis of such datasets becomes essential daily activity for biomedical scientists. Core principles and methodologies for analyzing genomics data to answer biological and medical questions, with focus on concepts that guide data analysis rather than algorithm details. Concurrently scheduled with course C200. P/NP or letter grading.

103. Environmental Chemistry. (4) Lecture, four hours; discussion, one hour. Requisites: courses 30B, 30BL, 110A, 153A (or 153AH), 153L. Chemical aspects of air and water pollution, solid waste disposal, energy resources, and pesticide effects. Chemical reactions in environment and effect of chemical processes on environment. P/NP or letter grading.

C105. Introduction to Chemistry of Biology. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 153A with grade of C- or better. Introduction to chemical biology. Topics include computational chemical biology, utility of synthesis in biochemical research, peptidomimetics, designed reagents for cellular imaging, natural product biosynthesis, protein engineering and directed evolution, cell biology of metal ions, imaging metal ions in cells, metal-containing drugs. Concurrently scheduled with course CM205A. Letter grading.

C107. Organometallic Chemistry. (4) Lecture/discussion, three hours. Enforced requisite or corequisite: course 172. Survey of synthesis, structure, and reactivity (emphasizing mechanistic approach) of compounds containing carbon bonded to elements selected from main group metals, metalloids, and transition metals, including olefin complexes and metal carbonyls; applications in catalysis and organic synthesis. Concurrently scheduled with course C207. P/NP or letter grading.

C108. Mass Spectrometry for Chemists and Biochemists. (2) Lecture, one hour; laboratory, four hours. Requisite: course 153A. Introduction to principles and practice of organic and inorganic mass spectrometry. Topics include EI, CI, ICPMS, GC/MS, LC/MS, ESI, MALDI, MS/MS protein identification, and proteomics. Concurrently scheduled with course C208. P/NP or letter grading.

110A. Physical Chemistry: Chemical Thermodynamics. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisites: course 20B, Mathematics 32A or 3C (for life sciences majors), Physics 1A, 1B, and 1C (may be taken concurrently), or 1AH, 1BH, and 1CH (may be taken concurrently), or 6A, 6B, and 6C (may be taken concurrently). Fundamentals of thermodynamics, chemical and phase equilibria, thermodynamics of solutions, electrochemistry. P/NP or letter grading.

110B. Physical Chemistry: Introduction to Statistical Mechanics and Kinetics. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisites: courses 110A, 113A, Mathematics 32B. Kinetic theory of gases, principles of statistical mechanics, statistical thermodynamics, equilibrium structure and free energy, relaxation and transport phenomena, macroscopic chemical kinetics, molecular-level reaction dynamics. P/NP or letter grading.

113A. Physical Chemistry: Introduction to Quantum Mechanics. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisites: course 20B, Mathematics 32A, 32B, 33B, Physics 1A, 1B, and 1C, or 1AH, 1BH, and 1CH, or 6A, 6B, and 6C, with grades of C- or better. Departure from classical mechanics: Schrödinger versus Newton equations; model systems: particle-in-a-box, harmonic oscillator, rigid rotor, and hydrogen atom; approximation methods: perturbation and variational methods; many-electron atoms, spin, and Pauli principle, chemical bonding. P/NP or letter grading.

C113B. Physical Chemistry: Introduction to Molecular Spectroscopy. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisite: course 113A. Interaction of radiation with matter, microwave spectroscopy, infrared and Raman spectroscopy, vibrations in polyatomic molecules, electronic spectroscopy, magnetic resonance spectroscopy. Concurrently scheduled with course C213B. P/NP or letter grading.

114. Physical Chemistry Laboratory. (5) Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30AL, 110A, and 113A, with grades of C- or better. Enforced corequisite: course 110B or C113B. Lectures include techniques of physical measurement, error analysis and statistics, special topics. Laboratory includes spectroscopy, thermodynamic measurements, and chemical dynamics. P/NP or letter grading.

114H. Physical Chemistry Laboratory (Honors). (5) Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30AL, 110A, and 113A, with grades of B or better. Enforced corequisite: course 110B or C113B. Lectures include techniques of physical measurement, error analysis and statistics, special topics. Laboratory includes topics in physical chemistry to be selected in consultation with instructor. P/NP or letter grading.

C115A-C115B. Quantum Chemistry. (4-4) Lecture, four hours; discussion, one hour. Requisites: course 113A, Mathematics 31A, 31B, 32A, 32B, 33A, with grades of C- or better. Recommended: knowledge of

differential equations equivalent to Mathematics 134 or 135 or Physics 131 and of analytic mechanics equivalent to Physics 105A. Course C115A or Physics 115B with grade of C- or better is requisite to C115B. Students entering course C115A are normally expected to take course C115B in following term. Designed for chemistry students with serious interest in quantum chemistry. Postulates and systematic development of nonrelativistic quantum mechanics; expansion theorems; wells; oscillators; angular momentum; hydrogen atom; matrix techniques; approximation methods; time dependent problems; atoms; spectroscopy; magnetic resonance; chemical bonding. May be concurrently scheduled with courses C215A-C215B. P/NP or letter grading.

C115C. Advanced Quantum Chemistry: Applications. (4) Lecture, three hours; discussion, one hour. Requisites: courses 113A, C115B. Topics in quantum chemistry selected from molecular structure, collision processes, theory of solids, symmetry and its applications, and theory of electromagnetic radiation. Concurrently scheduled with course C215C. P/NP or letter grading.

M117. Structure, Patterns, and Polyhedra. (5) (Same as Honors Collegium M180.) Lecture, four hours; activity, two hours. Exploration of structures and their geometric underpinnings, with examples and applications from architecture (space frames, domes), biology (enzyme complexes, viruses), chemistry (symmetry, molecular cages), design (tiling), engineering (space filling), and physics (crystal structures) to effect working knowledge of symmetry, two-dimensional patterns, and three-dimensional solids. P/NP or letter grading.

118. Colloidal Dynamics Laboratory. (4) Lecture, two hours; laboratory, eight hours. Requisites: courses 110A and 110B, with grades of B or better, or equivalent statistical mechanics courses from engineering, mathematics, or physics. One aspect of dispersions of microscale particles in viscous liquids is that such dispersions can be used as visual model systems for studying phases that chemistry undergraduate students typically learn about for nanoscale and molecular systems, yet they do not see. Temperature continuously excites molecules and causes rearrangements, giving dynamic views of macromolecules and particles in many fields, including cell and molecular biology, chemical engineering, chemistry, materials science, and physics. Letter grading.

M120. Soft Matter Laboratory. (4) (Same as Physics M180G.) Laboratory, four hours. P/NP or letter grading.

121. Special Topics in Physical Chemistry. (4) Lecture, four hours. Requisite: course 110B. Recommended: course 113A. Topics of considerable research interest presented at level suitable for students who have completed junior-year courses in physical chemistry. P/NP or letter grading.

C122. Mathematical Methods for Chemistry. (4) Lecture, four hours. Enforced requisites: Mathematics 31A, 31B, 32A, 32B. Review of basic mathematics necessary to study physical chemistry at graduate level, with focus on review of vectors, linear algebra, elementary complex analysis, and solution of ordinary and partial differential equations. Development of problem-solving skills through homework based on these mathematical techniques, with examples from physical chemistry. Concurrently scheduled with course C222. P/NP or letter grading.

C123A-C123B. Classical and Statistical Thermodynamics. (4-4) Lecture, four hours; discussion, one hour. Requisite: course 110B or 156. Recommended: course 113A. Rigorous presentation of fundamentals of classical thermodynamics. Principles of statistical thermodynamics: probability, ensembles, partition functions, independent molecules, and perfect gas. Applications of classical and statistical thermodynamics selected from diatomic and polyatomic gases, solid and fluid states, phase equilibria, electric and magnetic effects, ortho-para hydrogen, chemical equilibria, reaction rates, imperfect gas, nonelectrolyte and electrolyte solutions, surface phenomena,

high polymers, gravitation. May be concurrently scheduled with courses C223A-C223B. P/NP or letter grading.

125. Computers in Chemistry. (4) Lecture, three hours; computer laboratory, one hour. Requisites: courses 110A and 113A, with grades of C- or better. Discussion of data acquisition and instrument control, scientific programming and data analysis, structural databases and molecular modeling methods. Hands-on computer laboratory experience with wide range of open source and commercial scientific software. P/NP or letter grading.

C126A. Computational Methods for Chemists. (4) Lecture, four hours; laboratory, four hours. Preparation: programming experience in either BASIC, Fortran, C, C++, Java, or Pascal. Requisites: courses 110A, 113A, Mathematics 33B. Theoretical, numerical, and programming tools for constructing new chemical applications, including simple force fields and resulting statistical mechanics for simple molecules, simple ab-initio methods for organic molecules and nanotubes, and classical dynamics and spectroscopy. Concurrently scheduled with course C226A. P/NP or letter grading.

CM127. Synthetic Biology for Biofuels. (4) (Same as Chemical Engineering CM127.) Lecture, four hours; discussion, one hour. Requisites: course 153A, Life Sciences 3, 23L. Engineering microorganisms for complex phenotype is common goal of metabolic engineering and synthetic biology. Production of advanced biofuels involves designing and constructing novel metabolic networks in cells. Such efforts require profound understanding of biochemistry, protein structure, and biological regulations and are aided by tools in bioinformatics, systems biology, and molecular biology. Fundamentals of metabolic biochemistry, protein structure and function, and bioinformatics. Use of systems modeling for metabolic networks to design microorganisms for energy applications. Concurrently scheduled with course CM227. Letter grading.

136. Organic Structural Methods. (5) Lecture, two hours; laboratory, eight hours. Requisites: courses 30C and 30CL, with grades of C- or better. Laboratory course in organic structure determination by chemical and spectroscopic methods; microtechniques. P/NP or letter grading.

C140. Bionanotechnology. (4) Lecture, three hours. Requisites: courses 30C, 110A. Basic physical, chemical, and biological principles in bionanotechnology; materials and strategies for top-down and bottom-up fabrication of ordered biologically derived molecules, characterization and detection techniques, and biomimetic materials and applications at nanoscale. Concurrently scheduled with course C240. P/NP or letter grading.

C143A. Structure and Mechanism in Organic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisites: courses 30C and 30CL (may be taken concurrently), 110B, and 113A, with grades of C- or better. Mechanisms of organic reactions. Acidity and acid catalysis; linear free energy relationships; isotope effects. Molecular orbital theory; photochemistry; pericyclic reactions. May be concurrently scheduled with course C243A. P/NP or letter grading.

C143B. Mechanism and Structure in Organic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisite: course C143A with grade of C- or better. Mechanisms of organic reactions; structure and detection of reactive intermediates. May be concurrently scheduled with course C243B. P/NP or letter grading.

144. Practical and Theoretical Introductory Organic Synthesis. (5) Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30C and 30CL, with grades of C- or better. Lectures on modern synthetic reactions and processes, with emphasis on stereospecific methods for carbon-carbon bond formation. Laboratory methods of synthetic organic chemistry, including reaction techniques, synthesis of natural products, and molecules of theoretical interest. P/NP or letter grading.

C145. Theoretical and Computational Organic Chemistry. (4) Lecture, two hours; discussion, one hour; computer laboratory, one hour. Requisites: courses 30C, 113A. Applications of quantum mechanical concepts and methods to understand and predict organic structures and reactivities. Computational modeling methods, including laboratory experience with force-field and quantum mechanical computer calculations. Concurrently scheduled with course C245. P/NP or letter grading.

147. Careers in Chemistry and Biochemistry. (2) Seminar, two hours. Limited to juniors/seniors. Exploration of employment and career opportunities available to students. Different speakers give short presentations to describe their career paths in areas such as industry, government, research and development, education, law, and healthcare, explain how their education in chemistry and biochemistry helped them become successful, and what actual chemistry was used in their particular professions. Students learn and understand real-life applications of chemical concepts found in their coursework. P/NP grading.

C150. Research Integrity in Cellular Biology, Molecular Biology, and Biochemistry Research. (2 or 4) Lecture, two hours; discussion, two hours. Data analysis and management, statistical methods, use of antibody and kit reagents, figure preparation, authorship, mentoring, human subjects protection, animal subject protection, and conflict of interest. May be repeated for credit. P/NP or letter grading.

153A. Biochemistry: Introduction to Structure, Enzymes, and Metabolism. (4) Lecture, four hours; discussion, one hour. Requisite: course 14D or 30B, with grade of C- or better. Recommended: Life Sciences 2, 3, 23L. Structure of proteins, carbohydrates, and lipids; enzyme catalysis and principles of metabolism, including glycolysis, citric acid cycle, and oxidative phosphorylation. P/NP or letter grading.

153AH. Biochemistry: Introduction to Structure, Enzymes, and Metabolism (Honors). (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisite: course 14D or 30B, with grade of C- or better. Recommended: Life Sciences 2, 3, 23L. Honors course parallel to course 153A. P/NP or letter grading.

153B. Biochemistry: DNA, RNA, and Protein Synthesis. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Enforced requisites: course 153A or 153AH, Life Sciences 2, 3, 23L. Nucleotide metabolism; DNA replication; DNA repair; transcription machinery; regulation of transcription; RNA structure and processing; protein synthesis and processing. P/NP or letter grading.

153BH. Biochemistry: DNA, RNA, and Protein Synthesis (Honors). (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Enforced requisites: course 153A or 153AH, Life Sciences 2, 3, 23L. Honors course parallel to course 153B. P/NP or letter grading.

153C. Biochemistry: Biosynthetic and Energy Metabolism and Its Regulation. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisite: course 153A or 153AH, Life Sciences 2, 3, 23L. Metabolism of carbohydrates, fatty acids, amino acids, and lipids; photosynthetic metabolism and assimilation of inorganic nutrients; regulation of these processes. P/NP or letter grading.

153CH. Biochemistry: Biosynthetic and Energy Metabolism and Its Regulation (Honors). (4) Lecture, three hours; discussion, two hours. Requisite: course 153A or 153AH. Honors course parallel to course 153C. P/NP or letter grading.

153D. Introduction to Protein Structural Biology. (4) Lecture, three hours; discussion, one hour. Enforced requisites: course 153A, Life Sciences 3. Proteins are diverse set of macromolecules that perform critical functions within cells, ranging from enzymes that catalyze metabolic reactions to proteins that enable pathogens to cause disease. Introduction to field of protein structural biology, that seeks to understand molecular basis of protein function through visualizing atomic structures and by investigating how alterations in protein structure affects function. Students gain fundamental understanding of protein structure and

its relationship to function and learn how experimental and computational methods are used to determine three-dimensional structures of proteins. Hands-on training in computer graphics programs and online tools used to visualize and analyze protein structures. Letter grading.

153L. Biochemical Methods I. (4) Lecture, two hours; laboratory, four hours. Enforced requisites: courses 14BL and Life Sciences 23L, or 20L and 30AL, and 153A or 153AH (may be taken concurrently), with grades of C- or better. Integrated term-long project involving biofuel production in bacteria. Purification of key enzyme for alcohol production from bacteria via affinity chromatography. Assessment of protein amount, purity, and activity of enzyme. Techniques include protein determination by Bradford assay, polyacrylamide gel electrophoresis, immunoblotting, and enzyme activity assays to determine enzyme activity (K_m, V_{max}, inhibitor studies). P/NP or letter grading.

154. Biochemical Methods II. (5) Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 153A or 153AH, 153B or 153BH, and 153L, with grades of C- or better. Recommended: course 156. Two to three major laboratory projects using biochemical laboratory techniques to investigate contemporary problems in biochemistry. Topics include transcription activation, molecular basis of DNA-protein interactions, biochemical basis of platelet activation, and initiation of blood clotting cascade. Experiments entail characterizing function of proteins, nucleic acids, and lipids involved in these processes. P/NP or letter grading.

C155. Mitochondria in Medicine, Biology, and Chemistry. (1) Seminar, two hours every other week. Open to undergraduate and graduate science majors considering or currently conducting research in areas related to mitochondria. Large number of physiological and pathophysiological processes involve mitochondrial function and dysfunction. Focus on understanding how mitochondria metabolism, form, and function impact health and disease. Physiology and cell biology of healthy and dysfunctional mitochondria critically assessed at subcellular, cellular, tissue, and organismal levels. Topics include in-depth analyses of literature and critical evaluation of experimental design and methods of current research. Concurrently scheduled with course CM255. P/NP grading.

156. Physical Biochemistry. (4) Lecture, four hours; discussion, one hour. Requisites: courses 110A, 153A. Biochemical kinetics; solution thermodynamics of biochemical systems; multiple equilibria; hydrodynamics; energy levels, spectroscopy, and bonding; topics from structural, statistical, and electrochemical methods of biochemistry. P/NP or letter grading.

C159A. Mechanisms in Regulation of Transcription I. (2) First five weeks. Lecture, four hours. Requisites: courses 153B, 154. Mechanisms that control transcription in bacteria. Repression and activation at promoters. Sigma factors and polymerase binding proteins. Signal transduction pathways in transcription. Control of termination. Concurrently scheduled with course C259A. P/NP or letter grading.

C159B. Mechanisms in Regulation of Transcription II. (2) Second five weeks. Lecture, four hours. Requisites: courses 153B, 154. Eukaryotic general transcriptional apparatus; sequence-specific promoter recognition; mechanisms of transcriptional activation and repression, including role of chromatin structure; transcription factors as targets of signal transduction pathways; transcription factors in embryogenesis. Concurrently scheduled with course C259B. P/NP or letter grading.

CM160A. Introduction to Bioinformatics. (4) (Same as Computer Science CM121.) Lecture, four hours; discussion, two hours. Enforced requisites: Computer Science 32 or Program in Computing 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Prior knowledge of biology not required. Designed for engineering students as well as students from biological sciences and medical school. Introduction to bioinformatics and methodologies, with emphasis on

concepts and inventing new computational and statistical techniques to analyze biological data. Focus on sequence analysis and alignment algorithms. Concurrently scheduled with course CM260A. P/NP or letter grading.

CM160B. Algorithms in Bioinformatics and Systems Biology. (4) (Same as Computer Science CM122.) Lecture, four hours; discussion, two hours. Enforced requisites: Computer Science 32 or Program in Computing 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Course CM160A is not requisite to CM160B. Designed for engineering students as well as students from biological sciences and medical school. Development and application of computational approaches to biological questions, with focus on formulating interdisciplinary problems as computational problems and then solving these problems using algorithmic techniques. Computational techniques include those from statistics and computer science. Concurrently scheduled with course CM260B. Letter grading.

C161A. Plant Biochemistry. (4) Lecture, three hours; discussion, two hours. Requisite: course 153C. Introduction to distinctive features of plant biochemistry. Topics include photosynthesis, nitrogen metabolism, plant cell wall metabolism, and secondary metabolism in relation to stress. Concurrently scheduled with course C261A. P/NP or letter grading.

C163. Membrane Protein Structure and Function. (4) Lecture, four hours. Enforced requisite: course 156. Detailed examination of how various membrane proteins work. Topics include lipid bilayer properties and how they affect membrane protein function and biology; membrane protein biogenesis; principles of transport across membranes; how channels, transporters, and receptors work at atomic level. Emphasis on reading and analyzing original research papers. Concurrently scheduled with course C263. P/NP or letter grading.

C164. Free Radicals in Biology and Medicine. (2 to 4) Lecture, three hours. Enforced requisites: courses 153A and either 153B or 153C, with grades of C- or better. Biochemical reactivity of dioxygen, its role in mitochondrial metabolism, neurodegenerative diseases, apoptosis, and aging. Discussion of radical reactions, how they are harnessed to achieve enzyme catalysis, and how free radicals contribute to or regulate essential biological processes. These same reactions "run amok" under certain types of stress and can contribute to wide variety of diseases, including neurodegenerative diseases (e.g., Huntington's, Parkinson's, and Alzheimer's diseases), mitochondrial diseases, atherosclerosis, and aging. Concurrently scheduled with course C264. P/NP or letter grading.

C165. Metabolic Control by Protein Modification. (4) Lecture, three hours; discussion, one hour. Requisites: courses 153A, 153B, 153C. Biochemical basis of controlling metabolic pathways by posttranslational modification of proteins, including phosphorylation and methylation reactions. Concurrently scheduled with course C265. Letter grading.

166. RNA Structure, Recognition, and Function. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 153A, 153B, Life Sciences 3, 23L. Recent years have seen explosion in biochemical characterization of diverse structures and functions of RNA molecules in metabolism of living systems. RNA has been shown to act both as catalyst in living systems and as potent modulator of gene expression control at every level of gene expression pathways (transcription, RNA processing, translation, degradation). RNA molecules now being used as therapeutic agents in gene therapy approaches. Coverage of these various aspects and in-depth analysis of RNA structure and function, using primary research literature and analysis of molecular structures of RNA and RNA-protein complexes. Letter grading.

CM170. Biochemistry and Molecular Biology of Photosynthetic Apparatus. (2 to 4) (Same as Molecular, Cell, and Developmental Biology M170.) Lecture, two to three hours; discussion, zero to two hours.

Requisites: courses 153A and 153B, or Life Sciences 3 and 23L, and course 153L. Recommended: courses 153C, 154, Life Sciences 4. Light harvesting, photochemistry, electron transfer, carbon fixation, carbohydrate metabolism, pigment synthesis in chloroplasts and bacteria. Assembly of photosynthetic membranes and regulation of genes encoding those components. Emphasis on understanding of experimental approaches. Concurrently scheduled with course C270. P/NP or letter grading.

171. Intermediate Inorganic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisite: course 30B with grade of C- or better. Chemical bonding; structure and bonding in solid state; main group, transition metal, lanthanide and actinide compounds and reactions; catalysis, spectroscopy, special topics. P/NP or letter grading.

172. Advanced Inorganic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisite: course 171 with grade of C- or better. Systematic approach to modern inorganic chemistry, structure and bonding of inorganic molecules and solids, structure/reactivity relationships, vibrational spectra of complexes, electronic structure and ligand-field theory, mechanisms of inorganic reactions, bonding and spectroscopy of organometallic compounds, transition metals in catalysis and biology. P/NP or letter grading.

C174. Inorganic and Metalorganic Laboratory Methods. (5) Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30CL and 172, with grades of C- or better. Synthesis of inorganic compounds, including air-sensitive materials; Schlenk techniques; chromatographic and ion exchange methods; spectroscopic characterization and literature applications. Concurrently scheduled with course C274. P/NP or letter grading.

C175. Inorganic Reaction Mechanisms. (4) Lecture, three hours. Requisites: courses 110A, 110B, 113A, and 172, with grades of C- or better. Survey of inorganic reactions; mechanistic principles; electronic structure of metal ions; transition-metal coordination chemistry; inner- and outer-sphere and chelate complexes; substitution, isomerization, and racemization reactions; stereochemistry; oxidation/reduction, free radical, polymerization, and photochemical reactions of inorganic species. May be concurrently scheduled with course C275. P/NP or letter grading.

C176. Group Theory and Applications to Inorganic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisites: courses 113A and 172, with grades of C- or better. Group theoretical methods; molecular orbital theory; ligand-field theory; electronic spectroscopy; vibrational spectroscopy. May be concurrently scheduled with course C276A. P/NP or letter grading.

C179. Biological Inorganic Chemistry. (4) Lecture, three hours. Requisites: courses 153A (or 153AH), 171. Role of metal ions in biology. Topics include interactions of metal ions with proteins, nucleic acids, and other biological molecules; mechanisms of metal ion transport and storage; introduction to metalloenzyme; metalloproteins in electron transfer, respiration, and photosynthesis; metals in medicine. Concurrently scheduled with course C279. P/NP or letter grading.

C180. Solid-State Chemistry. (4) Lecture, three hours. Requisite: course 172 with grade of C- or better. Survey of new materials and methods for their preparation and characterization, with emphasis on band theory and its relationship to chemical, optical, transport, and magnetic properties, leading to deeper understanding of these materials. Concurrently scheduled with course C280. P/NP or letter grading.

C181. Polymer Chemistry. (4) Lecture, three hours; discussion, one hour. Requisites: courses 30B, 110A. Synthesis of organic and inorganic macromolecules, thermodynamic and statistical mechanical descriptions of unique properties of polymers, polymer characterization methods, and special topics such as conductive and biomedical polymers and polymeric agents in synthesis. Concurrently scheduled with course C281. P/NP or letter grading.

184. Chemical Instrumentation. (5) Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30CL and 110A, with grades of C- or better.

Theory and practice of instrumental techniques of chemical and structural analysis, including atomic absorption spectroscopy, gas chromatography, mass spectrometry, nuclear magnetic resonance, polarography, X-ray fluorescence, and other modern methods. P/NP or letter grading.

185. Materials Chemistry Laboratory. (5) (Formerly numbered C185.) Lecture, two hours; laboratory, eight hours. Requisites: courses 30AL, 110A, 113A, 171. Materials synthesis and physical properties of complex materials. Combines synthetic skills with fundamental physical understanding and characterization in approximately equal proportions to relate materials synthesis to materials function. Letter grading.

192A-192B. Undergraduate Practicum in Chemistry and Biochemistry. (4-4) Lecture, one hour; laboratory, four hours; workshop, two hours. Enforced requisites: courses 14BL and 14CL, or 20L and 30AL, or Science Education 100SL. Intended for students who are planning careers in secondary science chemistry teaching. Complements service learning California Teach science courses that involve teaching field experiences in middle school and high school classrooms. Examination of chemistry issues such as chemical storage and use, waste management, laboratory organization, safety, and techniques. P/NP or letter grading.

192C-192D. Undergraduate Assistant Education Practicum in Chemistry and Biochemistry. (4-2) Seminar, one hour; assigned setting, six hours (course 192C) or five hours (course 192D). Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to assist in chemistry and biochemistry lectures. Students assist in preparation of materials and development of innovative programs under guidance of faculty members and teaching assistants. May not be applied toward course requirements for any departmental major. May be repeated for credit with consent of instructor. Individual contract required. Information and contracts may be obtained from department. P/NP grading.

193A. Journal Club Seminars: UC LEADS and MARC. (2) Seminar, three hours. Designed for juniors/seniors in undergraduate research training programs such as UC LEADS and MARC or those who have strong commitment to pursue graduate studies in natural sciences, engineering, or mathematics. Weekly reading and oral presentations of research or research papers selected from current literature. May be repeated for credit. Letter grading.

193B. Journal Club Seminars: Chemistry and Biochemistry. (2) Seminar, three hours. Limited to undergraduate students. Discussion of readings selected from current literature in particular field. May be repeated for credit. P/NP grading.

194. Research Group Seminars: Chemistry and Biochemistry. (1) Seminar, three hours. Designed for undergraduate students who are part of research group. Advanced study and analysis of current topics in physical, organic, or inorganic chemistry or biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. P/NP grading.

196A. Research Apprenticeship in Chemistry and Biochemistry. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. Consult department for additional information regarding requirements, enrollment petitions, and written proposal deadlines. May be repeated for maximum of 8 units. Individual contract required. P/NP grading.

196B. Research Apprenticeship in Chemistry and Biochemistry. (2 to 4) Tutorial, three hours per week per unit. Enforced requisite: course 196A (8 units). Limited to juniors/seniors. Research apprenticeship for upper division students under guidance of faculty mentor. Consult department for additional information regarding requirements, enrollment petitions, and written proposal deadlines. May be taken for maximum of 4 units. Individual contract required. P/NP or letter grading.

199. Directed Research in Chemistry and Biochemistry. (2 to 4) Tutorial, three hours per week per unit. Enforced requisite: course 196A (8 units). Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating report required. May be repeated for maximum of 12 units. Individual contract required. P/NP or letter grading.

Graduate Courses

C200. Genomics and Computational Biology. (5) Lecture, three hours; discussion, one hour. Enforced requisite: course 153B, Microbiology 132, Molecular, Cell, and Developmental Biology 144, or 165B. Introduction for biochemistry students of technologies and experimental data of genomics, as well as computational tools for analyzing them. Biochemistry and molecular biology dissected life into its component parts, one gene at time, but lacked integrative mechanisms for putting this information back together to predict what happens in complete organism (e.g., over 80 percent of drug candidates fail in clinical trials). High-throughput technologies such as sequencing, microarrays, mass-spec, and robotics have given biologists incredible new capabilities to analyze complete genomes, expression patterns, functions, and interactions across whole organisms, populations, and species. Use and analysis of such datasets becomes essential daily activity for biomedical scientists. Core principles and methodologies for analyzing genomics data to answer biological and medical questions, with focus on concepts that guide data analysis rather than algorithm details. Concurrently scheduled with course C100. S/U or letter grading.

201. Scientific Proposal Writing. (2) Lecture, three hours. Designed for graduate biochemistry and molecular biology students. How to write scientific proposals to be submitted to funding agencies. How to develop curricula vitae, put together grant proposals, and critique proposals. Letter grading.

M202. Bioinformatics Interdisciplinary Research Seminar. (4) (Same as Bioinformatics M202.) Seminar, two hours; discussion, two hours. Concrete examples of how biological questions about genomics data map to and are solved by methodologies from other disciplines, including statistics, computer science, and mathematics. May be repeated for credit. S/U or letter grading.

203B. Ethics in Chemical Research. (2) Seminar, one hour. Discussion of ethics in graduate education, teaching, and chemical research, including issues such as conflicts of interest, plagiarism, intellectual property, sexual harassment, and other topics related to ethical conduct of research. S/U grading.

203C. Research Integrity and Ethics in Genetics Research. (2) Lecture, 90 minutes. Data analysis and management, statistical methods, use of commercial reagents, microscopy data analysis, figure preparation, authorship, mentoring, human subjects protection, animal subject protection, and conflict of interest. May be repeated for credit. S/U grading.

203D. Advanced Topics in Responsible Conduct in Cellular and Molecular Biology Research. (2) Seminar, two hours. Enforced requisite: course 203A or 203B or 203C. Cellular and molecular biology PhD students continue to learn how to conduct research in field to reliably advance knowledge while maintaining ethical principles. Designed to be taken in fourth or fifth year of PhD work where students would have already been exposed to many challenges of performing and reporting experiments and who are in stage of their careers where they are beginning to think of applying for postdoctoral fellowships and research and teaching positions. Course helps fulfill training requirement in research integrity for NIH training grants and individual NRSA awards. S/U grading.

204. Student Research Seminar. (2) Seminar, one hour. Limited to students supported by UCLA program in Cellular and Molecular Biology Predoctoral Training. Research seminar presented by second- and third-year students. S/U grading.

CM205A. Introduction to Chemistry of Biology. (4) (Same as Pharmacology M205A.) Lecture, three hours; discussion, one hour. Enforced requisite: course 153A with grade of C- or better. Introduction to chemical biology. Topics include computational chemical biology, utility of synthesis in biochemical research, peptidomimetics, designed reagents for cellular imaging, natural product biosynthesis, protein engineering and directed evolution, cell biology of metal ions, imaging metal ions in cells, metal-containing drugs. Concurrently scheduled with course C105. Letter grading.

M205B. Issues on Chemistry/Biology Interface. (2) (Same as Pharmacology M205B.) Seminar, one hour. Requisite: course CM205A. Selected talks and papers presented by training faculty on solving problems and utilizing tools in chemistry and molecular biology on chemistry/biology interface (CBI). S/U grading.

206. Chemistry of Biology Seminar. (2) Seminar, three hours. Limited to students supported by UCLA program in Chemistry/Biology Interface Predoctoral Training. Current research topics at interface of chemistry and biology. May be repeated for credit. S/U grading.

C207. Organometallic Chemistry. (4) (Formerly numbered 207.) Lecture/discussion, three hours. Requisite or corequisite: course 172. Survey of synthesis, structure, and reactivity (emphasizing mechanistic approach) of compounds containing carbon bonded to elements selected from main group metals, metalloids, and transition metals, including olefin complexes and metal carbonyls; applications in catalysis and organic synthesis. Concurrently scheduled with course C107. S/U or letter grading.

C208. Mass Spectrometry for Chemists and Biochemists. (2) Lecture, one hour; laboratory, four hours. Requisite: course 153A. Introduction to principles and practice of organic and inorganic mass spectrometry. Topics include EI, CI, ICPMS, GC/MS, LC/MS, ESI, MALDI, MS/MS protein identification, and proteomics. Concurrently scheduled with course C108. S/U or letter grading.

209. Introduction to Chemistry Research. (2) Seminar, two hours. Half-hour presentations each session by three different chemistry professors to introduce their research programs. S/U grading.

210. Advanced Topics in Chemical Research. (2) Seminar, one hour. Designed for second-year graduate students to help them engage contemporary challenges in chemical research and their own research projects. Building of critical thinking skills and proposal writing skills. S/U grading.

C213B. Physical Chemistry: Molecular Spectroscopy. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisite: course 113A. Interaction of radiation with matter, microwave spectroscopy, infrared and Raman spectroscopy, vibrations in polyatomic molecules, electronic spectroscopy, magnetic resonance spectroscopy. Concurrently scheduled with course C113B. Independent study project required of graduate students. S/U or letter grading.

C215A-C215B. Quantum Chemistry: Methods. (4-4) Lecture, four hours; discussion, one hour. Requisites: course 113A, Mathematics 31A, 31B, 32A, 32B, 33A, with grades of C- or better. Recommended: knowledge of differential equations equivalent to Mathematics 134 or 135 or Physics 131 and of analytic mechanics equivalent to Physics 105A. Course C215A or Physics 115B with grade of C- or better is requisite to C215B. Students entering course C215A are normally expected to take course C215B in following term. Designed for chemistry students with serious interest in quantum chemistry. Postulates and systematic development of nonrelativistic quantum mechanics; expansion theorems; wells; oscillators; angular momentum; hydrogen atom; matrix techniques; approximation methods; time dependent problems; atoms; spectroscopy; magnetic resonance; chemical bonding. May be concurrently scheduled with courses C115A-C115B. S/U or letter grading.

C215C. Advanced Quantum Chemistry: Applications. (4) Lecture, three hours; discussion, one hour. Requisite: course C215B. Topics in quantum chemistry selected from molecular structure, collision processes, theory of solids, symmetry and its applications, and theory of electromagnetic radiation. Concurrently scheduled with course C115C. S/U or letter grading.

215D. Molecular Spectra, Diffraction, and Structure. (4) Lecture, three hours; discussion, one hour. Requisites: course C215B, Physics 131. Selected topics from electronic spectra of atoms and molecules; vibrational, rotational, and Raman spectra; magnetic resonance spectra; X-ray, neutron, and electron diffraction; coherence effects. S/U or letter grading.

218. Physical Chemistry Student Seminar. (2) Seminar, two hours. Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U grading.

219A-219Z. Seminars: Research in Physical Chemistry. (2 each) Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading:

219E. Dynamics of Molecule-Molecule and Molecule-Surface Reactions.

219I. Spectroscopy of Isolated Molecules, Complexes, and Clusters.

219J. Chemistry and Biophysics of Interfaces.

219K. Statistical Mechanics of Disordered Systems.

219L. Modern Methods for Molecular Reactions and Structure.

219Q. Ultrafast Studies of Chemical Reaction Dynamics in Condensed Phase.

219R. Kinetic, Thermodynamic, and Interfacial Effects in Materials.

219S. Nanoscience.

219T. Single-Molecule Spectroscopy in Biology.

219U. Theory and Applications of Magnetic Resonance Spectroscopy and Imaging.

219V. Complex Fluids: Composition, Structure, and Rheology.

219W. Biophysics and Statistical Mechanics of Soft Matter.

219X. Dynamic Processes in Chemically Reacting Flow Systems.

219Y. Theory and Computation for Materials.

219Z. Single-Cell Physiology.

221A-221Z. Advanced Topics in Physical Chemistry. (2 to 4 each) Lecture, two to four hours. Each course encompasses one recognized specialty in physical chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

C222. Mathematical Methods for Chemistry. (4) Lecture, four hours. Enforced requisites: Mathematics 31A, 31B, 32A, 32B. Review of basic mathematics necessary to study physical chemistry at graduate level, with focus on review of vectors, linear algebra, elementary complex analysis, and solution of ordinary and partial differential equations. Development of problem-solving skills through homework based on these mathematical techniques, with examples from physical chemistry. Concurrently scheduled with course C122. S/U or letter grading.

C223A-C223B. Classical and Statistical Thermodynamics. (4-4) Lecture, four hours; discussion, one hour. Requisite: course 110B or 156. Recommended: course 113A. Presentation of fundamentals of classical thermodynamics. Principles of statistical thermodynamics: probability, ensembles, partition functions, independent molecules, and perfect gas. Applications of classical and statistical thermodynamics selected from diatomic and polyatomic gases, solid and fluid states, phase equilibria, electric and magnetic effects, ortho-para hydrogen, chemical equilibria, reaction rates, imperfect gas, nonelectrolyte

and electrolyte solutions, surface phenomena, high polymers, gravitation. May be concurrently scheduled with courses C123A-C123B. S/U or letter grading.

M223C. Nonequilibrium Statistical Mechanics and Molecular Biophysics. (4) (Same as Physics M215D.) Lecture, three hours. Requisites: courses C215B and C223B, or Physics 215A. Fundamentals of nonequilibrium thermodynamics and statistical mechanics applied to molecular biophysics. S/U or letter grading.

225. Chemical Kinetics. (4) Lecture, three hours; discussion, one hour. Requisites: courses C215B, C223B. Classical experimental and theoretical approaches to study of rates and mechanisms of chemical reactions. Modern experimental techniques and molecular-level theory of reaction dynamics. Examples of well-studied elementary reactions. S/U or letter grading.

C226A. Computational Methods for Chemists. (4) Lecture, four hours; laboratory, four hours. Preparation: programming experience in either BASIC, Fortran, C, C++, Java, or Pascal. Requisites: courses 110A, 113A, Mathematics 33B. Theoretical, numerical, and programming tools for constructing new chemical applications, including simple force fields and resulting statistical mechanics for simple molecules, simple ab-initio methods for organic molecules and nanotubes, and classical dynamics and spectroscopy. Concurrently scheduled with course C126A. S/U or letter grading.

CM227. Synthetic Biology for Biofuels. (4) (Same as Chemical Engineering CM227.) Lecture, four hours; discussion, one hour. Requisites: course 153A, Life Sciences 3, 23L. Engineering microorganisms for complex phenotype is common goal of metabolic engineering and synthetic biology. Production of advanced biofuels involves designing and constructing novel metabolic networks in cells. Such efforts require profound understanding of biochemistry, protein structure, and biological regulations and are aided by tools in bioinformatics, systems biology, and molecular biology. Fundamentals of metabolic biochemistry, protein structure and function, and bioinformatics. Use of systems modeling for metabolic networks to design microorganisms for energy applications. Concurrently scheduled with course CM127. S/U or letter grading.

228. Chemical Physics Seminar. (2) Seminar, two hours. Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U or letter grading.

229. Introduction to Physical Chemistry Research. (2) Lecture, 90 minutes. Designed primarily for entering graduate physical chemistry students. S/U grading.

M230B. Structural Molecular Biology. (4) (Same as Molecular, Cell, and Developmental Biology M230B.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 3C, Physics 6C. Selected topics from principles of biological structure; structures of globular proteins and RNAs; structures of fibrous proteins, nucleic acids, and polysaccharides; harmonic analysis and Fourier transforms; principles of electron, neutron, and X-ray diffraction; optical and computer filtering; three-dimensional reconstruction. S/U or letter grading.

M230D. Structural Molecular Biology Laboratory. (2) (Same as Molecular, Cell, and Developmental Biology M230D.) Laboratory, 10 hours. Corequisite: course M230B. Methods in structural molecular biology, including experiments utilizing single crystal X-ray diffraction, low angle X-ray diffraction, electron diffraction, optical diffraction, optical filtering, three-dimensional reconstruction from electron micrographs, and model building. S/U or letter grading.

235A-235Z. Seminars: Research in Organic Chemistry. (2 each) Seminar/research group meeting, three hours. Advanced study and analysis of current topics in organic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading:

235E. Theoretical and Physical Organic Chemistry.

235F. Synthetic Methods and Synthesis of Natural Products.

235G. Organometallic Chemistry and Organic Synthesis.

235I. Fullerene Chemistry and Materials Science.

235K. Organic Chemistry in Organized and Restricted Media.

235N. Target- and Diversity-Oriented Synthesis of Natural Products and Product-Like Molecules.

235O. Polymer Chemistry and Biomaterials.

235P. Reaction Discovery and Total Synthesis of Complex Molecules.

235Q. Synthetic Organic Chemistry Research.

235R. Fluorous Materials, Synthetic Chemistry, and Supermolecular Assembly.

236. Spectroscopic Methods of Organic Chemistry. (4) Lecture, three hours. Requisite or corequisite: course C243A. Problem solving using proton and carbon 13 nuclear magnetic resonance, infrared spectroscopy, and mass spectrometry; new techniques in NMR, IR, and MS, with emphasis on Fourier transform NMR. S/U or letter grading.

C240. Bionanotechnology. (4) Lecture, three hours. Requisites: courses 30C, 110A. Basic physical, chemical, and biological principles in bionanotechnology; materials and strategies for top-down and bottom-up fabrication of ordered biologically derived molecules, characterization and detection techniques, and biomimetic materials and applications at nanoscale. Concurrently scheduled with course C140. S/U or letter grading.

241A-241Z. Special Topics in Organic Chemistry. (2 to 4 each) Lecture, two to four hours. Requisite or corequisite: course C243A. Each course encompasses one recognized specialty in organic chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

C243A. Structure and Mechanism in Organic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisites: courses 30C and 30CL (may be taken concurrently), 110B, and 113A, with grades of C- or better. Mechanisms of organic reactions. Acidity and acid catalysis; linear free energy relationships; isotope effects. Molecular orbital theory; photochemistry; pericyclic reactions. May be concurrently scheduled with course C143A. S/U or letter grading.

C243B. Organic Chemistry: Mechanism and Structure. (4) Lecture, three hours; discussion, one hour. Requisite: course C243A. Mechanisms of organic reactions; structure and detection of reactive intermediates. May be concurrently scheduled with course C143B. S/U or letter grading.

244A. Organic Synthesis: Methodology and Stereochemistry. (4) Lecture, three hours; discussion, one hour. Modern synthetic reactions and transformations involving organic substrates. Special emphasis on reagents useful in asymmetric induction and stereo-selective synthesis of structurally complex target molecules. S/U or letter grading.

244B. Strategy and Design in Organic Synthesis. (4) Lecture, three hours. Requisite or corequisite: course C243A. Theory behind planning of syntheses of complex molecules from simpler ones. Organic reactions and their use in synthetic process. Reasoning and art involved in organic synthesis. S/U or letter grading.

C245. Theoretical and Computational Organic Chemistry. (4) Lecture, two hours; discussion, one hour; computer laboratory, one hour. Requisites: courses 30C, 113A. Applications of quantum mechanical concepts and methods to understand and predict organic structures and reactivities. Computational modeling methods, including laboratory experience with force-field and quantum mechanical computer calculations. Concurrently scheduled with course C145. S/U or letter grading.

247. Organic Colloquium. (2) Seminar, two hours. Seminars in organic chemistry and related areas presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U or letter grading.

248. Organic Chemistry Student Seminar. (2) Seminar, two hours. Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U or letter grading.

249A. Methods of Materials Chemistry: Synthesis, Characterization, Physical Properties, Applications, and Devices. (2) Seminar, two hours. Designed for first-year graduate students to teach advanced problem-solving skills and critical thinking, with focus on problems and recent literature pertaining to materials chemistry. How materials are synthesized and characterized. Discussion of important physical properties, as well as broad range of applications and behavior in devices. S/U grading.

249B. Methods of Chemical Synthesis: Organic/Inorganic/Organometallic. (2) Seminar, two hours. Designed for first-year graduate students to teach advanced problem-solving skills and critical thinking, with focus on problems and recent literature pertaining to chemical synthesis of organic, inorganic, and organometallic compounds. S/U grading.

249C. Methods of Physical/Theoretical/Biophysical Chemistry. (2) Seminar, two hours. Designed for first-year graduate students to teach advanced problem-solving skills and critical thinking, with focus on problems and recent literature pertaining to physical, theoretical, and biophysical chemistry. S/U grading.

C250. Research Integrity in Cellular Biology, Molecular Biology, and Biochemistry Research. (2 or 4) (Formerly numbered 203A.) Lecture, two hours; discussion, two hours. Data analysis and management, statistical methods, use of antibody and kit reagents, figure preparation, authorship, mentoring, human subjects protection, animal subject protection, and conflict of interest. May be repeated for credit. S/U or letter grading.

M252. Seminar: Advanced Methods in Computational Biology. (2) (Same as Bioinformatics M252 and Human Genetics M252.) Seminar, one hour; discussion, one hour. Designed for advanced graduate students. Examination of computational methodology in bioinformatics and computational biology through presentation of current research literature. How to select and apply methods from computational and mathematical disciplines to problems in bioinformatics and computational biology; development of novel methodologies. S/U or letter grading.

CM255. Mitochondria in Medicine, Biology, and Chemistry. (1) (Same as Biological Chemistry M255.) Seminar, two hours every other week. Open to undergraduate and graduate science majors considering or currently conducting research in areas related to mitochondria. Large number of physiological and pathophysiological processes involve mitochondrial function and dysfunction. Focus on understanding how mitochondria metabolism, form, and function impact health and disease. Physiology and cell biology of healthy and dysfunctional mitochondria critically assessed at subcellular, cellular, tissue, and organismal levels. Topics include in-depth analyses of literature and critical evaluation of experimental design and methods of current research. Concurrently scheduled with course C155. S/U grading.

256A-256Z. Seminars: Research in Biochemistry. (2 each) Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading:

256A. Biochemistry of Plasma Proteins.

256B. Biochemistry of Protein Function.

256D. Transcriptional Control Mechanisms in *Drosophila* Embryogenesis.

256F. Current Topics in Prokaryotic Development.

256G. Nucleic Acid Structure Determination by NMR.

256H. Basic Mechanisms of Promoter Activation.

256J. Contractile Proteins in Muscle Contraction and Cell Motility.

256K. Biochemistry and Molecular Biology of Chlamydomonas.

256L. Literature of Structural Biology.

256M. Mechanism and Regulation of Transcription Termination in Eukaryotic Organisms.

256N. Advanced Topics in Structural Biology.

256O. Membrane Biophysics.

256P. Analysis of Protein Structure.

256Q. Biochemistry and Function of Ubiquinone in Yeast and Higher Eukaryotes.

256R. Biomolecular Nuclear Magnetic Resonance Spectroscopy and Protein Structure.

256S. Proteome Bioinformatics.

256T. RNA Processing and RNA Genomics.

256U. Mitochondrial Biogenesis and Link to Disease.

256V. Proteomics and Mass Spectrometry.

256W. Cytoskeletal Dynamics during *Drosophila* Oogenesis.

256X. Microtubule-Based Structures and Human Disease.

256Y. Research in Genomics: Biochemistry, Synthetic Biology, and Genomics

257. Physical Chemistry of Biological Macromolecules. (4) Lecture, one hour; discussion, one hour; laboratory, four hours. Requisite: course 153A. Theory of hydrodynamic, thermodynamic, and optical techniques used to study structure and function of biological macromolecules. S/U or letter grading.

258. Advanced Topics in Biochemistry and Molecular Biology. (2) Lecture, two hours. Critical analysis of experimental design and methods in biochemistry and molecular biology. In-depth analysis of literature in one or more areas of current research. May be repeated for credit. S/U or letter grading.

C259A. Mechanisms in Regulation of Transcription I. (2) First five weeks. Lecture, four hours. Mechanisms that control transcription in bacteria. Repression and activation at promoters. Sigma factors and polymerase binding proteins. Signal transduction pathways in transcription. Control of termination. Concurrently scheduled with course C159A. S/U or letter grading.

C259B. Mechanisms in Regulation of Transcription II. (2) Second five weeks. Lecture, four hours. Eukaryotic general transcriptional apparatus; sequence-specific promoter recognition; mechanisms of transcriptional activation and repression, including role of chromatin structure; transcription factors as targets of signal transduction pathways; transcription factors in embryogenesis. Concurrently scheduled with course C159B. S/U or letter grading.

CM260A. Introduction to Bioinformatics. (4) (Same as Bioinformatics M260A, Computer Science CM221, and Human Genetics M260A.) Lecture, four hours; discussion, two hours. Enforced requisites: Computer Science 32 or Program in Computing 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Prior knowledge of biology not required. Designed for engineering students as well as students from biological sciences and medical school. Introduction to bioinformatics and methodologies, with emphasis on concepts and inventing new computational and statistical techniques to analyze biological data. Focus on sequence analysis and alignment algorithms. Concurrently scheduled with course CM160A. S/U or letter grading.

CM260B. Algorithms in Bioinformatics and Systems Biology. (4) (Same as Bioinformatics M260B and Computer Science CM222.) Lecture, four hours; discussion, two hours. Enforced requisites: Computer Science 32 or Program in Computing 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Course CM260A is not requisite to CM260B. Designed for engineering students as well as students from biological sciences and medical school. Development and application of computational approaches to biological questions, with focus on formulating interdisciplinary problems as computational problems

and then solving these problems using algorithmic techniques. Computational techniques include those from statistics and computer science. Concurrently scheduled with course CM160B. Letter grading.

260BL. Advanced Bioinformatics Computational Laboratory. (2) Laboratory, four hours. Enforced requisite: course CM260A. Corequisite: course CM260B. Development and application of computational approaches to ask and answer biological questions by implementing variety of bioinformatics and systems biology algorithms. Advantages and disadvantages of different algorithmic methods for studying biological questions and preliminary understanding of how to compute statistical significance of results. Development of conceptual understanding of implementation of bioinformatics algorithms and foundation for how to do innovative work in these fields. Experience in observing impact of computational complexity of algorithms in computing solutions. S/U or letter grading.

C261A. Plant Biochemistry. (4) Lecture, three hours; discussion, two hours. Requisite: course 153C. Introduction to distinctive features of plant biochemistry. Topics include photosynthesis, nitrogen metabolism, plant cell wall metabolism, and secondary metabolism in relation to stress. Concurrently scheduled with course C161A. S/U or letter grading.

262. Biochemistry and Molecular Biology of Protein Translocation Systems. (3) Lecture, two hours; discussion, two hours. Requisites: courses 269A through 269D. Protein translocation into nucleus, mitochondrion, peroxisome, chloroplast, endoplasmic reticulum, and protein export in bacteria. Letter grading.

C263. Membrane Protein Structure and Function. (4) Lecture, four hours. Enforced requisite: course 156. Detailed examination of how various membrane proteins work. Topics include lipid bilayer properties and how they affect membrane protein function and biology; membrane protein biogenesis; principles of transport across membranes; how channels, transporters, and receptors work at atomic level. Emphasis on reading and analyzing original research papers. Concurrently scheduled with course C163. S/U or letter grading.

C264. Free Radicals in Biology and Medicine. (2 to 4) Lecture, three hours. Enforced requisites: courses 153A and either 153B or 153C, with grades of C- or better. Biochemical reactivity of dioxygen, its role in mitochondrial metabolism, neurodegenerative diseases, apoptosis, and aging. Discussion of radical reactions, how they are harnessed to achieve enzyme catalysis, and how free radicals contribute to or regulate essential biological processes. These same reactions "run amok" under certain types of stress and can contribute to wide variety of diseases, including neurodegenerative diseases (e.g., Huntington's, Parkinson's, and Alzheimer's diseases), mitochondrial diseases, atherosclerosis, and aging. Concurrently scheduled with course C164. S/U or letter grading.

C265. Metabolic Control by Protein Modification. (4) Lecture, three hours; discussion, one hour. Requisites: courses 153A, 153B, 153C. Biochemical basis of controlling metabolic pathways by posttranslational modification of proteins, including phosphorylation and methylation reactions. Concurrently scheduled with course C165. Letter grading.

266. Proteomics and Protein Mass Spectrometry. (3) Lecture, two hours. Essential technologies and concepts practiced in proteomics-based research, including methods for protein separation and display, protein quantitation, and protein identification. Emphasis on fundamentals of protein mass spectrometry. S/U or letter grading.

267. Nanoscience and Chemistry. (4) Lecture, four hours. Enforced requisites: courses 110A, 113A, 171, 172. Designed for advanced undergraduate and graduate students. Why nanoscience is important and interesting and critical role of chemistry in nanoscience. Chemistry and physics of variety of synthetic inorganic nanostructures, including metallic nanostructures (nanocrystals, nanorods, nanowires), semiconductor nanostructures (quantum dots/rods, nanowires, plates), and carbon nanostructures (fullerene,

nanotubes, graphene). Discussion of synthetic approaches, structures, and physical properties, as well as potential technological opportunities of each. Letter grading.

268. Biochemistry Research Seminar. (2) Seminar, two hours. Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students on topics of current biochemical research interest. May be repeated for credit. S/U or letter grading.

269A. Protein Structure. (2) Lecture, five hours; discussion, two hours. Requisites: courses 153A, 153B, 153C, 156. Three-dimensional structure of proteins. Forces that stabilize structure of soluble and membrane proteins. Kinetics of protein folding and role of chaperones. Prediction of protein structure from sequence. Letter grading.

269B. Biocatalysis and Bioenergetics. (2) Lecture, five hours; discussion, two hours. Requisites: courses 153A, 153B, 153C, 156. Mechanisms and regulation of protein-mediated catalysis. Proteomics and metabolomics. Concepts in electron, proton, and energy transfer. Energy transducing membranes in chloroplasts and mitochondria. Letter grading.

269C. Nucleic Acid Structure and Catalysis. (2) Lecture, five hours; discussion, two hours. Requisites: courses 153A, 153B, 153C, 156. Three-dimensional structure of DNA and RNA. Sequence-specific recognition of DNA and RNA. RNA-catalyzed processes, including self-splicing and peptide bond formation. Letter grading.

269D. Mechanism and Regulation of Gene Expression. (2) Lecture, five hours; discussion, two hours. Requisites: courses 153A, 153B, 153C, 156. Mechanism and regulation of transcription in prokaryotes and eukaryotes. Mechanism and regulation of mRNA processing; mRNA export and degradation. Letter grading.

269E. Biomolecular Structure, Catalysis, and Regulation. (2) Lecture, five hours; discussion, two hours. Requisites: courses 153A, 153B, 153C, 156. Protein-protein interactions, proteomics, protein networks, regulatory circuits, cellular dynamics, imaging of cellular processes. Letter grading.

C270. Biochemistry and Molecular Biology of Photosynthetic Apparatus. (2 to 4) Lecture, two to three hours; discussion, zero to two hours. Requisites: courses 153A and 153B, or Life Sciences 3 and 23L, and course 153L. Recommended: courses 153C, 154, Life Sciences 4. Light harvesting, photochemistry, electron transfer, carbon fixation, carbohydrate metabolism, pigment synthesis in chloroplasts and bacteria. Assembly of photosynthetic membranes and regulation of genes encoding those components. Emphasis on understanding of experimental approaches. Concurrently scheduled with course CM170. S/U or letter grading.

271. Advanced Topics in Inorganic Chemistry. (2 to 4) Lecture, two to four hours. Each offering encompasses one recognized specialty in inorganic chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

272A-272Z. Seminars: Research in Inorganic Chemistry. (2 each) Seminar, three hours. Advanced study and analysis of current topics in inorganic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

272A. Chemistry of Materials.

272B. Metalorganic, Inorganic Biometalorganic Chemistry.

272C. Inorganic Spectroscopy.

272D. Bioinorganic Chemistry and Biology of Transition Metals and Oxygen.

272G. Issues in Chemical Education.

272I. Organometallic Chemistry.

272J. Reticular Chemistry.

272K. Inorganic Nanostructures: Synthesis, Properties, and Functions.

272L. Molecular Materials.

272M. Methodology for Chemical Synthesis of Complex Molecules.

C274. Inorganic and Metalorganic Laboratory Methods. (5) Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30CL and 172, with grades of C- or better. Synthesis of inorganic compounds, including air-sensitive materials; Schlenk techniques; chromatographic and ion exchange methods; spectroscopic characterization and literature applications. Concurrently scheduled with course C174. S/U or letter grading.

C275. Inorganic Reaction Mechanisms. (4) Lecture, three hours. Requisites: courses 110A, 110B, 113A, and 172, with grades of C- or better. Survey of inorganic reactions; mechanistic principles; electronic structure of metal ions; transition-metal coordination chemistry; inner- and outer-sphere and chelate complexes; substitution, isomerization, and racemization reactions; stereochemistry; oxidation/reduction, free-radical, polymerization, and photochemical reactions of inorganic species. May be concurrently scheduled with course C175. S/U or letter grading.

C276A. Group Theory and Applications to Inorganic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisites: courses 113A and 172, with grades of C- or better. Group theoretical methods; molecular orbital theory; ligand-field theory; electronic spectroscopy; vibrational spectroscopy. May be concurrently scheduled with course C176. S/U or letter grading.

276B. Physical Methods in Inorganic Chemistry. (4) Lecture, three hours. Requisite: course C276A. Theory and applications of spectroscopic techniques, including magnetic resonance and vibrational and surface science methods, to inorganic compounds and materials. S/U or letter grading.

277. Crystal Structure Analysis. (4) Lecture, three hours. Theory and practice of modern crystallography, with emphasis on practical experience in structure determination. Topics include crystallographic symmetry, scattering theory, data collection, Fourier analysis, heavy atom techniques, direct methods, isostructural replacement, crystallographic refinement, error analysis, and common pitfalls. S/U or letter grading.

278. Inorganic Chemistry Student Seminar. (2) Seminar, two hours. Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U or letter grading.

C279. Biological Inorganic Chemistry. (4) Lecture, three hours. Requisites: courses 153A (or 153AH), 171. Role of metal ions in biology. Topics include interactions of metal ions with proteins, nucleic acids, and other biological molecules; mechanisms of metal ion transport and storage; introduction to metalloenzyme; metalloproteins in electron transfer, respiration, and photosynthesis; metals in medicine. Concurrently scheduled with course C179. S/U or letter grading.

C280. Solid-State Chemistry. (4) Lecture, three hours. Requisite: course 172 with grade of C- or better. Survey of new materials and methods for their preparation and characterization, with emphasis on band theory and its relationship to chemical, optical, transport, and magnetic properties, leading to deeper understanding of these materials. Concurrently scheduled with course C180. S/U or letter grading.

C281. Polymer Chemistry. (4) Lecture, three hours; discussion, one hour. Requisites: courses 30B, 110A. Synthesis of organic and inorganic macromolecules, thermodynamic and statistical mechanical descriptions of unique properties of polymers, polymer characterization methods, and special topics such as conductive and biomedical polymers and polymeric reagents in synthesis. Concurrently scheduled with course C181. S/U or letter grading.

282. Introduction to Inorganic Chemistry Research. (2) Lecture, 90 minutes. Discussion of current research in inorganic chemistry, designed primarily for entering graduate inorganic chemistry students. S/U grading.

283. Evolution of Devices from Concept to Product. (2) Seminar, 90 minutes. Required of students in Materials Creation Training Program. Training in fundamental science and engineering to fabricate electrical, photonic, and microelectromechanical devices. Discussion of intellectual property issues and development of business plan. May be repeated for credit. S/U or letter grading.

284. Materials Creation Training Program Brown-Bag Seminar. (2) Seminar, one hour. Required of students in Materials Creation Training Program. Research and literature seminar presented by graduate students conducting research in synthesis and characterization of materials and fabrication of electronic and photonic devices. S/U grading.

285. Materials Chemistry Laboratory. (5) (Formerly numbered C285.) Lecture, two hours; laboratory, eight hours. Requisites: courses 30AL, 110A, 113A, 171. Materials synthesis and physical properties of complex materials. Combines synthetic skills with fundamental physical understanding and characterization in approximately equal proportions to relate materials synthesis to materials function. Letter grading.

M370A. Integrated Science Instruction Methods. (4) (Same as Earth, Planetary, and Space Sciences M370A and Physics M370A.) Lecture, two hours; discussion, one hour; laboratory, one hour. Preparation: one introductory lower division year (including laboratory) each of chemistry, life sciences, and physics and at least two Earth science courses, preferably one with field experience. Classroom management, lesson design, assessment, history of science education. S/U or letter grading.

M370B. Integrated Science Instruction Methods. (4) (Same as Earth, Planetary, and Space Sciences M370B and Physics M370B.) Lecture, two hours; discussion, one hour; laboratory, one hour. Requisite: course M370A or Earth, Planetary, and Space Sciences M370A or Physics M370A. Application of learning theory to science instruction and classroom management, including use of technology, collaborative learning, laboratory safety, ethical issues, field experiences, and professional development. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Safety in Chemical and Biochemical Research. (2) Lecture, two hours. Survey of safe laboratory practices for experimental research in organic, inorganic, and physical chemistry and biochemistry. Topics include laser safety, cryogenic hazards, high- and low-pressure experimentation, gas and carcinogen handling, chemical spills, fire extinguishing, and chemical disposal. S/U grading.

495. Teaching College Chemistry. (2) Seminar, two hours; discussion, two hours; 20 hours training during week prior to fall quarter. Course for teaching assistants designed to deal with problems and techniques of teaching college chemistry. S/U grading.

596. Directed Individual Study or Research. (2 to 16) Tutorial, to be arranged with faculty member who directs study or research. May be repeated for credit. S/U grading.

597. Preparation for MS Comprehensive Examination or PhD Qualifying Examinations. (2 to 4) Tutorial, to be arranged. May be taken for maximum of 8 units. S/U grading.

598. Research for and Preparation of MS Thesis. (2 to 16) Tutorial, to be arranged. Each faculty member supervises research of MS students and holds research group meetings, seminars, and discussions with students. May be repeated for credit. S/U or letter grading.

599. Research for and Preparation of PhD Dissertation. (2 to 16) Tutorial, to be arranged. Each faculty member supervises research of PhD students and holds research group meetings, seminars, and discussions with students. May be repeated for credit. S/U or letter grading.

CÉSAR E. CHÁVEZ DEPARTMENT OF CHICANA AND CHICANO STUDIES

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Scope and Objectives

The mission of the UCLA César E. Chávez Department of Chicana and Chicano Studies is to train a new generation of scholars to research and analyze the life, history, and culture of Mexican-origin people within the U.S., as well as of other Latina/Latino and indigenous populations in the Americas.

Addressing local, national, and transnational contexts, the Chicana/Chicano studies curriculum at UCLA explores race, class, gender, and sexuality paradigms as they have shaped the history of the field, as well as new directions in the study of Chicanas/Chicanos and Latinas/Latinos, including (1) border and transnational studies, (2) expressive arts, (3) history, literature, and language of Americas, and (4) labor, law, and policy studies.

Departmental faculty members, situated in one of the most diverse cities in the world, utilize Los Angeles as a laboratory for studying the social transformations taking place in California, the Southwest, and the U.S. The department provides students with the interdisciplinary research tools necessary to advance knowledge in the field, provide academic leadership, and serve community needs with academic resources.

Undergraduate Study

The Chicana and Chicano Studies Department offers a designated capstone program for undergraduate majors. Students have options for completing a senior honors thesis, individual research, or senior project under the direction of a faculty member. Alternatively, students may elect to complete an upper division course that includes additional coursework culminating in completion of a capstone paper or creative project. Through their capstone work, students are expected to demonstrate working knowledge of the major findings and methods of the disciplines from which they have drawn their Chicana and Chicano studies coursework, show their capacities for conceiving and executing a research or creative project on a self-selected topic as well as identifying and evaluating relevant documentation pertaining to that project, demonstrate appropriate levels of scholarly discourse on their selected topic, and develop greater capacity to be of lifelong service to the Chicana/Chicano and Latina/Latino community and to global society in the tradition of César Chávez and scholar activist exemplars.

Chicana and Chicano Studies BA

Capstone Program

The BA program in Chicana and Chicano Studies is committed to the practice of different forms of scholarship and pedagogy and to the promotion of critical thinking about such issues as gender, sexuality, social action, language, race, ethnicity, class, assimilation/acculturation paradigms, and indigenous traditions. The literary and visual arts often function as vehicles for social change and creative empowerment, and so they constitute one focus of the curriculum, that aims to strike a balance among the social sciences, humanities, arts, and the professions. The major prepares students for graduate education in academic and professional fields and for a variety of positions that involve community and social service in the U.S. and abroad.

Preparation for the Major

Required: Chicana and Chicano Studies 10A, 10B, Spanish 5 or equivalent.

Transfer Students

Transfer applicants to the Chicana and Chicano Studies major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one interdisciplinary Chicana/Chicano history and culture course, one interdisciplinary

Chicana/Chicano social structure and contemporary conditions course, and five quarter terms of Spanish.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: A total of 11 upper division courses, including Chicana and Chicano Studies 101; one service learning course from 100SL or M170SL or from the approved list available in the department office each term; two related study courses from the approved list of courses outside the department (related study includes courses that provide a comparative perspective to Chicana and Chicano studies and/or a contextualization of Chicana and Chicano communities in the world); one advanced seminar course from 191 or another course by petition to the department chair; and a concentration of four courses in one area listed below and two courses in a second area:

Border and Transnational Studies: Chicana and Chicano Studies CM110, 120, M124, M125, M126, 132, 143, M144, CM147, 151, 152, 153, M154, M155A, M156A, 163, 176, 184, 191

Expressive Arts: Chicana and Chicano Studies M103C, M103D, M103G, 104, M108A, M115, M116, 117, M135, M175, M185, M186A, M186AL, M186B, M186BL, M186C, M186CL, M187, 191

History, Culture, and Language of Americas: Chicana and Chicano Studies M105A, M105C, 109, CM110, 111, M114, M116, 131, 132, M133, M139, C141, 142, 143, M145A, M145B, M146, 157, M158, M159A, M159B, 160, 168A, 168B, 169, 171, M173, 181, CM182, M183, 184, M187, 191

Labor, Law, and Policy Studies: Chicana and Chicano Studies M102, CM106, M119, 120, M121, M122, 123, M127, M128, M130, 148, 149, 150, 151, 152, M156A, M156B, 165, 166, M174A, M174B, 177, 178, CM179, 191

No more than 8 units of 188, 191, and 199 courses may be applied toward the major; enrollment in the courses must be approved in writing by the department chair.

Each major course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Honors Program

The Chicana and Chicano Studies honors program provides the opportunity for motivated and dedicated students to undertake a year-long research or creative project with the guidance and supervision of a faculty member. The program is open to all juniors and seniors who have (1) a 3.5 grade-point average in the major, (2) a cumulative GPA of 3.0 or better, and (3) completed 90 or more total units, including Chicana and Chicano Studies 10A, 10B, 101, and one course from 89, 89HC, 189, or 189HC.

The application for admission must be submitted in spring quarter of the year prior to admission to the program, with the advice and con-

sent of a faculty sponsor. The proposal, research, data collection, analysis, and writing of the thesis (or the creative equivalent to this process) take place in Chicana and Chicano Studies 198A, 198B, and 198C, which may not be applied toward the major requirements. An honors thesis of at least 30 pages or a significant creative project is required.

Students who are currently undertaking the optional multidisciplinary senior thesis and who are eligible for the honors program may opt to switch to the honors program (provided it does not delay their progress toward the degree) with the approval of the department.

Optional Multidisciplinary Senior Thesis

Chicana and Chicano Studies majors have the option during their senior year to enroll in two 199 courses with the intention of producing an undergraduate thesis. The first term includes thesis conceptualization and formulation, along with preliminary data collection for the thesis. The second term entails completion of the data collection, analysis of the data, and writing of the thesis. Enrollment in the two 199 courses is with the advice and consent of a faculty member.

Chicana and Chicano Studies Minor

The Chicana and Chicano Studies minor complements study in another traditional field. Students participating in the minor are required to complete both a departmental major in another discipline and the Chicana and Chicano Studies minor.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed 45 units, and file a petition with the student adviser in 7351 Bunche Hall.

Required Lower Division Courses (10 units): Chicana and Chicano Studies 10A, 10B.

Required Upper Division Courses (20 units minimum): Chicana and Chicano Studies 101 and four elective courses (20 units minimum) selected from the approved list (available in the department office each term).

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The César E. Chávez Department of Chicana and Chicano Studies offers Master of Arts (MA) and Doctor of Philosophy (PhD) degrees in Chicana and Chicano Studies.

Chicana and Chicano Studies

Lower Division Courses

M5A-M5B-M5C. Elementary Nahuatl. (4-4-4) (Same as Indigenous Languages of the Americas M5A-M5B-M5C and International and Area Studies M5A-M5B-M5C.) Lecture, five hours. Course M5A is enforced requisite to M5B, which is enforced requisite to M5C. Introduction to Aztec language of central Mexico. Coverage of basic Nahuatl grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

10A. Introduction to Chicana/Chicano Studies: History and Culture. (5) Lecture, three hours; discussion, one hour. Interdisciplinary survey of diverse historical experiences, cultural factors, and ethnic/racial paradigms, including indigenousness, gender, sexuality, language, and borders, that help shape Chicana/Chicano identities. Emphasis on critical reading and writing skills. Letter grading.

10B. Introduction to Chicana/Chicano Studies: Social Structure and Contemporary Conditions. (5) Lecture, three hours; discussion, one hour. Multidisciplinary examination of representation, ideologies, and material conditions of Chicanas/Chicanos, including colonialism, race, labor, immigration, poverty, assimilation, and patriarchy. Emphasis on critical reading and writing skills. Letter grading.

M18. Leadership and Student-Initiated Retention. (2) (Same as African American Studies M18, American Indian Studies M18, and Asian American Studies M18.) Seminar, two hours. Limited to freshmen/sophomores/first-year transfer students. Not open for credit to students with credit for course M118. Exploration of issues in retention at UCLA through lens of student-initiated and student-run programs, efforts, activities, and services. Focus on populations with historically low graduation rates targeted by Campus Retention Committee. May not be applied toward departmental major or minor elective requirements. May be repeated once for credit. Letter grading.

19. Fiat Lux Freshman Seminars. (1) Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

88. Sophomore Seminars: Chicana and Chicano Studies. (2) Seminar, two hours. Limited to lower division students. Readings and discussions designed to introduce students to current research in Chicana/Chicano studies. Culminating project may be required. May not be applied toward departmental major or minor requirements. May be repeated for credit with topic change. P/NP or letter grading.

97. Variable Topics in Chicana and Chicano Studies. (2) Seminar, two hours. Prerequisite: course 10A or 10B. Current topics and particular research methods in Chicana and Chicano studies through readings and other assignments. May be repeated for credit. P/NP or letter grading.

98. Professional Schools Seminars. (2) Seminar, two hours. Limited to 20 students. Introduction to issues of professional (nonacademic) settings and careers through readings and other assignments. P/NP or letter grading.

Upper Division Courses

100SL. Barrio Service Learning. (4) Seminar, two hours; field placement, eight hours. Limited to juniors/seniors. Service learning placement in community-based organization, labor union, or service-oriented

nonprofit organization. Study of role that these organizations play in improvement and change of Chicana/Chicano communities. Students meet on regular basis with instructor and provide periodic reports of their experience. Individual contract with supervising faculty member required. Letter grading.

101. Theoretical Concepts in Chicana and Chicano Studies. (5) Lecture, four hours; discussion, one hour. Prerequisite: course 10A or 10B. Survey of different theoretical approaches to field of Chicana and Chicano studies. Letter grading.

M102. Mexican Americans and Schools. (4) (Same as Education M102.) Seminar, four hours. Theoretical and empirical overview of Chicana/Chicano educational issues in U.S., with special emphasis on disentangling effects of race, gender, class, and immigrant status on Chicana/Chicano educational attainment and achievement. Examination of how historical, social, political, and economic forces impact Chicana/Chicano educational experience. P/NP or letter grading.

M103C. Origins and Evolution of Chicano Theater. (5) (Same as Theater M103C.) Lecture, three hours. Designed for juniors/seniors. Exploration of development of Chicano theater from its beginning in legends and rituals of ancient Mexico to work of Luis Valdez (late 1960s). P/NP or letter grading.

M103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement. (5) (Same as Theater M103D.) Lecture, three hours. Analysis and discussion of historical and political events from 1965 to 1980, as well as theatrical traditions that led to emergence of Chicano theater. Letter grading.

M103G. Contemporary Chicano Theater: Chicano Theater since 1980. (5) (Same as Theater M103G.) Lecture, three hours. Analysis and discussion of Chicano theater since 1980, including discussion of Chicana playwrights, magic realism, Chicano comedy, and Chicano performance art. Letter grading.

104. Comedy and Culture: Your Humorous Life. (4) Lecture, four hours. How to mine unique humorous life adventures from students' cultural identities and turn those distinct experiences into humorous literature. Students acquire skills to read their stories out loud, with emphasis on comedy in their pieces through art of storytelling and performance. P/NP or letter grading.

M105A. Early Chicana/Chicano Literature, 1400 to 1920. (5) (Same as English M105A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of Chicana/Chicano literature from poetry of Triple Alliance and Aztec Empire through end of Mexican Revolution (1920), including oral and written forms (poetry, corridos, testimonios, folklore, novels, short stories, and drama) by writers such as Nezahualcoyotl (Hungry Coyote), Cabaza de Vaca, Lorenzo de Zavala, María Amparo Ruiz de Burton, Eusebio Chacón, Daniel Venegas, and Lorena Villegas de Magón. P/NP or letter grading.

M105B. Chicana/Chicano Literature from Mexican Revolution to el Movimiento, 1920 to 1970s. (5) (Same as English M105B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Chicana/Chicano literature from 1920s through Great Depression and World War II, ending with Chicana/Chicano civil rights movement. Oral and written narratives by writers including Conrado Espinoza, Jovita González, Cleofas Jaramillo, Angelico Chávez, Mario Suárez, Oscar Acosta, and Evangelina Vigil. P/NP or letter grading.

M105C. Chicana/Chicano Literature since el Movimiento, 1970s to Present. (5) (Same as English M105C.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of Chicana/Chicano literature since 1970s, with particular emphasis on how queer and feminist activism as well as Central and South American migration have shaped 21st-century chicanidad. Oral, written, and graphic fiction, poetry, and drama by writers including John Rechy, Gloria Anzaldúa, Los Bros Hernández, Ana Castillo, and Dagoberto Gilb guide exploration of queer and feminist

studies, Reagan generation, immigration debates, and emerging Latina/Latino majority. P/NP or letter grading.

M105D. Introduction to Latina/Latino Literature. (5) (Same as English M105D.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of U.S. Latina/Latino literature and introduction to its major critical trends, with emphasis on groups of Caribbean, Mexican, South American, and Central American origin. Representative works read in relation to such topics as relationship between Latina/Latino populations and U.S. cultural sphere, struggle for self-determination, experiences of exile and migration, border zones, enclaves and language, and *mestizaje* and its impact on cultural production. P/NP or letter grading.

M105E. Studies in Chicana/Chicano and/or Latina/Latino Literature. (5) (Same as English M105E.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Variable topics course to give students broad introduction to issues and themes in Chicana/Chicano and/or Latina/Latino literature. Topics include border, immigration, revolution, language, gender, sexuality, and diaspora, among others. May be repeated for credit with topic or instructor change. P/NP or letter grading.

105F. Gender, Fiction, and Social Change. (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study of essays, novels, short narratives, and plays written by Chicanas/Latinas. Required readings represent writers with focus on themes of identity, ethnicity, gender, and cross-border experiences leading to social change. Critical reading and analysis of works, searching for strengths and flaws, to point out unique contribution of each work to greater body of U.S. literature. P/NP or letter grading.

M105SL. Seminar: Chicana/Chicano and/or Latina/Latino Literature—Service Learning. (5) (Same as English M105SL.) Seminar, three or four hours; field placement, three or four hours. Enforced requisite: English Composition 3 or 3H. Specialized studies in Chicana/Chicano and/or Latina/Latino literature. In-depth study of various topics related to Chicano/Latino communities in Southern California, including Chicana/Chicano visions of Los Angeles; immigration, migration, and exile; autobiography and historical change; Chicana/Chicano journalism; and labor and literature. Service learning component includes minimum of 20 hours of meaningful work with agency involved with Chicana/Chicano and/or Latina/Latino community and selected by instructor. P/NP or letter grading.

CM106. Health in Chicano/Latino Population. (4) (Formerly numbered M106.) (Same as Public Health M106.) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Examination of Chicano/Latino health status through life expectancy, causes of death, reportable diseases, services utilization, provider supply, and risk behaviors within demographic/immigration changes. Binational review of health effects in U.S. and Mexico. Concurrently scheduled with course C276. Letter grading.

M106B. Diversity in Aging: Roles of Gender and Ethnicity. (4) (Same as Gender Studies M104C, Gerontology M104C, and Social Welfare M104C.) Lecture, four hours. Exploration of complexity of variables related to diversity of aging population and variability in aging process. Examination of gender and ethnicity within context of both physical and social aging, in multidisciplinary perspective utilizing faculty from variety of fields to address issues of diversity. Letter grading.

C107. Latina/Latino Families in U.S. (4) Lecture, four hours; discussion, one hour (when scheduled). Study of how intersections of race, class, and gender help shape experiences of Latina/Latino families in U.S. society and how these intersections also help shape individual experiences within families. Examination of family, race, class, and gender as sociological concepts. Readings about family experiences of diverse Latina/Latino groups in U.S., with special emphasis on immigrants, and analysis of how race,

class, and gender together play important roles in shaping these experiences. Discussion of roles of structure and space for agency in each context. Concurrently scheduled with course C212. P/NP or letter grading.

M108A. Music of Latin America: Mexico, Central America, and Caribbean Isles. (5) (Same as Ethnomusicology M108A.) Lecture, four hours; discussion, one hour. Survey of traditional and contemporary musical culture. P/NP or letter grading.

109. Chicana/Chicano Folklore. (4) Lecture, four hours. Examination of roots of Chicana/Chicano folklore in Mexican oral tradition in mid-19th century and development of Chicana/Chicano folklore to present day. P/NP or letter grading.

CM110. Chicana Feminism. (4) (Same as Gender Studies CM132A.) Lecture, four hours. Enforced requisite: course 10A or Gender Studies 10. Examination of theories and practices of women who identify as Chicana feminist. Analysis of writings of Chicanas who do not identify as feminist but whose practices attend to gender inequities faced by Chicanas both within Chicana/Chicano community and dominant society. Attention to Anglo-European and Third World women. Concurrently scheduled with course CM214. P/NP or letter grading.

111. Chicana/Chicano and Latina/Latino Intellectual Traditions. (5) Lecture, five hours. General view of philosophical, cultural, and social thought as well as intellectual traditions in Americas. Roles of writers as intellectuals and cultural/political strategists, and as definers of (national) identity, social reality, and struggles of liberation. Letter grading.

113. Day of Dead Ritual. (4) Lecture, four hours; discussion, one hour (when scheduled). Introduction to philosophical roots and evolution of traditional celebration of Day of Dead ritual. Contemplation of indigenous, Spanish, Mexican, Chicano, and other influences and manifestations of this ritual. Special attention to Nahuatl language and worldview related to this ancient ritual, such as ancient calendar systems. Designed to motivate critical thinking about what is observed in altars today and impact globalization has on tradition. P/NP or letter grading.

M114. Chicanos in Film/Video. (5) (Same as Film and Television M117.) Lectures/screenings, five hours; discussion, one hour. Goal is to gain nuanced understanding of Chicano cinema as political, socio-economic, cultural, and aesthetic practice. Examination of representation of Mexican Americans and Chicanos in four Hollywood genres—silent greaser films, social problem films, Westerns, and gang films—that are major genres that account for films about or with Mexican Americans produced between 1908 and 1980. Examination of recent Chicano-produced films that subvert or signify on these Hollywood genres, including *Zoot Suit*, *Ballad of Gregorio Cortez*, and *Born in East L.A.* Consideration of shorter, more experimental work that critiques Hollywood image of Chicanos. Guest speakers include both pioneer and up-and-coming filmmakers. P/NP or letter grading.

M115. Musical Aesthetics in Los Angeles. (4) (Same as Ethnomusicology M115.) Lecture, three hours. Confronting aesthetics from classical perspective of art as intuition, examination on cross-cultural basis of diverse musical contexts within vast multicultural metropolis of Los Angeles, with focus on various musical networks and specific experiences of Chicano/Latino, African American, American Indian, Asian, rock culture, Western art music tradition, and commercial music industry. P/NP or letter grading.

M116. Chicano/Latino Music in U.S. (5) (Same as Ethnomusicology M116.) Lecture, four hours; discussion, one hour. Historical and analytical examination of musical expression of Latino peoples who have inhabited present geographical boundaries of U.S. P/NP or letter grading.

117. Chicana/Chicano Images in Mexican Film and Literature. (4) Lecture, four hours. Preparation: adequate understanding of Spanish-language films without English subtitles. Throughout its rich history, spanning more than 100 years, Mexican cinema has produced great variety of films that deal with Chicana/

Chicano experience. Like its U.S. counterpart, Mexican cinematic discourse portrayal of Chicanas/Chicanos has been plagued by use of stereotypes that limit visual representation of Chicanas/Chicanos. Exploration of causes and effects for such obtuse cinematic representation. P/NP or letter grading.

M118. Student-Initiated Retention and Outreach Issues in Higher Education. (4) (Same as African American Studies M118, American Indian Studies M118, and Asian American Studies M168.) Lecture, four hours. Exploration of issues in outreach and retention of students in higher education, especially through student-initiated programs, efforts, activities, and services, with focus on UCLA as case. May be repeated twice for credit. Letter grading.

M119. Chicano/Latino Community Formation: Critical Perspectives and Oral Histories. (4) (Same as Labor and Workplace Studies M123.) Lecture, four hours. Analysis of historical formation and development of Chicano/Latino communities in 20th century, with focus on labor, immigration, economic structures, electoral politics, and international dimensions. Letter grading.

120. Immigration and Chicano Community. (4) Lecture, three hours. Discussion on relationship between international immigration and development of Chicana/Chicano community. Examination of U.S. immigration policy and relationship between Mexican-origin population and other Latin American immigrants. P/NP or letter grading.

M121. Issues in Latina/Latino Poverty. (4) (Same as Labor and Workplace Studies M121 and Urban Planning M140.) Lecture, four hours. Examination of nature and extent of urban and rural poverty confronting Latina/Latino population in U.S. Special emphasis on antipoverty policies of government and nonprofit organizations and social planning and economic development strategies. Attention also to literature on underclass. Letter grading.

M122. Planning Issues in Latina/Latino Communities. (4) (Same as Labor and Workplace Studies M122 and Urban Planning M171.) Lecture, four hours. Exploration of socioeconomic, demographic, and political forces that shape low-income communities and analyses of planning intervention strategies. Emphasis on community and economic development and environmental equity. Letter grading.

123. Applied Research Methods in Latino Communities. (4) Lecture, three hours. Through combination of lectures, key readings, and several experiments, introduction to several applied research methods that are highly effective in producing sound and methodologically rigorous studies on poor and/or Latino communities, including important data that can be used for critical analysis and policy recommendations. Letter grading.

M124. Latino Immigration History and Politics. (4) (Same as Honors Collegium M143.) Lecture, four hours. Overview of immigration in 20th century, examining social, political, and economic contexts out of which different waves of Latin American immigration to U.S. has occurred. Letter grading.

M125. U.S./Mexico Relations. (4) (Same as Labor and Workplace Studies M125.) Lecture, four hours. Examination of complex dynamics in relationship between Mexico and U.S., using political economy approach to study of asymmetrical integration between advanced industrial economies and developing countries. P/NP or letter grading.

M126. Politics of Crisis: Migration, Identity, and Religion. (4) (Same as Honors Collegium M145.) Lecture, three hours. Examination of individual and collective religious response of Latin Americans and Latinas/Latinos in U.S. to dislocations, displacements, and fragmentation produced by conquest, colonization, underdevelopment, globalization, and migration. Letter grading.

M127. Farmworker Movements, Social Justice, and United Farm Workers Legacy. (4) (Same as Labor and Workplace Studies M127.) Lecture, four hours. Designed for juniors/seniors. Historical and social context of farmworker organizing, including its multiracial origins and its influence on fight for

equality of working women. Specific focus on organizing of United Farm Workers and Farm Laborers Organizing Committee, and their relationship to AFL-CIO, other unions, and their influence on Chicano Movement. Letter grading.

M128. Race, Gender, and U.S. Labor. (4) (Same as Labor and Workplace Studies M128.) Lecture, four hours. Designed for juniors/seniors. Introduction to history and organization of labor movement in U.S. and North America. Discussion of race, class, and gender issues raised within movement, and various strategies for social change and economic equity pursued through organized labor and other means. Letter grading.

129. Field Research Methods in Labor and Workplace Studies. (5) Lecture, four hours; field studies, two hours. Designed for juniors/seniors. Discussion of roles of union and nonunion worker organizations in society and in improvement of quality of life for Latina/Latino communities. Review and application of field research methods to labor organizations and workplace sites, especially participant observation, interview techniques, and grounded theory and other methods of data analysis. Letter grading.

M130. Worker Center Movement: Next Wave Organizing for Justice for Immigrant Workers. (4) (Same as African American Studies M167, Asian American Studies M166C, and Labor and Workplace Studies M167.) Seminar, three hours. Development of theoretical and practical understanding of worker center movement, with focus on historical factors that have led to emergence and growth of worker centers. Role of worker centers in promoting multiethnic and multiracial campaigns for workplace and economic justice. Transnational cross-border solidarity issues and rights of undocumented workers. P/NP or letter grading.

131. Barrio Popular Culture. (4) Lecture, three hours. Construction of model by which to organize study of Chicana/Chicano popular culture by focusing on barrio as metaphor for community. Examination of beliefs, myths, and values of Chicana/Chicano culture and representations in icons, heroes, legends, stereotypes, and popular art forms through literature, film, video, music, mass media, and oral history. Letter grading.

132. Border Consciousness. (4) (Formerly numbered C132.) Lecture, three hours. Investigation through history, popular culture, and mass media of bilingual and bicultural identities produced by geographical and cultural space between Mexico and U.S. Special attention to border consciousness as site of conflict and resistance. Letter grading.

M133. Chicana Lesbian Literature. (4) (Formerly numbered CM133.) (Same as Gender Studies M133 and Lesbian, Gay, Bisexual, and Transgender Studies M133.) Lecture, four hours. Exploration of intersection of radical First and Third World feminist politics, lesbian sexuality and its relationship to Chicana identity, representation of lesbianism in Chicana literature, meaning of *familia* in Chicana lesbian lives, and impact of Chicana lesbian theory on Chicana/Chicano studies. Letter grading.

M135. Bilingual Writing Workshop. (4) (Formerly numbered CM135.) (Same as Gender Studies M135C.) Seminar, four hours. Limited to juniors/seniors. Writing sample required; access to course webpage mandatory; need not be bilingual to enroll. Technical instruction, analysis, and theoretical discussion of bilingual creative expression through genre of short fiction. Bilingualism as both politics and aesthetics to be central theme. Discussion and analysis of Chicana/Chicano and Latina/Latino short story collections. Peer critique of weekly writing assignments. Emphasis on narrative techniques such as characterization, plot, conflict, setting, point of view, and dialogue, and magical realism as prevailing Chicano/Latinasque style. Some attention to process of manuscript preparation, public reading, and publication. Letter grading.

M136. Censored! Art on Trial. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M136.) Lecture, four hours. Examination of censorship in visual

arts, particularly art of queer Chicana/Chicano and Latina/Latino artists such as Alma Lopez, Ester Hernández, and Alex Donis. Other censored artists include feminist artist Yolanda López, queer artists Robert Mapplethorpe and David Wojnarowicz, painter Christ Ofili, photographers Sally Mann and Andres Serrano, printmaker Enrique Chagoya, muralist Noni Olabisi, writer Salman Rushdie, and four performance artists—Karen Finley, Tim Miller, John Fleck, and Holly Hughes—whose work was vetoed by chair of National Endowment for Arts (NEA) in 1990 after they had successfully passed through NEA's peer review process and who came to be known as NEA Four. P/NP or letter grading.

M139. Topics in Chicana/Chicano and/or Latina/Latino Literature. (5) (Same as English M191B.) Seminar, three or four hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in Chicana/Chicano and/or Latina/Latino literature. Topics may include labor and literature; Chicana/Chicano visions of Los Angeles; immigration, migration, and exile; autobiography and historical change; Chicana/Chicano journalism; literary New Mexico; specific literary genres. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M140A. Diasporic Nonfiction: Media Engagements with Memory and Displacement I. (4) (Same as African American Studies M170A.) Seminar, three hours. Video production course, with emphasis on autobiographical, critical, and performance-based modes of nonfiction media making, drawing on practices of diasporic filmmakers who have grappled with suppressed collective memories of displacement, trauma, exile, and migration. What does it mean to make videos about memory in places where direct cues to remembering cannot be seen? Introduction to concepts from films and readings. Production assignments and screenings, with focus on questions of how to represent history, memory, family dynamics, and lived experience according to perspectives and interests of diasporic subjects. In Progress grading (credit to be given only on completion of course M140B).

M140B. Diasporic Nonfiction: Media Engagements with Memory and Displacement II. (4) (Same as African American Studies M170B.) Seminar, three hours. Enforced requisite: course M140A. Students complete 20- to 30-minute video projects about issues or experiences central to everyday lives of collectives of diasporic peoples. They learn to propose, record, edit, and distribute one socially engaged nonfiction video and draw on their experiences from course M140A in writing voiceover, choreographing dances, designing public performances, interviewing, and recording everyday life. P/NP or letter grading.

C141. Chicana and Latin American Women's Narrative. (4) (Formerly numbered 141.) Lecture, four hours. Preparation: reading knowledge of Spanish (level 4). Analyses, comparisons, and discussion of narrative literary production of U.S. Chicana writers and their Latin American counterparts in English and Spanish, with particular focus on how each group deals with gender, ethnic, and class issues. Concurrently scheduled with course C251. Letter grading.

142. Mesoamerican Literatures. (4) Lecture, four hours. Preparation: reading knowledge of Spanish (level 4). Survey of premises of Mesoamerican literatures, including myths, lyrics, poetry, religious celebrations, rituals, and drama, specifically of Aztec and Mayan peoples prior to European contact. Letter grading.

143. Mestizaje: History of Diverse Racial/Cultural Roots of Mexico. (4) Lecture, four hours; discussion, one hour (when scheduled). Historical examination of diverse racial and cultural roots of Chicanas and Chicanos. Utilizing theoretical frameworks of *mestizaje*, *Aztlán*, *indigenismo*, *La Raza Cósmica*, and *la tercera raíz*, examination of some important groups who have contributed to formation of Mexican national culture. Development of race relations in Mexico during colonial period, with focus on analysis of Nahuas (Aztecs), Mixtecs, Spaniards, and African slave population. Analysis of Asian immigration to

Mexico and California during national period, specifically examination of migration and adaptation experiences of Chinese, Japanese, and Punjabi-Indian immigrants. P/NP or letter grading.

M144. Women's Movement in Latin America. (4) (Same as Gender Studies M144 and Labor and Workplace Studies M144.) Lecture, four hours. Course on women's movements and feminism in Latin America and Caribbean to examine diverse social movements and locations from which women have launched political and gender struggles. Discussion of forms of feminism and women's consciousness that have emerged out of indigenous rights movements, environmental struggles, labor movements, Christian-based communities, peasant and rural organizing, and new social movements that are concerned with race, sexuality, feminism, and human rights. Through comparative study of women's movements in diversity of political systems as well as national and transnational arenas, students gain understanding of historical contexts and political conditions that give rise to women's resistance, as well as major debates in field of study. P/NP or letter grading.

M145A. Introduction to Chicano Literature: Literature to 1960. (4) (Same as Spanish M145A.) Lecture, three hours. Requisite: Spanish 25 or 27. Introduction to texts representative of Chicano literary heritage. Sampling of genres, as well as historical and geographical settings and points of view characteristic of work written by Chicanos during 20th century. Most required reading in Spanish. Bilingual and English works are included and discussed. Reading and analysis of number of important scholarly and critical statements pertaining to characteristics and development of Chicano literary corpus. Letter grading.

M145B. Literature of Chicana/Chicano Movement. (4) (Same as Spanish M155B.) Lecture, three hours. Enforced requisite: Spanish 25 or 27. Examination of literature of Chicana/Chicano movement covering period from first manifestations of Chicano artistic production in 1965 with *el Teatro Campesino* through rise of women's writing, including work by Cherrie Moraga (1983), Helena María Viramontes (1985), and Sandra Cisneros (1991). P/NP or letter grading.

M146. Chicano Narrative. (4) (Same as Spanish M155A.) Lecture, three hours. Enforced requisite: Spanish 25 or 27. Introduction to major Chicano narrative genres—novel, romance, satire, autobiography, *cronícon/semblanza*, Chicana detective novel, and Chicana solidarity fiction. Texts examined within their own geographic, cultural, and historical contexts, as well as within history of narrative forms. P/NP or letter grading.

CM147. Transnational Women's Organizing in Americas. (4) (Formerly numbered M147.) (Same as Gender Studies M147C.) Lecture, four hours. Feminist theories of transnational organizing. Examination of gender and race as central to processes of globalization and essential to economic and political struggles encompassed in transnational power relations. Exploration of how questions of race and gender influence global economic policies and impact local actors and their communities. In time when people, capital, cultures, and technologies cross national borders with growing frequency, discussion of process of accelerated globalization has been linked to feminization of labor and migration, environmental degradation, questions of diaspora, sexuality, and cultural displacement, as well as growing global militarization. Problems and issues created by globalization and cultural, social, and political responses envisioned by transnational organizing. Concurrently scheduled with course C215. P/NP or letter grading.

M148. Politics of Struggle: Race, Solidarity, and Resistance. (4) (Formerly numbered 148.) (Same as African American Studies M148.) Lecture, four hours. Examination of Chicana/Chicano intergroup relations and political coalitions with other Latinos, African Americans, Asian and Pacific Islanders, and Euro-Americans, especially in communities undergoing rapid changes in demographic composition. Letter grading.

149. Gendered Politics and Chicana/Latina Political Participation. (4) Lecture, four hours. Examination of Chicanas and Latinas as participants, organizers, and leaders in communities, workplaces, labor unions, and government. Survey of Chicanas/Latinas in politics and as policymakers in appointed and elected offices. Analysis of gendering of politics and political behavior. Letter grading.

150. Affirmative Action: History and Politics. (4) Lecture, four hours; discussion, one hour (when scheduled). Historical examination of political economic context in which affirmative action policies and programs were conceived and implemented. Review of impact on Chicanas/Chicanos, Latinas/Latinos, and other communities. Specific analysis of university admissions, hiring and contracting practices, and state initiatives. Letter grading.

151. Human Rights in Americas. (4) Lecture, four hours. International human rights law and U.S. foreign policy in context of historical, political, social, and legal issues and court decisions involving U.S. and its role and relations with governments and institutions throughout Americas. Historical and contemporary development of regional and international law, institutions, law, and norms related to promotion and protection of human rights. P/NP or letter grading.

152. Disposable People: U.S. Deportation and Repatriation Campaigns. (4) Seminar, four hours. Examination of U.S. deportation campaigns targeted at Mexican and other Latin American workers, residents, and U.S.-born citizens. Addressing various periods of large-scale highly organized deportation and repatriation efforts after violent conquest of Mexican territories in 19th century, during economic and social panic of Great Depression in 1930s and Operation Wetback in 1950s, and through turn of 21st century, examination of criminalization of Mexican and Latino immigrants, police and military tactics of federal government, and administrative and legal mechanisms and institutions that have been created to facilitate deportation. Provides grounded knowledge of U.S. deportation history to contextualize broader national debate about immigration reform that is occurring today. P/NP or letter grading.

153. Central Americans in U.S. (4) Lecture, four hours. Interdisciplinary survey of social, historical, political, economic, educational, and cultural experiences of Central American immigrants and their children in U.S. Introduction to several contemporary experiences and issues in U.S. Central American communities. With focus mostly on Guatemalan, Honduran, and Salvadoran immigrants, exploration of social structures that constrain individuals, as well as strategies and behaviors immigrants and their communities have taken to establish their presence and incorporate into U.S. society. How Central American identity has been constructed and how this identity intersects with race, gender, and legal status. P/NP or letter grading.

M154. Contemporary Issues among Chicanas. (4) (Same as Gender Studies M132B.) Lecture, two and one half hours. Requisite: Gender Studies 10. Overview of conditions facing Chicanas in U.S., including issues on family, immigration, reproduction, employment conditions. Comparative analysis with other Latinas. P/NP or letter grading.

M155A. Latinos in U.S. (4) (Formerly numbered M155.) (Same as Sociology M155.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Exploration of history and social conditions of Latinos in Los Angeles as well as nationally, with particular emphasis on their location in larger social structure and on comparisons with other minority groups. Topics include migration, family, education, and work issues. P/NP or letter grading.

155B. U.S. Latino Politics. (5) Lecture, four hours; discussion, one hour (when scheduled). Examination of history and contemporary role of Latinos as minority group in U.S. political system. Historical analysis of Latino immigration and migration, struggles during civil rights movement, increases in citizenship, registration, and voting in 1980s and 1990s, and new wave of anti-immigrant attitudes, and response by

Latinos today. Political relationships between Latinos and non-Latinos as they relate to political institutions, political parties, voting coalitions, representation, and public policy, including focus on Latinos role in 2010 midterm election. Participation as researchers in Political Science Survey Laboratory, helping to collect data in public opinion survey on attitudes toward Latinos, immigration, and other topics. P/NP or letter grading.

M156A. Immigrant Rights, Labor, and Higher Education. (4) (Same as Asian American Studies M166A and Labor and Workplace Studies M166A.) Seminar, three hours. New immigrant rights movement, with particular attention to labor and higher education. Overview of history of immigrant rights movement and examination of development of coalition efforts between labor movement and immigrant rights movement nationally and locally. Special focus on issue of immigrant students in higher education, challenges facing undocumented immigrant students, and legislative and policy issues that have emerged. Students conduct oral histories, family histories, research on immigration and immigrant rights, write poetry and spoken word about immigrant experience, and work to collectively develop student publication on immigrant students in higher education. P/NP or letter grading.

M156B. Research on Immigration Rights, Labor, and Higher Education. (4) (Same as Asian American Studies M166B and Labor and Workplace Studies M166B.) Seminar, two hours. Requisite: course M156A. Expansion of research conducted by students in course M156A involving oral histories, research on immigration/labor/higher education, and evaluation of legislation and legal issues impacting undocumented students. Letter grading.

M156C. Research on Immigrant Students and Higher Education. (4) (Same as Labor and Workplace Studies M166C.) Seminar, three hours. Enforced requisites: courses M156A, M156B. Expansion of research conducted by students in courses M156A and M156B involving oral histories, research on immigration/labor/higher education, and evaluation of legislation and legal issues impacting undocumented students. Designed around class project, where students work on showcasing all material collected throughout year. Letter grading.

157. Chicano Movement and Its Political Legacies. (4) Lecture, four hours. Collective examination of Chicano Movement of 1960s and 1970s and analysis of its political legacies. Grounded in historiographic inquiry and social movement theory, investigation of mobilization of diverse sectors of *el movimiento*, including students, workers, artists, youth, community activists, and women. Exploration of myriad issues and struggles that compelled Chicanas/Chicanos to resist such as land and labor rights, education, anti-war movements, community autonomy, police brutality, political inclusion, cultural recovery, racism, sexism, and class exploitation. Investigation of diverse ideologies, debates, and legacies of Chicano Movement through analysis of Chicana/Chicano motivations for organizing, modes, strategies, innovations, challenges, and articulation of new political subjectivities. P/NP or letter grading.

M158. Chicana Historiography. (4) (Same as Gender Studies M157 and History M151D.) Lecture, four hours. Examination of Chicana historiography, looking closely at how practice of writing of history has placed Chicanas into particular narratives. Using Chicana feminist approaches to study of history, revisiting of specific historical periods and moments such as Spanish Conquest, Mexican Period, American Conquest, Mexican Revolution, and Chicano Movement to excavate untold stories about women's participation in and contribution to making of Chicana and Chicano history. P/NP or letter grading.

M159A. History of Chicano Peoples. (4) (Same as History M151A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey lecture course on historical development of Mexican (Chicano) community and people of Mexican descent (Indio-Mestizo-Mulato) north of Rio through 17th, 18th, and 19th centuries, with special focus on

labor and politics. Provides integrated understanding of change over time in Mexican community by inquiry into major formative historical forces affecting community. Social structure, economy, labor, culture, political organization, conflict, and international relations. Emphasis on social forces, class analysis, social, economic, and labor conflict, ideas, domination, and resistance. Developments related to historical events of significance occurring both in U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and field research, and submission of paper. P/NP or letter grading.

M159B. History of Chicano Peoples. (4) (Same as History M151B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey lecture course on historical development of Mexican (Chicano) community and people of Mexican descent in U.S. through 20th century, with special focus on labor and politics. Provides integrated understanding of change over time in Mexican community by inquiry into major formative historical and policy issues affecting community. Within framework of domination and resistance, discussion deals with social structure, economy, labor, culture, political organization, conflict, and ideology. Developments related to historical events of significance occurring both in U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and/or field research, and submission of paper. P/NP or letter grading.

160. Introduction to Chicana/Chicano Speech in American Society. (4) Lecture, three hours. Survey course presenting (1) basic elements of Chicano language use, including history of Chicano languages, types and social functions of Chicano speech (*pacchoco*, *caló*, Spanglish), sexist language, and multilingualism and monolingualism and (2) major social issues associated with language use by Chicanos and other urban ethnic populations. Letter grading.

161. Chicana and Chicano Rhetoric. (4) Lecture, four hours. Examination of speeches and other public discourse of Chicana/Chicano communities associated with political and social movements, using field of rhetoric (study of public speech and persuasion). Development of public speaking skills and abilities. P/NP or letter grading.

163. Bilingual Advantage: Spanish Language Topics on Chicana/Chicano and Latin American Cultures. (5) Lecture, four hours; discussion, one hour. Requisite: Spanish 4. Review of Spanish language literature, newsprint, radio, and television in U.S., providing for student development of academic skills in Spanish. Comparison with Spanish language mass media in other parts of world. Letter grading.

164SL. Oral History: Latino New Immigrant Youth. (5) (Formerly numbered M164SL.) Seminar, three hours; tutoring, two and one half hours. Theory, methodology, and practice of oral history, together with background information on Latino immigration to U.S. Readings include oral histories of Latino immigrants. Letter grading.

165. Latinas and Latinos in Public Education. (4) Lecture, four hours. Examination of language issues pertinent to educational systems, including language inequity, literacy, testing, and socialization, as well as institutional ideologies. Letter grading.

166. Paulo Freire for Chicana/Chicano Classroom. (4) Seminar, four hours. Introduction to pedagogy of Paulo Freire and examination of historical and contemporary problems circumscribing Chicana/Chicano education. Central focus to offer Freirian alternative to answer theoretical, methodological, practical, and policy questions about schooling of Chicanas/Chicanos in U.S. P/NP or letter grading.

M167SL. Taking It to Street: Spanish in Community. (5) (Same as Spanish M168SL.) Seminar, three hours; fieldwork, 10 hours. Enforced requisite: Spanish 25 or 27. Service learning course to give students opportunity to use cultural and linguistic knowledge acquired in Spanish classes in real-world set-

tings. Students required to spend minimum of eight to 10 hours per week at agreed on site in Latino community. P/NP or letter grading.

168A. Latinos: Print Media. (4) Lecture, four hours. Examination of systemic (mis)representations of Latinos by print media source (*Los Angeles Times*) by means of critical discourse analysis and metaphor theory. Investigation of empirical basis for theories of racism in language in this context. Student projects range from immigration to education and crime to culture. Letter grading.

168B. Latinos: Television News. (4) Lecture, four hours. Requisite: course 168A. Study of multimodal (visual, graphic, spoken, audio, and text) images disseminated by television news programs to learn how nation comes to their understanding of Latinos. Development of critical visual interpretive acuity through semiotics training and analysis of actual television news stories. Letter grading.

169. Representations of Indigenous Peoples in Americas. (4) Lecture, four hours. Strongly recommended requisite: course 101. Introduction to different forms of representation of indigenous peoples and their presence in Americas, with emphasis on Mesoamerica and Andes. How indigenous images are expressed, perceived, and constructed at point of contact with Europeans during development of indigenismo and in current period. Discussion of how these relate to Chicana/Chicano identity construction. Letter grading.

M170SL. Latinos, Linguistics, and Literacy. (5) (Same as Spanish M172SL.) Seminar, four hours; field project, four to six hours. Recommended requisite: Spanish 100A. In-depth study of various topics related to literacy, including different definitions of literacy, programs for adult preliterates, literacy and gender, approaches to literacy (whole language, phonics, Freire's liberation pedagogy), history of writing systems, phoneme as basis for alphabetic writing, and national literacy campaigns. Required field project involving Spanish-speaking adults in adult literacy programs. P/NP or letter grading.

171. Humor as Social Control. (4) Lecture, four hours. Hegemonic humor directs laughter of more powerful people against those with less power. In this case laughter becomes weapon used against Latinos and immigrants. With rise of Latinos in last decade, there has been increase of various guises of anti-Latino hegemonic humor in commercial mass-mediated popular culture. Exploration of theorizing, as well as today's myriad examples, of such humor to develop critical literacy of social work it accomplishes. Letter grading.

172. Chicana and Chicano Ethnography. (4) Lecture, four hours. Culture change theory encompasses such issues as innovation, syncretism, colonialism, modernization, urbanization, migration, and acculturation. Examination of methods anthropologists/ethnographers use in studying and analyzing culture change within ethnohistorical background of Mexican and Mexican American people to clarify social and cultural origins of modern habits and customs and, more importantly, unravel various culture change threads of that experience. Topics include technology and evolution, Indian nation-states, miscegenation, peasantry, expansionism, industrialization, immigration, ethnicity, and adaptation. Field project on some aspect of culture change required. P/NP or letter grading.

M173. Nonviolence and Social Movements. (4) (Same as African American Studies M173 and Labor and Workplace Studies M173.) Lecture, three hours; discussion, one hour. Overview of nonviolence and its impact on social movements both historically and in its present context in contemporary society, featuring lectures, conversations, films, readings, and guest speakers. Exploration of some historic contributions of civil rights struggles and role of nonviolent action throughout recent U.S. history. Examination of particular lessons of nonviolent movements as they impact social change organizing in Los Angeles. P/NP or letter grading.

M174A-M174B. Restoring Civility: Understanding, Using, and Resolving Conflict. (4-4) (Same as Education M145A-M145B.) Lecture, one hour; discussion, three hours. Course M174A is enforced requisite to M174B. Designed for students who want to learn principles of dialogue and mediation, as alternatives to violence, and practice how to apply them in educational settings. In Progress (M174A) and letter (M174B) grading.

M174C. Alternatives to Violence: Peer Mediation in Public Schools. (4) (Same as Education M145C.) Lecture, one hour; fieldwork, three hours. Requisites: courses M174A, M174B. Limited to juniors/seniors. Application of student knowledge and experience to help students in partner schools to develop peer mediation programs to be sustained by future UCLA students. Work at partner school sites and demonstration of firm grasp of concepts of conflict resolution through weekly reflective journals, discussion through biweekly meetings, and final journal entry. Application of critical thinking, review of literature from earlier courses, and reflection on student field experiences to deepen understanding of violence, its causes, and what schools can do to mitigate it. Letter grading.

M175. Chicana Art and Artists. (4) (Same as Art M184 and World Arts and Cultures M128.) Lecture, four hours. Introduction to Chicana art and artists. Examination of Chicana aesthetic. Chicana artists have developed unique experience and identity as artists and Chicanas. Letter grading.

176. Globalization and Transnationalism: Local Historical Dynamics and Praxis. (4) Lecture, four hours. Analysis of dynamics of Chicana/Chicano transnational community formation in comparative global perspective, explored both as historical result of and key future actor in localized dynamics of transnationalization in California's relation to world. Analysis of Chicana/Chicano experience in California as both highly linked node and localized microcosm of dynamics of globalization that is both affected by as well as influences course of alternative scenarios of globalization. Designed to help students develop critical political economy analysis of interplay between globalization and localized transnational dynamics that together are giving meaning to and constructing new social identities and strategies for struggle throughout world. P/NP or letter grading.

177. Latino Social Policy. (4) Lecture, three hours. Examination of social welfare of Latinos (Chicanos, Puerto Ricans, and Cubans) in U.S. through assessment and critical analysis of social policy issues affecting them. Survey of social, economic, cultural, and political circumstances affecting ability of Latinos to access public benefits and human services. Letter grading.

178. Latinas/Latinos and Law: Comparative and Historical Perspectives. (4) Lecture, four hours. Survey of experiences of Latinas/Latinos with U.S. legal system. Examination of landmark appellate decisions and litigation efforts in jury service, voting rights, language, public accommodations, education, and other areas. Critical assessment of role of legal principles and litigation in improving Latina/Latino position within U.S. society. Letter grading.

CM179. Language Politics and Policies in U.S.: Comparative History. (4) (Formerly numbered M179.) (Same as Applied Linguistics M179.) Lecture, four hours. Historical overview of national and institutional language policies, especially schooling, in U.S. as context to understanding social, legal, and political constraints on bilingualism. Definitions and development of language policy and planning, history of general and educational language policies in U.S., demographic profile of language diversity, and current language and educational policy issues in U.S. Comparisons with selected international cases. Concurrently scheduled with course C274. P/NP or letter grading.

180. Chicana/Chicano Schooling and Community Activism. (4) Seminar, four hours. Overview of Chicana/Chicano schooling issues in U.S., with special emphasis on several important historical events that exemplify struggle for educational justice and equity

that affected Chicana/Chicano education — Mendez versus Westminster (1947) desegregation case and 1968 high school Chicana/Chicano student walkouts. Through oral history projects, documentation of legacy of Sylvia Mendez, who experienced segregation in one Mexican school in 1940s, Sal Castro, Chicano teacher and central figure in 1968 walkouts, and Chicano Youth Leadership Conference (CYLC). Examination of how historical, social, and political forces have impacted Chicana/Chicano educational experiences. P/NP or letter grading.

181. History of Chicana/Chicano Los Angeles, 20th Century. (4) Lecture, four hours. History of Mexican American people in 20th-century Los Angeles. Readings and lectures emphasize formation of regional identity among Mexican Americans in Los Angeles and their significance to emergence of multicultural metropolis. Letter grading.

CM182. Understanding Whiteness in American History and Culture. (4) (Formerly numbered M182.) (Same as History M151C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History, construction, and representation of whiteness in American society. Readings and discussions trace evolution of white identity and explore its significance to historical construction of race class in American history. Concurrently scheduled with course C256. Letter grading.

M183. History of Los Angeles. (4) (Same as History M155.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Social, economic, cultural, and political development of Los Angeles and its environs from time of its founding to present. Emphasis on diverse peoples of area, changing physical environment, various interpretations of city, and Los Angeles' place among American urban centers. P/NP or letter grading.

184. History of U.S./Mexican Borderlands. (4) Lecture, four hours. Survey of historic and geographic diversity of Chicana/Chicano identity and culture, with emphasis on regional communities of California, New Mexico, and Texas in Spanish/Mexican borderlands as situated within U.S. national context. Letter grading.

M185. Whose Monument Where: Course on Public Art. (4) (Same as Art M185 and World Arts and Cultures M126.) Lecture, four hours. Recommended corequisite: course M186A, M186B, or M186C. Examination of public monuments in U.S. as basis for cultural insight and critique of American values from perspective of artist. Use of urban Los Angeles as textbook in urban space issues such as who is public, what is public space at end of 20th century, what defines neighborhoods, and do different ethnic populations use public space differently. P/NP or letter grading.

M186A. Beyond Mexican Mural: Beginning Muralism and Community Development. (4) (Same as Art M186A and World Arts and Cultures M125A.) Studio/lecture, four hours. Corequisite: course M186AL. Investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. P/NP or letter grading.

M186AL-M186BL-M186CL. Beyond Mexican Mural: Muralism and Community Laboratory. (4-4-2) (Same as Art M186AL-M186BL-M186CL and World Arts and Cultures M125AL-M125BL-M125CL.) Course M186AL is requisite to M186BL, which is requisite to M186CL. Mural and Digital Laboratory is art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in community-based setting. Open to students during scheduled hours with laboratory tech support, it offers instruction as students independently and in collaborative teams research, design, and produce large-scale painted and digitally generated murals to be placed in community setting. P/NP or letter grading.

M186AL. Beginning. Laboratory, four hours. Corequisite: course M186A; **M186BL.** Intermediate. Labora-

tory, four hours. Requisites: courses M186A, M186AL. Corequisite: course M186B; **M186CL**. Advanced. Laboratory, two hours. Corequisite: course M186C.

M186B. Beyond Mexican Mural: Intermediate Muralism and Community Development. (4) (Same as Art M186B and World Arts and Cultures M125B.) Studio/lecture, four hours. Requisites: courses M186A, M186AL. Corequisite: course M186BL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through states of production to full scale and community approval. P/NP or letter grading.

M186C. Beyond Mexican Mural: Advanced Muralism and Community Development. (4) (Same as Art M186C and World Arts and Cultures M125C.) Studio/lecture, six hours. Requisites: courses M186B, M186BL. Corequisite: course M186CL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through installation, documentation, and dedication, with work on more advanced independent projects. P/NP or letter grading.

M187. Latino Metropolis: Architecture and Urbanism in Americas. (4) (Same as History M151E and Urban Planning M187.) Lecture, four hours. Introduction to history of architecture and urbanism in Americas, from fabled cities of Aztec empire to barrios of 21st-century Los Angeles and Miami. Emphasis on role of cities in Latina/Latino experience and uses of architecture and city planning to forge new social identities rooted in historical experiences of conquest, immigration, nationalization, and revolution. P/NP or letter grading.

188. Special Courses in Chicana and Chicano Studies. (4) Seminar, three hours. Some sections may require prior coursework. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

190. Research Colloquia in Chicana and Chicano Studies. (2) Seminar, two hours. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to present reports, discuss research methodologies, share findings, and provide feedback on each other's work. Culminates in public summit of Chicana/Chicano student research at which students expected to present polished position papers on their research. May be repeated for credit. P/NP grading.

191. Variable Topics Research Seminars: Chicana and Chicano Studies. (4) Seminar, three hours. Limited to juniors/seniors. Research seminar organized around readings and engaged discussion of critical topic of interest in field. Exploration of issue, its theoretical implication for field, and practical implications for communities. Final research project required. May be repeated for credit. P/NP or letter grading.

192A. Undergraduate Practicum in Chicana and Chicano Studies. (4) (Formerly numbered 192.) Seminar, four hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students who assist in preparation of materials and/or development of innovative programs or courses of study under guidance of faculty members in small group settings or one-on-one setting. May not be applied toward departmental major or minor elective requirements. May be repeated for credit. P/NP or letter grading.

193. Readings/Speaker Series Seminars: Chicana and Chicano Studies. (1) Seminar, one hour. Limited to undergraduate Colloquia Series students. Reading of journal articles associated with speaker topics to

enliven postcolloquia discussions. May not be applied toward departmental major or minor elective requirements. May be repeated for credit. P/NP grading.

194. Research Group Seminars: Chicana and Chicano Studies. (2) Seminar, one hour. Designed for undergraduate students who are part of research group. Discussion of current literature in field or of research of faculty members or students. Use of specific research method on selected topic. May be repeated for credit with topic change. P/NP grading.

195. Community Internships in Chicana and Chicano Studies. (4) Tutorial, two hours; field placement, eight hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

M195CE. Comparative Approaches to Community and Corporate Internships. (4) (Same as African American Studies M195CE, American Indian Studies M195CE, Asian American Studies M195CE, and Gender Studies M195CE.) Tutorial, one hour; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Comparative study of race, gender, and indigeneity in relation to contemporary workplace dynamics. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. Individual contract with supervising faculty member required. P/NP or letter grading.

196. Research Apprenticeship in Chicana and Chicano Studies. (2 to 4) Tutorial, three hours per week per unit. Requisite: course 10A or 10B. Limited to juniors/seniors. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. Participation in all aspects of research project, including library research, reading materials, and compilation of data, with scheduled meetings throughout term with faculty mentor for discussion of project. May not be applied toward departmental major or minor requirements. May be repeated under different contract; consult department. Individual contract required. P/NP grading.

197. Individual Studies in Chicana and Chicano Studies. (2 to 4) Tutorial, four hours. Requisites: courses 10A, 10B. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

197C. Individual Capstone Studies. (2) Tutorial, one hour. Requisites: courses 10A and 10B, or 101. Limited to departmental junior/senior majors. Guided study led by faculty supervisor. Instructor meets with student to help design culminating capstone project so it conforms to departmental capstone project guidelines. Must be taken in conjunction with one upper division departmental course. May not be repeated for credit. Individual contract required. Letter grading.

198A-198B-198C. Honors Research in Chicana and Chicano Studies. (2 each) Tutorial, one hour. Limited to junior/senior honors program students. May be repeated for credit. Individual contract required. Letter grading. **198A.** Thesis Conceptualization. Requisites: courses 10A, 10B, 101, and 89 or 189. Conceptualization and formulation of project in Fall Quarter under direct supervision of faculty member. Preliminary data collection on topic and production of proposal for thesis required. **198B.** Annotated Bibliography/Literature Review. Requisite: course 198A. Development of research skills in Winter Quarter to produce extensive annotated bibliography or literature review on thesis topic. Weekly meetings

with faculty member to discuss research and develop outline, argument, and structure of thesis. **198C.** Writing and Revision. Requisite: course 198B. Writing, revision, and completion of departmental honors thesis in Spring Quarter to specification and satisfaction of thesis committee. Public presentation and defense of thesis required.

199. Directed Research or Senior Project in Chicana and Chicano Studies. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Theoretical Paradigms in Chicana and Chicano Studies. (4) Seminar, three hours. Limited to graduate students. Examination of several approaches and important theoretical frameworks in field of Chicana and Chicano studies. Exploration of changes that have taken place around four key theoretical areas—coloniality, nationhood, inequality studies, and genders and sexualities. S/U or letter grading.

201. Activist Scholarship and Intersectional Methodologies Seminar. (4) Seminar, three hours. Limited to graduate students. Exploration of four critical epistemologies, or schools of thought, that employ intersectional methodologies as basis for social action research—Chicana/Chicano cultural studies, Chicana feminism, queer studies, and critical legal studies. S/U or letter grading.

202. Qualitative Methods in Study of Chicanas/Chicanos and Latinas/Latinos. (4) Seminar, three hours. Limited to graduate students. Methods course that takes students through entire empirical research cycle. Students required to collectively develop interesting research questions, conduct qualitative research, analyze original data, and write final papers that contextualize findings within existing social scientific literature. To answer research questions, students select from theoretical frameworks discussed in readings. S/U or letter grading.

209. Service Learning: Theory and Praxis. (4) Seminar, three hours. Limited to graduate students. Examination of approaches and theories that underpin service learning and exploration of ways in which service learning can be utilized in variety of academic disciplines (second and foreign language instruction, education, ethnic studies, labor studies, women's studies, public health, literature, public art, political science, etc.). Creation of research proposal for use of service learning in one course (real or hypothetical) in academic discipline of student's choice. S/U or letter grading.

210. Queer of Color Genealogies. (4) Seminar, three hours. Art of community-making by those multiply marginalized by categories of race, gender, class, citizenship, and gender nonconformity and disposed of normative forms of belonging. Tracking of genealogies of queer of color communities through alternative archives of desire, love, affect, memory, performance, and politics. Reading about queer of color theories and practices, with special focus on oral history, digital storytelling, and forms of social documentation methodologies. S/U or letter grading.

211. Immobilizing Immigrants: Detention and Deportation in U.S. (4) Seminar, three hours. History of detention and deportation policy in U.S. as it affects Mexicans and other Latinas/Latinos. Consolidation of this legal authority and its deployment across 20th century. S/U or letter grading.

C212. Latina/Latino Families in U.S. (4) Lecture, four hours; discussion, one hour (when scheduled). Study of how intersections of race, class, and gender help shape experiences of Latina/Latino families in U.S. society and how these intersections also help shape individual experiences within families. Examination of family, race, class, and gender as sociological concepts. Readings about family experiences of diverse Latina/Latino groups in U.S., with special emphasis on immigrants, and analysis of how race, class, and gender together play important roles in

shaping these experiences. Discussion of roles of structure and space for agency in each context. Concurrently scheduled with course C107. Letter grading.

M213. Asian-Latinos. (4) (Same as Asian American Studies M213.) Seminar, three hours. Limited to graduate students. Examination of historical and contemporary populations of Asian-Latinos in Latin America and U.S. Review and critique of nascent literature on Asian-Latinos and analysis of experience of Asian-Latinos utilizing theoretical frameworks of *mestizaje*, critical mixed-race theory, and transnationalism. Coverage of often-overlooked Asian contributions to Latin American and Chicano/Latino culture and identity and exploration of unique experience of mixed-race Asian-Latinos. S/U or letter grading.

CM214. Chicana Feminism. (4) (Same as Gender Studies CM232A.) Lecture, four hours. Enforced requisite: course 10A or Gender Studies 10. Examination of theories and practices of women who identify as Chicana feminist. Analysis of writings of Chicanas who do not identify as feminist but whose practices attend to gender inequities faced by Chicanas both within Chicana/Chicano community and dominant society. Attention to Anglo-European and Third World women. Concurrently scheduled with course CM110. S/U or letter grading.

C215. Transnational Women's Organizing in Americas. (4) Lecture, four hours. Feminist theories of transnational organizing. Examination of gender and race as central to processes of globalization and essential to economic and political struggles encompassed in transnational power relations. Exploration of how questions of race and gender influence global economic policies and impact local actors and their communities. In time when people, capital, cultures, and technologies cross national borders with growing frequency, discussion of process of accelerated globalization has been linked to feminization of labor and migration, environmental degradation, questions of diaspora, sexuality, and cultural displacement, as well as growing global militarization. Problems and issues created by globalization and cultural, social, and political responses envisioned by transnational organizing. Concurrently scheduled with course CM147. Letter grading.

232. Aesthetics of Place in Chicana/Chicano Expressive Culture. (4) Seminar, three hours. Examination of several place-based aesthetic traditions, including indigenous, Santeria, diasporic, and Aztlan aesthetics, in Chicana/Chicano visual art, film, performance, and literature. Special focus on place as site of identity, history/memory, and creative production. S/U or letter grading.

233. Community Cultural Development in Public Art: From Neighborhood to Global. (4) Seminar, three hours; laboratory, one hour. Designed for graduate students. Artist approaches to transformations of local and global communities through aesthetic practices in visual arts, spoken word, visual performance, music, and dance that include participatory audience inclusion and foster civic dialogue and community advocacy and activism. Issues of cultural democracy based in cultural retention and affirmation. Case studies of artist projects in community cultural development provide contemporary examples of evolving field of work and basis for critical analysis. S/U or letter grading.

234. New Social Media and Activist Art. (4) Studio, four hours. Limited to graduate students. Hands-on learning and production experience as essential to full understanding of modern media. Promotion of pragmatic style of humanistic and social scientific scholarship that prepares students to think critically and productively about media form, content, and context while learning to effectively use social media. S/U or letter grading.

M247. Chicano Literature. (4) (Same as Spanish M247.) Lecture, three hours. Study of major movements and authors of Mexican American literature. S/U or letter grading.

C251. Chicana and Latin American Women's Narrative. (4) Lecture, four hours. Preparation: reading knowledge of Spanish (level 4). Analyses, comparisons, and discussion of narrative literary production of U.S. Chicana writers and their Latin American counterparts in English and Spanish, with particular focus on how each group deals with gender, ethnic, and class issues. Concurrently scheduled with course C141. Letter grading.

252. Cultural Representations in Americas. (4) Seminar, three hours. Analysis of Latina/Latino and Latin American fictional and nonfictional narratives and films, with emphasis on gender issues, diasporas, and global transformation. Use of aesthetic and formal analytical perspectives and several conceptual frameworks—cultural studies, postcolonial studies, neoliberalism, intersectionality, and feminist theories. Study of these cultural productions as expression of intersectionalities and differences among Latina/Latino and Latin American cultural workers, as well as among diverse populations and changing experiences their works refer to. S/U or letter grading.

253. Tenth Muses of Chicana Theory. (4) Seminar, three hours. Chicana lesbian feminist theory in its multiple and historical manifestations, beginning in 17th century with early proto-feminist work of Sor Juana Inés de la Cruz, Mexican nun/scholar/poet known world over as first feminist of Americas. Exploration of Sor Juana's feminist legacy in 20th-century Chicana lesbian and Chicana feminist theorists and scholars, such as Gloria Anzaldúa, Cherrie Moraga, Emma Pérez, Chela Sandoval, Norma Alarcón, and Alicia Arrízón. Discussion of foundational theoretical concepts such as Anzaldúa's foundational concepts of *mando zurdos*, *nepantla*, *mestiza* consciousness, and *conocimiento*; Pérez's *sitio y lengua* and decolonial imaginary; Sandoval's methodology of oppressed, differential consciousness, and hermeneutics of love; and Arrízón's postcolonial queer *mestizaje*. How to apply several of these theories in decolonization of one revered cultural icon, *la Virgen de Guadalupe*. S/U or letter grading.

254. Los Angeles: History, Space, and Culture. (4) Seminar, three hours. Exploration of significance of Los Angeles as birthplace of Chicana/Chicano identity and historical development of Mexican American culture and community in Southern California. Historiography of Latino Los Angeles from Spanish conquest to present, with emphasis on labor, immigration, art culture, and politics. Survey of current literature on socioeconomic condition of Mexican Americans in Los Angeles and burgeoning culture and politics of Latino Los Angeles at outset of 21st century. S/U or letter grading.

255. Mass Media Research Methods. (4) Seminar, three hours. Limited to graduate students. Survey of range of qualitative and quantitative communication methods and findings regarding Chicana/Chicano and Latina/Latino topics for all media types in both English and Spanish. Critical evaluation of research findings across this expansive field and design of complex research problems. S/U or letter grading.

C256. Understanding Whiteness in American History and Culture. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for graduate students. History, construction, and representation of whiteness in American society. Readings and discussions trace evolution of white identity and explore its significance to historical construction of race class in American history. Concurrently scheduled with course CM182. Letter grading.

258. Laughter, Political Humor, and Social Control. (4) Seminar, three hours. Limited to graduate students. Investigation of power of political humor, one social practice that constructs discriminatory hierarchies in interpersonal settings and mass media. With goal of developing set of principled methods to investigate its manifestations, reading of outstanding humanistic contributions across history of its social function and power, development of classification of types and settings of political humor, and critical evaluation of recent social scientific models of its nature. S/U or letter grading.

259. Critical Discourse Analytic Methods. (4) Seminar, three hours. Limited to departmental graduate students. Two critical discourse analytic (CDA) methods taught to document language of public figures. Student teams employ one method (conceptual metaphor CDA or discourse historical approach) to analyze actual public official's own discourse surrounding one controversial issue. Empirical study of discourses that are based on independently developed research enterprises can be valuable tool for variety of graduate student research. S/U or letter grading.

C274. Language Politics and Policies in U.S.: Comparative History. (4) Lecture, four hours. Historical overview of national and institutional language policies, especially schooling, in U.S. as context to understanding social, legal, and political constraints on bilingualism. Definitions and development of language policy and planning, history of general and educational language policies in U.S., demographic profile of language diversity, and current language and educational policy issues in U.S. Comparisons with selected international cases. Concurrently scheduled with course CM179. S/U or letter grading.

C276. Health in Chicano/Latino Population. (4) Lecture, four hours; discussion, one hour. Designed for graduate students. Examination of Chicano/Latino health status through life expectancy, causes of death, reportable diseases, services utilization, provider supply, and risk behaviors within demographic/immigration changes. Binational review of health effects in U.S. and Mexico. Concurrently scheduled with course CM106. Letter grading.

279. Globalization and Transnationalism. (4) Seminar, three hours. Interdisciplinary seminar that integrates political-economical, historical-sociological, and anthropological-cultural perspectives to help students develop critical political-economical analysis of interplay between globalization (of flows of people, material goods, information, and political-cultural influences) and localized transnational dynamics that together are giving meaning and constructing new social identities and strategies for struggle throughout world. S/U or letter grading.

280. Urban Social Inequality. (4) Seminar, three hours. Examination of several key social and urban inequalities in U.S. Survey of three key contemporary issues of inequality primarily from sociology and urban planning/studies: income distribution (poverty), work and employment (labor), and neighborhoods (space/geography). Through wide range of methods, approaches, and theoretical frameworks examined, exposure to key research on inequality. S/U or letter grading.

281. Central American Migration and Integration. (4) Seminar, three hours. Through empirical research cycle and informed with relevant theoretical frameworks, students develop research questions based on migration and integration experiences of Central American immigrants in greater Los Angeles area. Students conduct qualitative research, analyze original data, and write final papers that contextualize findings within existing social scientific literature. S/U or letter grading.

282. Chicana/Chicano Legal History. (4) Seminar, three hours. Legal history of Chicanas/Chicanos in U.S. from mid-19th century to present, with emphasis on critical race theory. Examination of landmark legislation and key appellate decisions that have impacted Chicano/Latino community. Topics include critical race theory, Treaty of Guadalupe-Hidalgo, legal construction of Mexican American racial identity, historic educational segregation, contemporary educational issues, jury rights, Chicano movement, and undocumented immigration. S/U or letter grading.

M289. Studies in Chicana/Chicano Literature. (4) (Same as English M261.) Seminar, three hours. Intensive research and study of major themes, authors, and issues in Chicana/Chicano literature and culture. Examination of political, aesthetic, economic, and cultural context that emerges in Chicana/Chicano dis-

course; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

291. Variable Topics Research Seminars: Chicana and Chicano Studies. (4) Seminar, three hours. Limited to graduate students. Research seminar organized around readings and engaged discussion of critical topic of interest in field. Exploration of issue, its theoretical implication for field, and practical implications for communities. Topics vary according to participating faculty members. Final research project required. May be repeated for credit with consent of director of graduate studies. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Learner-Centered Teaching in Chicana/Chicano Studies. (4) Seminar, four hours. Designed for graduate students and required of all new department teaching apprentices. Interactive forum for discussing learner-centered teaching in Chicana/Chicano studies. Exploration of diverse classroom strategies and pedagogical techniques specific to interdisciplinary field. Topics include preparing for discussion sections, promoting discussion among students, using class websites, office hours, grading, and campus resources. May be repeated once for credit. S/U grading.

596. Directed Individual Study or Research. (4 to 12) Tutorial, to be arranged. Directed individual research and study in area related to Chicana/Chicano studies or subjects not offered as regular courses, arranged individually by student and instructor. May be repeated for maximum of 12 units. S/U or letter grading.

597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Limited to departmental graduate students. Reading and preparation for MA comprehensive examination or PhD qualifying examinations. Mandatory and supplemental reading lists prepared by student advisory committees. May be repeated for maximum of 12 units. S/U grading.

598. Research for MA Thesis. (4 to 12) Tutorial, to be arranged. Limited to departmental graduate students who have completed all MA coursework requirements. Research for and preparation of MA thesis under direction of thesis committee chair. May not be applied toward MA degree requirements. May be repeated for maximum of 12 units. S/U grading.

599. Research for PhD Dissertation. (4 to 12) Tutorial, to be arranged. Limited to PhD students who have passed qualifying examinations. Research for and preparation of PhD dissertation under direction of dissertation committee chair. May not be applied toward PhD degree requirements. May be repeated for maximum of 8 units. S/U grading.

CIVIC ENGAGEMENT

*Interdisciplinary Minor
College of Letters and Science*

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Michael C. Lens, PhD, Chair

Faculty Committee

Joel D. Aberbach, PhD (*Political Science, Public Policy*)
Barbara Drucker, MFA (*Art*)
Michelle F. Erai, PhD (*Gender Studies*)
Jennifer A. Jay, PhD (*Civil and Environmental Engineering*)
Michael C. Lens, PhD (*Urban Planning*)
Reynaldo F. Macías, PhD (*Chicana and Chicano Studies, Education*)
Meredith Phillips, PhD (*Public Policy, Sociology*)
Robert Chao Romero, JD, PhD (*Asian American Studies, Chicana and Chicano Studies*)
Olga T. Yokoyama, PhD (*Humanities*)
David K. Yoo, PhD (*Asian American Studies*)

Scope and Objectives

The Civic Engagement minor is designed to provide students with a core analytical, experiential, and theoretical framework for understanding issues of community building, governance, and the use of civic resources. It examines the connections between individual success and societal structures, while exploring traditions of service and the history of civic movements. The minor can be paired with any major as an applied and active way of putting disciplinary tools to use and is intended for highly motivated students of any ideological perspective who are committed to education among a broader community of learners.

Students complete a core curriculum, elective courses, an internship, and a capstone project involving research on a public policy issue. Three internship programs are available: local Los Angeles area internships, state internships through the University of California Center in Sacramento (UCCS) program, and national internships through the Center for American Politics and Public Policy (CAPP) program in Washington, DC.

Undergraduate Study

Civic Engagement Minor

The Civic Engagement minor integrates local, state, and national internships with an academic context that enriches the valuable learning gained through meaningful work.

To enter the minor, students must (1) have an overall grade-point average of 2.7 or better, (2) submit a completed application endorsed by a faculty sponsor, and (3) submit a written statement describing how civic engagement relates to their academic interests or career goals. Applications are available in A265 Murphy Hall.

Students who complete the minor with a grade-point average of at least 3.5 in their minor coursework, an overall GPA of 3.5, and Civic Engagement 198 for their capstone experience qualify for graduation with College Honors.

Required Core Courses (12 to 15 units): Civic Engagement M115 with a grade of B or better; one service learning course from American Indian Studies C122SL, Arts Education M192SL, Asian American Studies 140SL, Chicana and Chicano Studies 100SL, Civic Engagement 100SL, 105SL, 133SL, 163SL, Education 196C, Gender Studies 120SL, History M181SL, Hon-

ors Collegium 127, Lesbian, Gay, Bisexual, Transgender, and Queer Studies 180SL, Science Education 100SL, Spanish M165SL, Statistics 140SL, 141SL, M171, Urban Planning 185SL, or World Arts and Cultures 177SL; and one elective course from the service learning options above or from African American Studies M167, M173, Asian American Studies M108, Chicana and Chicano Studies M122, M127, M128, M144, CM179, Civic Engagement M122, 180, Economics M135, 137, Gender Studies M186B, Philosophy 150, C156, 157A, 157B, Political Science M105, 112A, M180C, Psychology 129C, 175, Public Policy 105, Sociology 143, 158, Urban Planning M122, M171, World Arts and Cultures 100A, 100B, 144, or 160. Students may petition the program chair to apply one lower division service learning course or one upper division service learning course not listed above toward the minor.

Required Upper Division Internship Courses (12 to 14 units): Students must select from either local, state, or national internship locations as follows:

Local Los Angeles area internships span three consecutive terms at the same internship location. Students enroll in three consecutive terms of Civic Engagement 195CE. Placements are selected in consultation with the Center for Community Learning minor coordinator and are based on both student interest and faculty recommendations.

State internships span one term through participation in the University of California Center Sacramento (UCCS) program during fall, winter, spring, or summer quarter. Students must enroll in a minimum of 14 units of upper division courses to satisfy the internship requirement. Applications for the UCCS program are available at <http://uccs.ucdavis.edu>.

National internships span one term through participation in the Center for American Politics and Public Policy (CAPP) program in Washington, DC. In the fall or spring quarter program, students enroll in History/Political Science/Sociology M191DC and M195DC; in the winter quarter program, students enroll in History/Political Science/Sociology M194DC and M195DC plus one 4-unit elective course. Students must enroll in a minimum of 12 units of upper division courses to satisfy the internship requirement. Applications for the CAPP program are available at <http://www.capp.ucla.edu>.

Required Upper Division Capstone Courses (6 units): Civic Engagement 194 with a grade of B or better, and 198 or 199. Prior to enrolling in course 198 or 199, students must complete Civic Engagement 194 and all other requirements for the minor, with the exception of the three-term local internship which may be completed concurrently with the capstone course.

The capstone experience for the minor requires an integrative final paper or project that incorporates the required curriculum and elective courses. Students complete the capstone experience under the guidance of a faculty sponsor and enroll in either Civic Engagement

198 or 199 in the final term of the minor. The faculty sponsor approves the proposed readings as well as the length and scope of the final paper or project based on guidelines developed by the faculty committee for the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 3.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Civic Engagement

Lower Division Courses

10. Introduction to Engaged Scholarship. (2) Seminar, two hours. Limited to students participating in preapproved UCLA civic engagement programs. Introduction to history, research, and philosophy of general University/community partnerships, as well as specific opportunities for active engagement by undergraduate students at UCLA. Offered in summer only. P/NP grading.

18. Bruin Leaders: Model for Social Change. (1) Lecture, two hours; fieldwork, one hour. Introduction to leadership development and civic engagement through community service. Based on nonhierarchical mode of leadership developed by UCLA Graduate School of Education and Information Studies. Topics include diversity issues, organizational skills and team-building development, and personal growth and community service goals. Participation in first-week orientation session required. Consult Schedule of Classes for topics to be offered in specific term. May not be repeated for credit. P/NP grading.

50SL. Engaging Los Angeles. (5) Lecture, two hours; discussion, two hours. Service learning course with focus on diverse communities of Los Angeles. Analysis of general shared history of Los Angeles. Comparing or contrasting of experiences of several different racial/ethnic groups. Engagement in meaningful work off campus to reflect on assets, injustices, and inequities that have shaped experiences of native or immigrant communities. Analysis of Los Angeles in which residents coexist and interact while managing tensions and social justice issues inherent in minority/majority city. P/NP or letter grading.

95A-95B. Introduction to Community-Based Internships. (2-4) Tutorial, one hour; fieldwork, four hours (course 95A) and 10 hours (course 95B). Course 95A is not requisite to 95B. Introduction to community-based work for students in specialized UCLA scholarship programs. Platform for preplanned, organized, structured, and supervised off-campus experiences with academic context. Acceptable placements include corporate, nonprofit, and governmental organizations that meet criteria for undergraduate internships as established by Center for Community Learning. Individual contract with supervising faculty member required. P/NP or letter grading.

95CE. Introduction to Community-Based Internships. (2) Tutorial, one hour; fieldwork, four hours. Introduction to community-based work for third-term freshman/sophomore students who have not completed 90 units. Platform for preplanned, organized, structured, and supervised off-campus experiences with academic context. Acceptable placements include corporate, nonprofit, and governmental organizations that meet criteria for undergraduate internships as established by Center for Community Learning. May be repeated once for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

Upper Division Courses

100SL. Perspectives on Civic Engagement. (4) Seminar, three hours. Introduction to civic engagement research and practice open to students who have been accepted in Civic Engagement minor, as well as those from all majors who are interested in theories and concepts of civic engagement within undergraduate education. Letter grading.

102. Reflections on Alternative Spring Break. (2) Seminar, two hours. Limited to students who have participated in USAC Community Service Commission Alternative Spring Break immediately prior to Spring Quarter. Discussion of role of higher education initiatives in civic identity formation, with specific attention to reflection on Alternative Spring Break experiences. P/NP or letter grading.

105SL. Client-Based Program Evaluation and Research. (4) Seminar, three hours; fieldwork, 10 hours. Limited to juniors/seniors. Service learning course for undergraduate students and community partners through which students learn theory and practice of program evaluation. Evaluation of nonprofit organizations in Los Angeles by research teams. Offered in summer only. Letter grading.

108SL. Introduction to Early Childhood Education: Civic Engagement Perspectives. (4) Lecture, three hours; fieldwork, eight hours. Limited to students who are participating members of Jumpstart AmeriCorps literacy program. Service learning course on early childhood development and civic engagement. Overview of child development theory as well as examination of policies and systems that impact practice of preschool education. Discussion about history and future of civic engagement movement designed to engage diverse groups of committed stakeholders in reaching common goal. P/NP or letter grading.

M110SL. Community-Based Studies of Popular Literature. (5) (Same as English M115SL.) Lecture, four hours; discussion, one hour (when scheduled); fieldwork, two hours. Enforced requisite: English Composition 3. Service learning course that examines history and development of one or more genres of popular literature, with attention to contemporary communities of readers and writers and formation of civil society. Topics vary and may include children's literature and childhood literacy, mass market fiction and book club culture, or science fiction and science policy. Service-learning component includes meaningful work with local nonprofit organizations selected in advance by instructor. May be repeated for credit with topic change. P/NP or letter grading.

M115. Citizenship and Public Service. (4) (Same as Political Science M115C.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended requisite: Political Science 10. Designed for juniors/seniors. Study of ways in which political thinkers have conceived of ideas of citizenship and public service, how these ideas have changed over time, and frameworks for thinking about citizenship in era of markets and globalization. P/NP or letter grading.

M122. Philanthropy as Civic Engagement. (5) (Formerly numbered 122.) (Same as Honors Collegium M123.) Seminar, three hours. Limited to juniors/seniors; application required. Study of history, philosophy, and practice of philanthropy. Practical experience in setting priorities and making philanthropic investments in Los Angeles-based nonprofit organizations. Letter grading.

133SL. Topics in Community-Based Research: Theory and Practice. (5) Seminar, three hours; fieldwork, two hours. Service learning course that examines variable topics related to theory and practice of community-based research. Service learning component includes meaningful work with community partners selected in advance by instructor and Center for Community Learning. May be repeated for credit with topic or instructor change. Letter grading.

150. Social Innovation Theory and Application. (4) Seminar, three hours. Limited to students in UCLA Summer Social Innovation Research Program. Study of social innovation as theory of civic engagement,

with particular emphasis on how social innovators have transformed way we address entrenched social issues. Study of elements of existing social innovation models and strategies for employing methods of social change on campus and in communities. Offered in summer only. Letter grading.

163SL. Civic Engagement and Public Use of Knowledge: Special Topics. (5) Seminar, three hours; fieldwork, three hours. Limited to juniors/seniors. Service learning course that examines variable topics related to University/community partnerships and role of civic education in higher education. May be repeated for credit with topic or instructor change. Letter grading.

170SL. Food Studies and Food Justice in Los Angeles. (4) Seminar, three hours; fieldwork, two hours. Interdisciplinary service learning course that provides general understanding of access and equity issues related to food chain in Los Angeles. Exploration of social justice issues faced by residents of lower-income communities. Reading of research from multiple disciplines, including but not limited to public health, environmental justice, and public policy. Service-learning component includes meaningful work with off-campus community partners selected in advance by instructor and Center for Community Learning. Letter grading.

M175SL. Addressing Social Determinants in Racial/Ethnic Minority Communities to Reduce and Prevent Health Disparities. (4) (Formerly numbered 175SL.) (Same as Psychology M176SL.) Seminar, two hours; fieldwork, 10 hours. Examination of how addressing social determinants in racial/ethnic minority communities can reduce or eliminate physical and mental health disparities. Currently in racial and ethnic minority communities, health status of individuals can be function of built environment, exposure to pollutants and toxins, scarcity of supermarkets or stores with fresh produce and nutritional food, noise levels, and variety of other stressors and unhealthy conditions. Health interventions are often focused on individual-level change or increases in access to healthcare with little in way of changing risk environments. Designed to identify and provide opportunities to understand how to address social determinants related to negative health outcomes in racial/ethnic minority neighborhoods and communities and to experience how to use social determinants literature in service of collaborative activities with community organizations. P/NP or letter grading.

180. Access to Justice: Hope and Reality. (4) Seminar, three hours. Limited to UCLA students who are members of JusticeCorps program through AmeriCorps. JusticeCorps was established as innovative approach to solving one pressing issue faced by courts around country today: providing equal access to justice. Examination of promise of justice system in America to provide meaningful access to courts for all who seek it. What premises underlie structure of U.S. legal system? Exploration of sociopolitical context for current legal system, including origins and current status of legal services and self-help movements, including role of JusticeCorps. Were these strategies designed to make promise of equal justice a reality or have they inadvertently, or intentionally, resulted in two-tiered legal system—one for those with means and another for those without? P/NP or letter grading.

194. Capstone Research Seminar. (2) Seminar, two hours. Enforced requisite: course 195CE. Required of students pursuing Civic Engagement minor. Integration of off-campus work with academic theories and concepts within field of civic engagement. Students report on their internship experiences and analyze relationship between their internship and issues of policy, ethics, systemic responses to community needs, or personal and intellectual transformations. Students identify one faculty mentor and develop proposal for required capstone research project. Letter grading.

194A. Astin Civic Engagement Research Seminar. (4) Seminar, three hours. Limited to students in Astin civic engagement spring training program. Integration of off-campus work with academic theories and concepts within field of civic engagement. Students re-

port on their internship experiences and analyze relationship between their internship and issues of policy, ethics, systemic responses to community needs, or personal and intellectual transformations. Students identify one faculty mentor and develop proposal for civic engagement research project. Letter grading.

195. Community or Corporate Internships in Civic Engagement. (4) Tutorial, one hour; fieldwork, eight hours. Limited to juniors/seniors in Civic Engagement minor. Internship in supervised setting in corporate, governmental, or nonprofit setting, using knowledge base of civic engagement. Students submit weekly writing assignments and final paper that examine civic issues related to meaningful work at internship site. Students expected to learn ways in which individuals and groups can organize to solve problems, analyze issues, or bring about change in democratic society. Must be repeated for three consecutive terms to fulfill minor requirements. Individual contract with supervising faculty member required. Letter grading.

195CE. Community and Corporate Internships in Civic Engagement. (4) Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. May be repeated for credit with consent of Center for Community Learning. Individual contract with supervising faculty member required. Letter grading.

198. Honors Research in Civic Engagement. (4) Tutorial, one hour. Required capstone course to Civic Engagement minor for students pursuing College Honors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Civic Engagement. (4) Tutorial, one hour. Required capstone course to Civic Engagement minor. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. Individual contract required. Letter grading.

CIVIL AND ENVIRONMENTAL ENGINEERING

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Assistant Professors

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Adjunct Professors

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Donald R. Kendall, PhD, PE
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Scope and Objectives

The Department of Civil and Environmental Engineering programs at UCLA include civil engineering materials, earthquake engineering, environmental engineering, geotechnical engineering, hydrology and water resources engineering, structural engineering, and structural mechanics.

The civil engineering undergraduate curriculum leads to a BS in Civil Engineering, a broad-based education in environmental engineering, geotechnical engineering, hydrology and water resources engineering, and structural engineering and mechanics. This program is an excellent foundation for entry into professional practice in civil engineering or for more advanced study. The department also offers the undergraduate Environmental Engineering minor.

At the graduate level, MS and PhD degree programs are offered in the areas of civil engineering materials, environmental engineering, geotechnical engineering, hydrology and water resources engineering, and structures (including structural/earthquake engineering and structural mechanics). In these areas, research is being done on a variety of problems ranging from basic physics and mechanics problems to critical problems in earthquake engineering and in the development of new technologies for pollution control and water distribution and treatment.

Undergraduate Study

The civil engineering program is accredited by the Engineering Accreditation Commission of ABET. See <http://www.abet.org>.

The Civil Engineering major is a designated capstone major. In each of the major field design courses, students work individually and in groups to complete design projects. To do so, they draw on their prior coursework, research the needed materials and possible approaches to creating their device or system, and come up with creative solutions. This process enables them to integrate many of the principles they have learned previously and apply them to real systems. In completing their projects, students are also expected to demonstrate effective oral and written communication skills, as well as their ability to work productively with others as part of a team.

Civil Engineering BS

Capstone Major

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L; Civil and Environmental Engineering 1, M20 (or Computer Science 31); Mathematics 31A, 31B, 32A, 32B, 33A, 33B (or Mechanical and Aerospace Engineering 82); Physics 1A, 1B, 1C, 4AL; one natural science course selected from Civil and Environmental Engineering 58SL, Earth, Planetary, and Space Sciences 3, 15, 16, 17, 20, Environment 12, Life Sciences 1, 2, Microbiology, Immunology, and Molecular Genetics 5, 6, or Neuroscience 10.

The Major

Required: Chemical Engineering 102A or Mechanical and Aerospace Engineering 105A, Civil and Environmental Engineering 101, 102, 103, C104 (or Materials Science and Engineering 104), 108, 110, 120, 135A, 150, 153, Mechanical and Aerospace Engineering 103; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; and at least eight major field elective courses (32 units) from the lists below with at least two design courses, one of which must be a capstone design course and two of which must be laboratory courses. Courses applied toward the required course requirement may not also be applied toward the major field elective requirement.

Civil Engineering Materials: Civil and Environmental Engineering C104, C105, C182.

Environmental Engineering: Civil and Environmental Engineering 154, 155, 163, 164, M165, M166; laboratory courses: 156A, 156B; capstone design courses: 157B, 157C.

Geotechnical Engineering: Civil and Environmental Engineering 125; laboratory courses: 128L, 129L; design courses: 121, 123 (capstone).

Hydrology and Water Resources Engineering: Civil and Environmental Engineering 157A; laboratory course: 157L; design courses: 151, 152 (capstone).

Structural Engineering and Mechanics: Civil and Environmental Engineering 125, 130, 135B, M135C, 137, 142; laboratory courses: 130L, 135L, 140L; design courses: 141, 143, 144 (capstone), 147 (capstone).

Transportation Engineering: Civil and Environmental Engineering 180, 181, C182.

Additional Elective Options: Atmospheric and Oceanic Sciences 141, Earth, Planetary, and Space Sciences 100, 101, Environment 157, Mechanical and Aerospace Engineering 166C, M168.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Environmental Engineering Minor

The Environmental Engineering minor is designed for students who wish to augment their major program of study with courses addressing issues central to the application of environmental engineering to important environmental problems facing modern society in developed and developing countries. The minor provides students with a greater depth of experience and understanding of the role that environmental engineering can play in dealing with environmental issues.

To enter the minor, students must be in good academic standing (2.0 grade-point average or better) and file a petition in the Office of Academic and Student Affairs, 6426 Boelter Hall.

Required Lower Division Course (4 units): Mathematics 3C or 32A.

Required Upper Division Courses (24 units minimum): Civil and Environmental Engineering 153 and five courses from 154, 155, 156A, M165, M166, Chemical Engineering C118, Environment 159, 166, Environmental Health Sciences C125, C164.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor, and at least 16 units applied toward the minor must be taken in residence at UCLA. Transfer credit for any of the above is subject to departmental approval; consult the undergraduate counselors before enrolling in any courses for the minor.

Each minor course must be taken for a letter grade, and students must have a minimum grade of C (2.0) in each and an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Civil and Environmental Engineering offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Civil Engineering.

Civil and Environmental Engineering

Lower Division Courses

1. Civil Engineering and Infrastructure. (2) Lecture, two hours; outside study, four hours. Examples of infrastructure, its importance, and manner by which it is designed and constructed. Role of civil engineers in infrastructure development and preservation. P/NP grading.

M20. Introduction to Computer Programming with MATLAB. (4) (Same as Mechanical and Aerospace Engineering M20.) Lecture, two hours; discussion, two hours; laboratory, two hours; outside study, six hours. Requisite: Mathematics 33A. Fundamentals of computer programming taught in context of MATLAB computing environment. Basic data types and control structures. Input/output. Functions. Data visualization. MATLAB-based data structures. Development of efficient codes. Introduction to object-oriented programming. Examples and exercises from engineering, mathematics, and physical sciences. Letter grading.

58SL. Climate Change, Water Quality, and Ecosystem Functioning. (5) Lecture, four hours; service learning, two hours; outside study, nine hours. Science related to climate change, water quality, and ecosystem health. Topics include carbon and nutrient cycling, hydrologic cycle, ecosystem structure and services, biodiversity, basic aquatic chemistry, and impacts of climate change on ecosystem functioning and water quality. Participation in series of science education projects to elementary or middle school audience. Letter grading.

85. Professional Practice Issues in Structural Engineering. (2) Seminar, two hours; outside study, four hours. Introduction to issues of professional practice in structural engineering. Content and organization of model building codes and material-specific reference standards. Interpretation of architectural and structural design drawings and specifications. Material-independent structural calculations such as tributary area, multistory column loads, and estimation of simple seismic and wind loads. P/NP grading.

97. Variable Topics in Civil and Environmental Engineering. (2 to 4) Seminar, two hours. Current topics and research methods in civil and environmental engineering. May be repeated for credit. Letter grading.

Upper Division Courses

101. Statics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Mathematics 31A, 31B, Physics 1A. Newtonian mechanics, vector representation, and resultant forces and moments. Free-body diagrams and equilibrium, internal loads and equilibrium in trusses, frames, and beams. Planar and nonplanar systems, distributed forces, determinate and indeterminate force systems, shear and moment diagrams, and axial force diagrams. Letter grading.

102. Dynamics of Particles and Bodies. (2) Lecture, two hours; discussion, two hours; outside study, two hours. Enforced requisites: course 101, Physics 1B. Introduction to fundamentals of dynamics of single particles, system of particles, and rigid bodies. Topics include kinematics and kinetics of particles, work and energy, impulse and momentum, multiparticle systems, kinematics and kinetics of rigid bodies in two- and three-dimensional motions. Letter grading.

103. Applied Numerical Computing and Modeling in Civil and Environmental Engineering. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course M20 (or Computer Science 31), Mathematics 33B or Mechanical and Aerospace Engineering 82 (either may be taken concurrently). Introduction to numerical computing with specific applications in civil and environmental engineering. Topics include error and computer arithmetic, root finding, curve fitting, numerical integration

and differentiation, solution of systems of linear and nonlinear equations, numerical solution of ordinary and partial differential equations. Letter grading.

C104. Structure, Processing, and Properties of Civil Engineering Materials. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 101, Chemistry 20A, 20B, Mathematics 31A, 31B, 32B, Physics 1A, 1B, 1C. Corequisite: course 108. Discussion of aspects of cement and concrete materials, including manufacture of cement and production of concrete. Aspects of cement composition and basic chemical reactions, microstructure, properties of plastic and hardened concrete, chemical admixtures, and quality control and acceptance testing. Development and testing of fundamentals for complete understanding of overall response of all civil engineering materials. By end of term, successful utilization of fundamental materials science concepts to understand, explain, analyze, and describe engineering performance of civil engineering materials. Concurrently scheduled with course C204. Letter grading.

C105. Structure and Properties of Amorphous Civil Engineering Materials. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 101, Chemistry 20A, 20B, Mathematics 31A, 31B, 32B, Physics 1A, 1B, 1C. Corequisite: course 108. Nature and properties of amorphous civil engineering materials in fields of infrastructure and technology. Special attention to composition-structure-properties relationships and design and selection with respect to targeted civil engineering applications. Concurrently scheduled with course C205. Letter grading.

108. Introduction to Mechanics of Deformable Solids. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: course 101, Mathematics 32B, Physics 1A. Review of equilibrium principles; forces and moments transmitted by slender members. Concepts of stress and strain. Stress-strain relations with focus on linear elasticity. Transformation of stress and strain. Deformations and stresses caused by tension, compression, bending, shear, and torsion of slender members. Structural applications to trusses, beams, shafts, and columns. Introduction to virtual work principle. Letter grading.

110. Introduction to Probability and Statistics for Engineers. (4) Lecture, four hours; discussion, one hour (when scheduled); outside study, seven hours. Requisites: Mathematics 32A, 33A. Recommended: course M20. Introduction to fundamental concepts and applications of probability and statistics in civil engineering, with focus on how these concepts are used in experimental design and sampling, data analysis, risk and reliability analysis, and project design under uncertainty. Topics include basic probability concepts, random variables and analytical probability distributions, functions of random variables, estimating parameters from observational data, regression, hypothesis testing, and Bayesian concepts. Letter grading.

120. Principles of Soil Mechanics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 108. Soil as foundation for structures and as material of construction. Soil formation, classification, physical and mechanical properties, soil compaction, earth pressures, consolidation, and shear strength. Letter grading.

121. Design of Foundations and Earth Structures. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 120. Design methods for foundations and earth structures. Site investigation, including evaluation of soil properties for design. Design of footings and piles, including stability and settlement calculations. Design of slopes and earth retaining structures. Letter grading.

123. Advanced Geotechnical Design. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 121. Analysis and design of earth dams, including seepage, piping, and slope stability analyses. Case history studies involving landslides, settlement, and expansive soil problems, and design of repair methodologies for those problems.

Within context of above technical problems, emphasis on preparation of professional engineering documents such as proposals, work acknowledgements, figures, plans, and reports. Letter grading.

125. Fundamentals of Earthquake Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: course 135A. Overview of engineering seismology, including plate tectonics, faults, wave propagation, and earthquake strong ground motion. Development and selection of design ground motions using both probabilistic seismic hazard analysis and code-based methods. Overview of seismic design regulation and California PE examination's seismic component. Code-based seismic design for new buildings using current International Building Code seismic code provisions. Overview of seismic design of bridges, dams, and other non-building structures. Letter grading.

128L. Soil Mechanics Laboratory. (4) Lecture, one hour; laboratory, eight hours; outside study, three hours. Requisite or corequisite: course 120. Laboratory experiments to be performed by students to obtain soil parameters required for assigned design problems. Soil classification, grain size distribution, Atterberg limits, specific gravity, compaction, expansion index, consolidation, shear strength determination. Design problems, laboratory report writing. Letter grading.

129L. Engineering Geomatics. (4) (Formerly numbered 129.) Lecture, two hours; recitation, two hours; laboratory, four hours; outside study, four hours. Collection, processing, and analysis of geospatial data. Ellipsoid and geoid models of shape of Earth. Sea level, height, and geopotential surfaces. Elements and usage of topographic data and maps. Advanced global positioning systems (GPS) for high-precision mapping. Advanced laser-based light detection and ranging (LiDAR) mapping. Quantitative terrain analysis and change detection. Hydrogeomatics: seafloor mapping. Letter grading.

130. Elementary Structural Mechanics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 108. Analysis of stress and strain, phenomenological material behavior, extension, bending, and transverse shear stresses in beams with general cross-sections, shear center, deflection of beams, torsion of beams, warping, column instability and failure. Letter grading.

130L. Experimental Structural Mechanics. (4) Lecture, two hours; laboratory, six hours; outside study, four hours. Requisite or corequisite: course 130. Lectures and laboratory experiments in various structural mechanics testing of metals, plastics, and concrete. Direct tension. Direct compression. Ultrasonic nondestructive evaluation. Elastic buckling of columns. Fracture mechanics testing and fracture toughness. Splitting and flexural tension. Elastic, plastic, and fracture behavior: ASTM, RILEM, and USBR. Cyclic loading. Microstructures of concrete. Size effects. Letter grading.

135A. Elementary Structural Analysis. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses M20 (or Computer Science 31), 108. Introduction to structural analysis; classification of structural elements; analysis of statically determinate trusses, beams, and frames; deflections in elementary structures; virtual work; analysis of indeterminate structures using force method; introduction to displacement method and energy concepts. Letter grading.

135B. Intermediate Structural Analysis. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 135A. Analysis of truss and frame structures using matrix methods; matrix force methods; matrix displacement method; analysis concepts based on theorem of virtual work; moment distribution. Letter grading.

M135C. Introduction to Finite Element Methods. (4) (Same as Mechanical and Aerospace Engineering M168.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 130 or Mechanical and Aerospace Engineering 156A or 166A. Introduction to basic concepts of finite element

methods (FEM) and applications to structural and solid mechanics and heat transfer. Direct matrix structural analysis; weighted residual, least squares, and Ritz approximation methods; shape functions; convergence properties; isoparametric formulation of multidimensional heat flow and elasticity; numerical integration. Practical use of FEM software; geometric and analytical modeling; preprocessing and postprocessing techniques; term projects with computers. Letter grading.

135L. Structural Design and Testing Laboratory. (4) Lecture, two hours; laboratory, four hours; outside study, six hours. Enforced requisites: courses M20, 135A. Limited enrollment. Computer-aided optimum design, construction, instrumentation, and test of small-scale model structure. Use of computer-based data acquisition and interpretation systems for comparison of experimental and theoretically predicted behavior. Letter grading.

137. Elementary Structural Dynamics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 135B. Basic structural dynamics course for civil engineering students. Elastic free, forced vibration, and earthquake response spectra analysis for single and multidegree of freedom systems. Axial, bending, and torsional vibration of beams. Letter grading.

137L. Structural Dynamics Laboratory. (4) Lecture, two hours; laboratory, six hours; outside study, four hours. Requisite or corequisite: course 137. Calibration of instrumentation for dynamic measurements. Determination of natural frequencies and damping factors from free vibrations. Determination of natural frequencies, mode shapes, and damping factors from forced vibrations. Dynamic similitude. Letter grading.

140L. Structural Components and Systems Testing Laboratory. (4) Lecture, two hours; laboratory, six hours; outside study, four hours. Enforced requisite: course 142. Comparison of experimental results with analytical results and code requirements to assess accuracies and limitations of calculation procedures used in structural design. Tests include quasi-static tests of structural elements (beams, columns) and systems (slab-column, beam-column) and dynamic tests of simple building systems. Quasi-static tests focus on assessment of element or subsystem stiffness, strength, and deformation capacity, whereas dynamic tests focus on assessment of periods, mode shapes, and damping. Development of communication skills through preparation of laboratory reports and oral presentations. Letter grading.

141. Steel Structures. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 135A. Introduction to building codes. Fundamentals of load and resistance factor design of steel elements. Design of tension and compression members. Design of beams and beam columns. Simple connection design. Introduction to computer modeling methods and design process. Letter grading.

142. Design of Reinforced Concrete Structures. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 135A. Beams, columns, and slabs in reinforced concrete structures. Properties of reinforced concrete materials. Design of beams and slabs for flexure, shear, anchorage of reinforcement, and deflection. Design of columns for axial force, bending, and shear. Ultimate strength design methods. Letter grading.

142L. Reinforced Concrete Structural Laboratory. (4) Lecture, two hours; laboratory, six hours; outside study, four hours. Requisites: courses 135B, 142. Limited enrollment. Design considerations used for reinforced concrete beams, columns, slabs, and joints evaluated using analysis and experiments. Links between theory, building codes, and experimental results. Students demonstrate accuracies and limitations of calculation procedures used in design of reinforced concrete structures. Development of skills for written and oral presentations. Letter grading.

143. Design of Prestressed Concrete Structures. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 135A, 142. Equivalent loads and allowable flexural stresses in determinate and indeterminate systems. Flexural and shear strength design, including secondary effects in indeterminate systems. Design of indeterminate post-tensioned beam using both hand calculations and commercially available computer program. Discussion of external post-tensioning, one- and two-way slab systems. Letter grading.

144. Structural Systems Design. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 141 or 142. Design course for civil engineering students, with focus on design and performance of complete building structural systems. International Building Code (IBC) and ASCE 7 dead, live, wind, and earthquake loads. Design of reinforced concrete and structural steel buildings. Computer modeling, analysis, and performance assessment of buildings. Letter grading.

147. Design and Construction of Tall Buildings. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 135B, 141. Role of structural engineer, architect, and other design professions in design process. Development of architectural design of tall buildings. Influence of building code, zoning, and finance. Advantages and limitations of different structural systems. Development of structural system design and computer model for architectural design. Letter grading.

150. Introduction to Hydrology. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: course M20 (or Computer Science 31), Mechanical and Aerospace Engineering 103. Study of hydrologic cycle and relevant atmospheric processes, water and energy balance, radiation, precipitation formation, infiltration, evaporation, vegetation transpiration, groundwater flow, storm runoff, and flood processes. Letter grading.

151. Introduction to Water Resources Engineering. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: course 150, 151. Recommended: courses 103, 110. Principles of hydraulics, flow of water in open channels and pressure conduits, reservoirs and dams, hydraulic machinery, hydroelectric power. Introduction to system analysis and design applied to water resources engineering. Letter grading.

152. Hydraulic and Hydrologic Design. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 150, 151. Analysis and design of hydraulic and hydrologic systems, including stormwater management systems, potable and recycled water distribution systems, wastewater collection systems, and constructed wetlands. Emphasis on practical design components, including reading/interpreting professional drawings and documents, environmental impact reports, permitting, agency coordination, and engineering ethics. Project-based course includes analysis of alternative designs, use of engineering economics, and preparation of written engineering reports. Letter grading.

153. Introduction to Environmental Engineering Science. (4) Lecture, four hours; discussion, one hour (when scheduled); outside study, seven hours. Recommended requisite: Mechanical and Aerospace Engineering 103. Water, air, and soil pollution: sources, transformations, effects, and processes for removal of contaminants. Water quality, water and wastewater treatment, waste disposal, air pollution, global environmental problems. Field trip. Letter grading.

154. Chemical Fate and Transport in Aquatic Environments. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisite: course 153. Fundamental physical, chemical, and biological principles governing movement and fate of chemicals in surface waters and groundwater. Topics include physical transport in various aquatic environments, air-water exchange, acid-base equilibria, oxidation-reduction chemistry, chemical sorp-

tion, biodegradation, and bioaccumulation. Practical quantitative problems solved considering both reaction and transport of chemicals in environment. Letter grading.

155. Unit Operations and Processes for Water and Wastewater Treatment. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 153. Biological, chemical, and physical methods used to modify water quality. Fundamentals of phenomena governing design of engineered systems for water and wastewater treatment systems. Field trip. Letter grading.

156A. Environmental Chemistry Laboratory. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Requisites: course 153 (may be taken concurrently), Chemistry 20A, 20B. Basic laboratory techniques in analytical chemistry related to water and wastewater analysis. Selected experiments include gravimetric analysis, titrimetry spectrophotometry, redox systems, pH and electrical conductivity. Concepts to be applied to analysis of real water samples in course 156B. Letter grading.

156B. Environmental Engineering Unit Operations and Processes Laboratory. (4) Laboratory, six hours; discussion, two hours; outside study, four hours. Requisites: Chemistry 20A, 20B. Characterization and analysis of typical natural waters and wastewaters for inorganic and organic constituents. Selected experiments include analysis of solids, nitrogen species, oxygen demand, and chlorine residual, that are used in unit operation experiments that include reactor dynamics, aeration, gas stripping, coagulation/flocculation, and membrane separation. Letter grading.

157A. Hydrologic Modeling. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 150 or 151. Introduction to hydrologic modeling. Topics selected from areas of (1) open-channel flow, including one-dimensional steady flow and unsteady flow, (2) pipe flow and water distribution systems, (3) rainfall-runoff modeling, and (4) groundwater flow and contaminant transport modeling, with focus on use of industry and/or research standard models with locally relevant applications. Letter grading.

157B. Design of Water Treatment Plants. (4) Lecture, two hours; discussion, two hours; laboratory, four hours; outside study, four hours. Requisite: course 155. Water quality standards and regulations, overview of water treatment plants, design of unit operations, predesign of water treatment plants, hydraulics of plants, process control, and cost estimation. Letter grading.

157C. Design of Wastewater Treatment Plants. (4) Lecture, four hours; outside study, eight hours. Requisite: course 155. Process design of wastewater treatment plants, including primary and secondary treatment, detailed design review of existing plants, process control, and economics. Letter grading.

157L. Hydrologic Analysis. (4) Lecture, two hours; laboratory, four hours; outside study, six hours. Requisite: course 150. Collection, compilation, and interpretation of data for quantification of components of hydrologic cycle, including precipitation, evaporation, infiltration, and runoff. Use of hydrologic variables and parameters for development, construction, and application of analytical models for selected problems in hydrology and water resources. Letter grading.

157M. Hydrology of Mountain Watersheds. (4) Lecture, one hour; fieldwork, four hours; laboratory, three hours; outside study, four hours; one field trip. Requisite: course 150 or 157L. Advanced field- and laboratory-based course with focus on study of hydrologic and geochemical processes in snow-dominated and mountainous regions. Students measure and quantify snowpack properties, snowmelt, discharge, evaporation, infiltration, soil properties, and local meteorology, as well as investigate geochemical properties of surface and groundwater systems. Exploration of rating curves, stream classification, and flooding potential. Extended field trip required. Letter grading.

163. Introduction to Atmospheric Chemistry and Air Pollution. (4) Lecture, four hours; outside study, eight hours. Requisites: course 153, Chemistry 20A, 20B, Mathematics 31A, 31B, Physics 1A, 1B. Description of processes affecting chemical composition of troposphere: air pollutant concentrations/standards, urban and regional ozone, aerosol pollution, formation/deposition of acid precipitation, fate of anthropogenic/toxic/natural organic and inorganic compounds, selected global chemical cycle(s). Control technologies. Letter grading.

164. Hazardous Waste Site Investigation and Remediation. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 150, 153, Mechanical and Aerospace Engineering 103. Overview of hazardous waste types and potential sources. Techniques in measuring and modeling subsurface flow and contaminant transport in subsurface. Design project illustrating remedial investigation and feasibility study. Letter grading.

M165. Environmental Nanotechnology: Implications and Applications. (4) (Same as Engineering M103.) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisite: Engineering M101. Introduction to potential implications of nanotechnology to environmental systems as well as potential application of nanotechnology to environmental protection. Technical contents include three multidisciplinary areas: (1) physical, chemical, and biological properties of nanomaterials, (2) transport, reactivity, and toxicity of nanoscale materials in natural environmental systems, and (3) use of nanotechnology for energy and water production, plus environmental protection, monitoring, and remediation. Letter grading.

M166. Environmental Microbiology. (4) (Same as Environmental Health Sciences M166.) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisite: course 153. Microbial cell and its metabolic capabilities, microbial genetics and its potentials, growth of microbes and kinetics of growth, microbial ecology and diversity, microbiology of wastewater treatment, probing of microbes, public health microbiology, pathogen control. Letter grading.

M166L. Environmental Microbiology and Biotechnology Laboratory. (1) (Same as Environmental Health Sciences M166L.) Laboratory, two hours; outside study, two hours. Corequisite: course M166. General laboratory practice within environmental microbiology, sampling of environmental samples, classical and modern molecular techniques for enumeration of microbes from environmental samples, techniques for determination of microbial activity in environmental samples, laboratory setups for studying environmental biotechnology. Letter grading.

180. Introduction to Transportation Engineering. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Designed for juniors/seniors. General characteristics of transportation systems, including streets and highways, rail, transit, air, and water. Capacity considerations including time-space diagrams and queueing. Components of transportation system design, including horizontal and vertical alignment, cross sections, earthwork, drainage, and pavements. Letter grading.

181. Traffic Engineering Systems: Operations and Control. (4) Lecture, four hours; fieldwork/laboratory, two hours; outside study, six hours. Designed for juniors/seniors. Applications of traffic flow theories; data collection and analyses; intersection capacity analyses; simulation models; traffic signal design; signal timing design, implementation, and performance evaluation; Intelligent Transportation Systems concept, architecture, and integration. Letter grading.

C182. Rigid and Flexible Pavements: Design, Materials, and Serviceability. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisites: courses C104, 108, 120, Materials Science 104. Correlation, analysis, and metrication of aspects of pavement design, including materials selection and traffic loading and volume. Special attention to aspects of pavement distress/service-

ability and factoring of these into metrics of pavement performance. Discussion of potential choices of pavement materials (i.e., asphalt and concrete) and their specific strengths and weaknesses in paving applications. Unification and correlation of different variables that influence pavement performance and highlight their relevance in pavement design. Concurrently scheduled with course C282. Letter grading.

188. Special Courses in Civil and Environmental Engineering. (2 to 6) Lecture, to be arranged; outside study, to be arranged. Special topics in civil engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. Letter grading.

192. Undergraduate Practicum in Civil and Environmental Engineering. (4) Laboratory, four hours; activity, four hours; outside study, four hours. Preparation: completion of high school-focused California Teach course or engineering major with approved coherent proposal directed at secondary school teaching career. Development of pedagogical assignments. Students assist with relevant readings and discussions from pedagogical literature, experimentation with existing and new laboratory procedures and equipment, mini-lectures and demonstrations to enrolled course students, and implementation of innovative curriculum during laboratory sessions. Students gain experience in relevant laboratory-based engineering courses and obtain hands-on course development experience under guidance of faculty members. Letter grading.

194. Research Group Seminars: Civil and Environmental Engineering. (2 to 8) Seminar, two to eight hours; outside study, four to 16 hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. Letter grading.

199. Directed Research in Civil and Environmental Engineering. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

Graduate Courses

200. Civil and Environmental Engineering Graduate Seminar. (2) (Formerly numbered 249 and 259A.) Seminar, four hours; outside study, two hours. Various topics in civil and environmental engineering that may include earthquake engineering, environmental engineering, geotechnical engineering, hydrology and water resources engineering, materials engineering, structural engineering, and structural mechanics. May be repeated for credit. S/U grading.

C204. Structure, Processing, and Properties of Civil Engineering Materials. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Discussion of aspects of cement and concrete materials, including manufacture of cement and production of concrete. Aspects of cement composition and basic chemical reactions, microstructure, properties of plastic and hardened concrete, chemical admixtures, and quality control and acceptance testing. Development and testing of fundamentals for complete understanding of overall response of all civil engineering materials. By end of term, successful utilization of fundamental materials science concepts to understand, explain, analyze, and describe engineering performance of civil engineering materials. Concurrently scheduled with course C104. Letter grading.

C205. Structure and Properties of Amorphous Civil Engineering Materials. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 101, Chemistry 20A, 20B, Mathematics 31A, 31B, 32B, Physics 1A, 1B, 1C. Corequisite: course 108. Nature and properties of amorphous civil engineering materials in fields of infrastructure and technology. Special attention to composition-

structure-properties relationships and design and selection with respect to targeted civil engineering applications. Concurrently scheduled with course C105. Letter grading.

206. Modeling and Simulation of Civil Engineering Materials. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: Chemistry 20A, 20B, Mathematics 31A, 31B, 32B, Physics 1A, 1B, 1C. Fundamental examination of modeling and numerical simulations for civil engineering materials, with focus on practical examples and applications so students can independently run simulations at scale relevant to targeted problems. Letter grading.

220. Advanced Soil Mechanics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 120. State of stress. Consolidation and settlement analysis. Shear strength of granular and cohesive soils. In situ and laboratory methods for soil property evaluation. Letter grading.

221. Advanced Foundation Engineering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 121, 220. Stress distribution. Bearing capacity and settlement of shallow foundations, including spread footings and mats. Performance of driven pile and drilled shaft foundations under vertical and lateral loading. Construction considerations. Letter grading.

222. Introduction to Soil Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 120. Review of engineering problems involving soil dynamics. Fundamentals of theoretical soil dynamics: response of sliding block-on-plane to cyclic earthquake loads, application of theories of single degree-of-freedom (DOF) system, multiple DOF system and one-dimensional wave propagation. Fundamentals of cyclic soil behavior: stress-strain-pore water pressure behavior, shear moduli and damping, cyclic settlement and concept of volumetric cyclic threshold shear strain. Introduction to modeling of cyclic soil behavior. Letter grading.

223. Slope Stability and Earth Retention Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 120, 121, 220. Basic concepts of stability of earth slopes, including shear strength, design charts, limit equilibrium analysis, seepage analysis, staged construction, and rapid drawdown. Theory of earth pressures behind retaining structures, with special application to design of retaining walls, sheet piles, mechanically stabilized earth, soil nails, and anchored and braced excavation. Letter grading.

224. Advanced Cyclic and Monotonic Soil Behavior. (4) Lecture, four hours; outside study, eight hours. Requisite: course 120. In-depth study of soil behavior under cyclic and monotonic loads. Relationships between stress, strain, pore water pressure, and volume change in range of very small and large strains. Concept of normalized static and cyclic soil behavior. Cyclic degradation and liquefaction of saturated soils. Cyclic settlement of partially saturated and dry soils. Concept of volumetric cyclic threshold shear strain. Factors affecting shear moduli and damping during cyclic loading. Postcyclic behavior under monotonic loads. Critical review of laboratory, field, and modeling testing techniques. Letter grading.

225. Geotechnical Earthquake Engineering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 220, 245 (may be taken concurrently). Analysis of earthquake-induced ground failure, including soil liquefaction, cyclic softening of clays, seismic compression, surface fault rupture, and seismic slope stability. Ground response effects on earthquake ground motions. Soil-structure interaction, including inertial and kinematic interaction and foundation deformations under seismic loading. Letter grading.

226. Geoenvironmental Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: course 120. Field of geoenvironmental engineering involves application of geotechnical principles to environmental problems. Topics include environmental

regulations, waste characterization, geosynthetics, solid waste landfills, subsurface barrier walls, and disposal of high water content materials. Letter grading.

227. Numerical Methods in Geotechnical Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: course 220. Introduction to basic concepts of computer modeling of soils using finite element method, and to constitutive modeling based on elasticity and plasticity theories. Special emphasis on numerical applications and identification of modeling concerns such as instability, bifurcation, nonexistence, and nonuniqueness of solutions. Letter grading.

228. Engineering Geology: Geologic Principles for Engineers. (4) Lecture, four hours; outside study, eight hours. Requisite: course 120. Engineering geology involves interpretation, evaluation, analysis, and application of geologic information and data to civil works. Topics include geologic characterization and classification of soil and rock units. Relationships developed between landforms, active, past, and ancient geologic processes, ground and surface water, and properties of soil and rock. Landform changes occur in response to dynamic processes, including changes in climate, slope formation, fluvial (river) dynamics, coastal dynamics, and deep-seated processes like volcanism, seismicity, and tectonics. Evaluation and analysis of effects of geologic processes to predict their potential effect on land use, development, public health, and public safety. Letter grading.

M230A. Linear Elasticity. (4) (Same as Mechanical and Aerospace Engineering M256A.) Lecture, four hours; outside study, eight hours. Requisite: Mechanical and Aerospace Engineering 156A or 166A. Linear elastostatics. Cartesian tensors; infinitesimal strain tensor; Cauchy stress tensor; strain energy; equilibrium equations; linear constitutive relations; plane elastostatic problems, holes, corners, inclusions, cracks; three-dimensional problems of Kelvin, Boussinesq, and Cerruti. Introduction to boundary integral equation method. Letter grading.

M230B. Nonlinear Elasticity. (4) (Same as Mechanical and Aerospace Engineering M256B.) Lecture, four hours; outside study, eight hours. Requisite: course M230A. Kinematics of deformation, material and spatial coordinates, deformation gradient tensor, nonlinear and linear strain tensors, strain displacement relations; balance laws, Cauchy and Piola stresses, Cauchy equations of motion, balance of energy, stored energy; constitutive relations, elasticity, hyperelasticity, thermoelasticity; linearization of field equations; solution of selected problems. Letter grading.

M230C. Plasticity. (4) (Same as Mechanical and Aerospace Engineering M256C.) Lecture, four hours; outside study, eight hours. Requisites: courses M230A, M230B. Classical rate-independent plasticity theory, yield functions, flow rules and thermodynamics. Classical rate-dependent viscoplasticity, Perzyna and Duvant/Lions types of viscoplasticity. Thermoplasticity and creep. Return mapping algorithms for plasticity and viscoplasticity. Finite element implementations. Letter grading.

232. Theory of Plates and Shells. (4) Lecture, four hours; outside study, eight hours. Requisite: course 130. Small and large deformation theories of thin plates; energy methods; free vibrations; membrane theory of shells; axisymmetric deformations of cylindrical and spherical shells, including bending. Letter grading.

233. Mechanics of Composite Material Structures. (4) Lecture, four hours; outside study, eight hours. Requisites: courses M230B, 232. Elastic, anisotropic stress-strain-temperature relations. Analysis of prismatic beams by three-dimensional elasticity. Analysis of laminated anisotropic plates and shells based on classical and first-order shear deformation theories. Elastodynamic behavior of laminated plates and cylinders. Letter grading.

234. Advanced Topics in Structural Mechanics. (4) Lecture, four hours; outside study, eight hours. Limited to graduate engineering students. Current topics in composite materials, computational methods, finite element analysis, structural synthesis,

nonlinear mechanics, and structural mechanics in general. Topics may vary from term to term. Letter grading.

235A. Advanced Structural Analysis. (4) Lecture, four hours; outside study, eight hours. Requisite: course 135A. Recommended: course 135B. Review of matrix force and displacement methods of structural analysis; virtual work theorem, virtual forces, and displacements; theorems on stationary value of total and complementary potential energy, minimum total potential energy, Maxwell/Betti theorems, effects of approximations, introduction to finite element analysis. Letter grading.

235B. Finite Element Analysis of Structures. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 130, 235A. Direct energy formulations for deformable systems; solution methods for linear equations; analysis of structural systems with one-dimensional elements; introduction to variational calculus; discrete element displacement, force, and mixed methods for membrane, plate, shell structures; instability effects. Letter grading.

235C. Nonlinear Structural Analysis. (4) Lecture, four hours; outside study, eight hours. Requisite: course 235B. Classification of nonlinear effects; material nonlinearities; conservative, nonconservative material behavior; geometric nonlinearities, Lagrangian, Eulerian description of motion; finite element methods in geometrically nonlinear problems; postbuckling behavior of structures; solution of nonlinear equations; incremental, iterative, programming methods. Letter grading.

236. Stability of Structures I. (4) Lecture, four hours; outside study, eight hours. Requisite: course 130 or 135B. Elastic buckling of bars. Different approaches to stability problems. Inelastic buckling of columns and beam columns. Columns and beam columns with linear, nonlinear creep. Combined torsional and flexural buckling of columns. Buckling of plates. Letter grading.

M237A. Dynamics of Structures. (4) (Same as Mechanical and Aerospace Engineering M269A.) Lecture, four hours; outside study, eight hours. Requisite: course 137. Principles of dynamics. Determination of normal modes and frequencies by differential and integral equation solutions. Transient and steady state response. Emphasis on derivation and solution of governing equations using matrix formulation. Letter grading.

238. Computational Solid Mechanics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 235B. Advanced finite element and meshfree methods for computational solid mechanics. Stability and consistency in temporal discretization of parabolic and hyperbolic systems. Analysis of numerical dissipation and dispersion. Multifield variational principles for constrained problems. Meshfree methods: approximation theories, Galerkin meshfree methods, collocation meshfree methods, imposition of boundary conditions, domain integration, stability. Letter grading.

241. Advanced Steel Structures. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 137, 141, 235A. Performance characterization of steel structures for static and earthquake loads. Behavior state analysis and building code provisions for special moment resisting, braced, and eccentric braced frames. Composite steel-concrete structures. Letter grading.

242. Advanced Reinforced Concrete Design. (4) Lecture, four hours; outside study, eight hours. Requisite: course 142. Design of building and other structural systems for vertical and lateral loads. Earthquake forces. Ductility in elements and systems. Columns: secondary effects and biaxial bending. Slabs: code and analysis methods. Footings, shear walls, diaphragms, chords, and collectors. Detailing for ductile behavior. Retrofitting. Letter grading.

243A. Behavior and Design of Reinforced Concrete Structural Elements. (4) Lecture, four hours; outside study, eight hours. Requisite: course 142. Advanced topics on design of reinforced concrete structures, including stress-strain relationships for plain

and confined concrete, moment-curvature analysis of sections, and design for shear. Design of slender and low-rise walls, as well as design of beam-column joints. Introduction to displacement-based design and applications of strut-and-tie models. Letter grading.

243B. Response and Design of Reinforced Concrete Structural Systems. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 243A, 246. Information on response and behavior of reinforced concrete buildings to earthquake ground motions. Topics include use of elastic and inelastic response spectra, role of strength, stiffness, and ductility in design, use of prescriptive versus performance-based design methodologies, and application of elastic and inelastic analysis techniques for new and existing construction. Letter grading.

244. Structural Reliability. (4) Lecture, four hours; outside study, eight hours. Introduction to concepts and applications of structural reliability. Topics include computing first- and second-order estimates of failure probabilities of engineered systems, computing sensitivities of failure probabilities to assumed parameter values, measuring relative importance of random variables associated with systems, identifying relative advantages and disadvantages of various analytical reliability methods, using reliability tools to calibrate simplified building codes, and performing reliability calculations related to performance-based engineering. Letter grading.

245. Earthquake Ground Motion Characterization. (4) Lecture, four hours; outside study, eight hours. Corequisite: course 137 or 246. Earthquake fundamentals, including plate tectonics, fault types, seismic waves, and magnitude scales. Characterization of earthquake source, including magnitude range and rate of future earthquakes. Ground motion prediction equations and site effects on ground motion. Seismic hazard analysis. Ground motion selection and modification for response history analysis. Letter grading.

246. Structural Response to Ground Motions. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 137, 141, 142, 235A. Spectral analysis of ground motions: response, time, and Fourier spectra. Response of structures to ground motions due to earthquakes. Computational methods to evaluate structural response. Response analysis, including evaluation of contemporary design standards. Limitations due to idealizations. Letter grading.

247. Earthquake Hazard Mitigation. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 130, and M237A or 246. Concept of seismic isolation, linear theory of base isolation, visco-elastic and hysteretic behavior, elastomeric bearings under compression and bending, buckling of bearings, sliding bearings, passive energy dissipation devices, response of structures with isolation and passive energy dissipation devices, static and dynamic analysis procedures, code provisions and design methods for seismically isolated structures. Letter grading.

248. Probabilistic Structural Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: course 244, Electrical Engineering 131A, Mechanical and Aerospace Engineering 174. Introduction to probability theory and random processes. Dynamic analysis of linear and nonlinear structural systems subjected to stationary and nonstationary random excitations. Reliability studies related to first excursion and fatigue failures. Applications in earthquake, offshore, wind, and aerospace engineering. Letter grading.

250A. Surface Water Hydrology. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150. In-depth study of surface water hydrology, including discussion and interrelationship of major topics such as rainfall and evaporation, soils and infiltration properties, runoff and snowmelt processes. Introduction to rainfall-runoff modeling, floods, and policy issues involved in water resource engineering and management. Letter grading.

250B. Groundwater Hydrology. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150. Theory of movement and occurrence of water in subterranean aquifers. Steady flow in confined and unconfined aquifers. Mechanics of wells; steady and unsteady radial flows in confined and unconfined aquifers. Theory of leaky aquifers. Parameter estimation. Seawater intrusion. Numerical methods. Applications. Letter grading.

250C. Hydrometeorology. (4) Lecture, four hours; outside study, eight hours. Requisite: course 250A. In-depth study of hydrometeorological processes. Role of hydrology in climate system, precipitation and evaporation processes, atmospheric radiation, exchange of mass, heat, and momentum between soil and vegetation surface and overlying atmosphere, flux and transport in turbulent boundary layer, basic remote sensing principles. Letter grading.

250D. Water Resources Systems Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: course 151. Application of mathematical programming techniques to water resources systems. Topics include reservoir management and operation; optimal timing, sequencing and sizing of water resources projects; and multiobjective planning and conjunctive use of surface water and groundwater. Emphasis on management of water quantity. Letter grading.

251A. Rainfall-Runoff Modeling. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 251B. Introduction to hydrologic modeling concepts, including rainfall-runoff analysis, input data, uncertainty analysis, lumped and distributed modeling, parameter estimation and sensitivity analysis, and application of models for flood forecasting and prediction of streamflows in water resource applications. Letter grading.

251B. Contaminant Transport in Groundwater. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 250B, 253. Phenomena and mechanisms of hydrodynamic dispersion, governing equations of mass transport in porous media, various analytical and numerical solutions, determination of dispersion parameters by laboratory and field experiments, biological and reactive transport in multiphase flow, remediation design, software packages and applications. Letter grading.

251C. Remote Sensing with Hydrologic Applications. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 250C. Introduction to basic physical concepts of remote sensing as they relate to surface and atmospheric hydrologic processes. Applications include radiative transfer modeling and retrieval of hydrologically relevant parameters like topography, soil moisture, snow properties, vegetation, and precipitation. Letter grading.

251D. Hydrologic Data Assimilation. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 250C. Introduction to basic concepts of classical and Bayesian estimation theory for purposes of hydrologic data assimilation. Applications geared toward assimilating disparate observations into dynamic models of hydrologic systems. Letter grading.

252. Engineering Economic Analysis of Water and Environmental Planning. (4) Lecture, four hours; outside study, eight hours. Enforced requisites: Engineering 110, one or more courses from Economics 1, 2, 11, 101. Economic theory and applications in analysis and management of water and environmental problems; application of price theory to water resource management and renewable resources; benefit-cost analysis with applications to water resources and environmental planning. Letter grading.

253. Mathematical Models for Water Quality Management. (4) Lecture, four hours; outside study, eight hours. Requisite: course 153. Development of mathematical models for simulating environmental engineering problems. Emphasis on numerical techniques to solve nonlinear partial differential equations and their application to environmental engineering problems. Letter grading.

254A. Environmental Aquatic Inorganic Chemistry. (4) Lecture, four hours; outside study, eight hours. Requisites: Chemistry 20B, Mathematics 31A, 31B, Physics 1A, 1B. Equilibrium and kinetic descriptions of chemical behavior of metals and inorganic ions in natural fresh/marine surface waters and in water treatment. Processes include acid-base chemistry and alkalinity (carbonate system), complexation, precipitation/dissolution, absorption oxidation/reduction, and photochemistry. Letter grading.

255A. Physical and Chemical Processes for Water and Wastewater Treatment. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 155, 254A. Review of momentum and mass transfer, chemical reaction engineering, coagulation and flocculation, granular filtrations, sedimentation, carbon adsorption, gas transfer, disinfection, oxidation, and membrane processes. Letter grading.

255B. Biological Processes for Water and Wastewater Treatment. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 254A, 255A. Fundamentals of environmental engineering microbiology; kinetics of microbial growth and biological oxidation; applications for activated sludge, gas transfer, fixed-film processes, aerobic and anaerobic digestion, sludge disposal, and biological nutrient removal. Letter grading.

258A. Membrane Separations in Aquatic Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 254A. Applications of membrane separations to desalination, water reclamation, brine disposal, and ultrapure water systems. Discussion of reverse osmosis, ultrafiltration, electrodialysis, and ion exchange technologies from both practical and theoretical standpoints. Letter grading.

259B. Selected Topics in Water Resources. (2 to 4) Lecture, four hours; outside study, eight hours. Review of recent research and developments in water resources. Water supply and hydrology, global climate change, economic planning, optimization of water resources development. May be taken for maximum of 4 units. Letter grading.

260. Advanced Topics in Hydrology and Water Resources. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 250B, 250D. Current research topics in inverse problem of parameter estimation, experimental design, conjunctive use of surface and groundwater, multiobjective water resources planning, and optimization of water resource systems. Topics may vary from term to term. Letter grading.

261. Colloidal Phenomena in Aquatic Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 254A, 255A. Colloidal interactions, colloidal stability, colloidal hydrodynamics, surface chemistry, adsorption of pollutants on colloidal surfaces, transport of colloids in porous media, coagulation, and particle deposition. Consideration of applications to colloidal processes in aquatic environments. Letter grading.

261B. Advanced Biological Processes for Water and Wastewater Treatment. (4) Lecture, four hours; outside study, eight hours. Requisite: course 255B. In-depth treatment of selected topics related to biological treatment of waters and wastewaters, such as biodegradation of xenobiotics, pharmaceuticals, emerging pollutants, toxicity, and nutrients. Discussion of theoretical aspects, experimental observations, and recent literature. Application to important and emerging environmental problems. Letter grading.

M262A. Introduction to Atmospheric Chemistry. (4) (Same as Atmospheric and Oceanic Sciences M203A.) Lecture, three hours. Requisite for undergraduates: Chemistry 20B. Principles of chemical kinetics, thermochemistry, spectroscopy, and photochemistry; chemical composition and history of Earth's atmosphere; biogeochemical cycles of key atmospheric constituents; basic photochemistry of troposphere and stratosphere, upper atmosphere chemical processes; air pollution; chemistry and climate. S/U or letter grading.

M262B. Atmospheric Diffusion and Air Pollution. (4) (Same as Atmospheric and Oceanic Sciences M224B.) Lecture, three hours. Nature and sources of atmospheric pollution; diffusion from point, line, and area sources; pollution dispersion in urban complexes; meteorological factors and air pollution potential; meteorological aspects of air pollution. S/U or letter grading.

263A. Physics of Environmental Transport. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Transport processes in surface water, groundwater, and atmosphere. Emphasis on exchanges across phase boundaries: sediment/water interface; air/water gas exchange; particles, droplets, and bubbles; small-scale dispersion and mixing; effect of reactions on transport; linkages between physical, chemical, and biological processes. Letter grading.

263B. Advanced Topics in Transport at Environmental Interfaces. (4) Lecture, four hours; outside study, eight hours. Requisite: course 263A. In-depth treatment of selected topics involving transport phenomena at environmental interfaces between solid, fluid, and gas phases, such as aquatic sediments, porous aggregates, and vegetative canopies. Discussion of theoretical models and experimental observations. Application to important environmental engineering problems. Letter grading.

265A. Mass Transfer in Environmental Systems. (4) Lecture, four hours; computer applications, two hours; outside study, eight hours. Designed for graduate environmental engineering program students. Physical chemistry and mass transfer fundamentals related to contaminant fate and transport in soil, air, and water systems, including soil/water sorption and desorption, contaminant retardation, vaporization and dissolution of nonaqueous phase liquids (NAPL), and other environmental systems. Letter grading.

265B. Contaminant Transport in Soils and Groundwater. (4) Lecture, four hours; computer applications, two hours; outside study, six hours. Requisites: courses 250B, 265A. Principles of mass transfer as they apply in soil and groundwater, independent estimation of transport model parameters; remediating hazardous waste sites. Letter grading.

266. Environmental Biotechnology. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 153, 254A. Environmental biotechnology—concept and potential, biotechnology of pollution control, bioremediation, biomass conversion: composting, biogas and bioethanol production. Letter grading.

267. Environmental Applications of Geochemical Modeling. (4) Lecture, four hours; outside study, eight hours. Requisite: course 254A. Geochemical modeling is important tool for predicting environmental impacts of contamination. Hands-on experience in modeling using geochemical software packages commonly found in environmental consulting industry to gain better understanding of governing geochemical principles pertaining to movement and transformation of contaminants. Types of modeling include speciation, mineral solubility, surface complexation, reaction path, inverse mass balance, and reactive transport modeling. Case studies involve acid mine drainage, nuclear waste disposal, bioavailability and risk assessment, mine tailings and mining waste, deep well injection, landfill leachate, and microbial respiration. Research/modeling project required. Letter grading.

C282. Rigid and Flexible Pavements: Design, Materials, and Serviceability. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Correlation, analysis, and metrication of aspects of pavement design, including materials selection and traffic loading and volume. Special attention to aspects of pavement distress/serviceability and factoring of these into metrics of pavement performance. Discussion of potential choices of pavement materials (i.e., asphalt and concrete) and their specific strengths and weaknesses in paving applications. Unification and correlation of different variables that influence pave-

ment performance and highlight their relevance in pavement design. Concurrently scheduled with course C182. Letter grading.

296. Advanced Topics in Civil Engineering. (2 to 4) Seminar, to be arranged. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

297. Seminar: Current Topics in Civil Engineering. (2 to 4) Seminar, to be arranged. Lectures, discussions, and student presentations and projects in areas of current interest in civil engineering. May be repeated for credit. S/U grading.

298. Seminar: Engineering. (2 to 4) Seminar, to be arranged. Limited to graduate civil engineering students. Seminars may be organized in advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Assistant Training Seminar. (2) Seminar, two hours. Preparation: appointment as teaching assistant in Civil and Environmental Engineering Department. Seminar on communication of civil engineering principles, concepts, and methods; teaching assistant preparation, organization, and presentation of material, including use of visual aids; grading, advising, and rapport with students. S/U grading.

596. Directed Individual or Tutorial Studies. (2 to 8) Tutorial, to be arranged. Limited to graduate civil engineering students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

597A. Preparation for MS Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate civil engineering students. Reading and preparation for MS comprehensive examination. S/U grading.

597B. Preparation for PhD Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate civil engineering students. S/U grading.

597C. Preparation for PhD Oral Qualifying Examination. (2 to 16) Tutorial, to be arranged. Limited to graduate civil engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

598. Research for and Preparation of MS Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate civil engineering students. Supervised independent research for MS candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of PhD Dissertation. (2 to 16) Tutorial, to be arranged. Limited to graduate civil engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

Professors

David L. Blank, PhD
Kathryn A. Morgan, PhD
Sarah P. Morris, PhD (*Steinmetz Professor of Classical Archaeology and Material Culture*)
John K. Papadopoulos, PhD
Amy E. Richlin, PhD
Giulia Sissa, PhD
Brent H. Vine, PhD

Professors Emeriti

Ann L.T. Bergren, PhD
Bernard D. Frischer, PhD
Sander M. Goldberg, PhD
Michael W. Haslam, PhD
Katherine C. King, PhD
Steven Lattimore, PhD
Philip Levine, PhD
Jaan Puhvel, PhD

Associate Professors

Robert A. Gurval, PhD
Chris J. Johanson, PhD
Alex C. Purves, PhD

Assistant Professor

Francesca K. Martelli, DPhil

Adjunct Associate Professor

Catherine Atherton, PhD

Scope and Objectives

The civilizations of ancient Greece and Rome are the focus of research and teaching in the Department of Classics. These areas of study are important in their own right and for their contributions to the political, cultural, intellectual, and artistic development of the Western world. To this end, the department offers a wide variety of interdisciplinary courses in classical civilization (multiple-listed in the Art History, Philosophy, and Political Science Departments), as well as elementary and advanced courses in ancient Greek and Latin language, literature, and linguistics. Classical civilization courses include such topics as Greek and Latin literature in translation (genres of epic, comedy, tragedy, biography), classical mythology, religion, law, gender and sexuality, politics, philosophy, art and archaeology, and the reception of the ancient world in modern cultures (cinema and classics).

The department offers Bachelor of Arts degrees in Classical Civilization, in Greek, in Latin, and in Greek and Latin and the PhD degree in Classics. Students can earn Master of Arts degrees in Classics (Greek and Latin), in Greek, or in Latin only after they have been admitted to the PhD program.

Undergraduate Study

Students considering a major in the department should consult the adviser as soon as possible in their University career, but in no case later than the point at which they are about to take upper division courses.

The majors offered in the Classics Department are designated capstone majors. Undergraduate students take a capstone seminar in which they use the skills and expertise acquired in earlier coursework to research, analyze, and complete a written paper or project. They identify and analyze ancient classical documents, material evidence, or other forms of primary sources and demonstrate their critical skills by

CLASSICS

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Kathryn A. Morgan, PhD, Chair

engaging in presentations and weekly discussion with their peers.

Classical Civilization BA

Capstone Major

The civilizations of ancient Greece and Rome have made important contributions to the political, social, artistic, and intellectual development of the Western world. The purpose of the Classical Civilization major is to provide a formal and balanced introduction to the historical and cultural experiences of the ancient Greeks and Romans. The program of study is structured, yet not rigid. Lower division survey courses and requirements in elementary language study, ancient history, and classical art establish an essential background of knowledge, while electives encourage individual and specialized interests. The program offers a broad range of courses in the fields of language, literature, history, mythology, religion, philosophy, art, and archaeology. The major serves as excellent and rewarding preparation for a professional career in medicine, law, business, journalism, communications, or the arts.

Preparation for the Major

Required: Classics 10, 20, Greek 3 or 16 or Latin 3 or 16, and two courses from 30, 40W, 41W, 42, 51A, 51B, 60, 88GE.

Transfer Students

Transfer applicants to the Classical Civilization major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one classical Greek culture course, one Roman civilization course, and one course in Greek or Roman literature in translation, classical mythology, or classical archaeology.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Ten upper division courses in the department (courses in related fields not offered by the department may be substituted by petition and with approval of the undergraduate adviser)—no more than three may be selected from Greek 100 through 133 or Latin 100 through 133, and Classics 198A and 198B may be applied as only one course toward the major and (2) one capstone seminar (Classics 191). All other courses in the 190 series may be substituted only by petition.

Greek BA

Capstone Major

Preparation for the Major

Required: Classics 10, 20; Greek 1, 2, 3, 20, or equivalent. Greek 16 may be substituted for Greek 1, 2, 3.

Transfer Students

Transfer applicants to the Greek major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one year of

Greek and related courses in civilization, culture, history, linguistics, literature, and closely related languages.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Seven upper division Greek courses, including course 110; Greek 197 and 199 may be applied only by petition; (2) three upper division courses in classical civilization and/or ancient history (History 112A through M112E, 113A, 113B, 114A, 114B, 114C, 115). Courses in related fields not offered by the department may be substituted by petition and with approval of the faculty undergraduate adviser; (3) one capstone seminar (Classics 191).

Greek and Latin BA

Capstone Major

Preparation for the Major

Required: Classics 10, 20; Greek 1, 2, 3, 20 and Latin 1, 2, 3, 20, or equivalent. Greek 16 may be substituted for Greek 1, 2, 3.

Transfer Students

Transfer applicants to the Greek and Latin major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one year of Greek and of Latin and related courses in civilization, culture, history, linguistics, literature, and closely related languages.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Eight upper division Greek and/or Latin courses (of which at least four must be in each language), including Greek 110 or Latin 110; Greek and/or Latin 197 and 199 may be applied only by petition; (2) three upper division courses in classical civilization and/or ancient history (History 112A through M112E, 113A, 113B, 114A, 114B, 114C, 115). Courses in related fields not offered by the department may be substituted by petition and with approval of the faculty undergraduate adviser; (3) one capstone seminar (Classics 191).

Latin BA

Capstone Major

Preparation for the Major

Required: Classics 10, 20; Latin 1, 2, 3, 20, or equivalent. Latin 16 may be substituted for Latin 1, 2, 3.

Transfer Students

Transfer applicants to the Latin major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one year of Latin and related courses in civilization, culture, history, linguistics, literature, and closely related languages.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Seven upper division Latin courses, including course 110; Latin 197 and 199 may be applied only by petition; (2) three upper division courses in classical civilization and/or ancient history (History 112A through M112E, 113A, 113B, 114A, 114B, 114C, 115). Courses in related fields not offered by the department may be substituted by petition and with approval of the faculty undergraduate adviser; (3) one capstone seminar (Classics 191).

Note: Students in the Greek, Latin, and Greek and Latin majors are permitted to take Greek 200A, 200B, 200C and Latin 200A, 200B, 200C with consent of the instructor.

Honors Program

Admission

The honors program is open to all departmental majors with a cumulative grade-point average of 3.5 or better in departmental courses and an overall GPA of 3.25 or better. Students with lower GPAs may petition for admission to the program, but these grade-point averages must be achieved before graduation in order to qualify for honors.

Requirements

All honors students are required to take Classics 191 (or an equivalent undergraduate seminar) in their junior year before beginning work on the honors thesis. Students must then enroll in Classics 198A and 198B in consecutive terms, in which they write the thesis under the direct supervision of a faculty member. They may take courses 198A and 198B concurrently or be exempt from course 198A only with approval of the faculty undergraduate adviser. In course 198A students submit an annotated bibliography and preliminary outline of their thesis. In course 198B, they submit at least one initial draft and the final revised version of the thesis. Only course 198B may be applied toward the upper division classical civilization requirement for departmental majors.

To qualify for graduation with departmental honors, students must (1) have a cumulative grade-point average of 3.5 or better in departmental courses and an overall GPA of 3.25 or better and (2) complete Classics 198A and 198B with grades of A- or better.

To qualify for graduation with departmental highest honors, students must (1) have a cumulative GPA of 3.85 or better in departmental courses and an overall GPA of 3.65 or better and (2) complete Classics 198A and 198B with grades of A.

Classical Civilization Minor

The Classical Civilization minor is designed to recognize a serious commitment to the study of the cultures and civilizations of ancient Greece and Rome. Lower division survey courses in historical studies, classical litera-

ture, mythology, and film provide an essential introduction to the imagination and power of the ancient world. Students may fulfill upper division requirements from a variety of courses in classical civilization and related fields, including political and social history, literature, art and archaeology, religion, mythology, philosophy, and cultural studies of ethnicity, gender, and sexuality in antiquity.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (15 units): Classics 10, 20, and one course from 30, 40W, 41W, 42, 51A, 51B, 60.

Required Upper Division Courses (20 units): Five upper division courses in classical civilization offered by the department. One course in a related field may be substituted with approval of the faculty undergraduate adviser. Classics 191 may be applied, but all other courses in the 190 series may be substituted only by petition.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Greek Minor

The Greek minor is designed to recognize a serious commitment to the study of the Greek language. After a year of elementary Greek (Greek 1, 2, 3) or its equivalent, students select departmental upper division reading courses in ancient Greek prose and poetry that provide close analysis of individual texts, with attention to their historical, literary, and cultural context. Subjects of study include Homeric epic, lyric poetry, tragedy and comedy, history, rhetoric, philosophy, and the New Testament.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (14 units): Greek 2, 3, 20, or equivalent. Greek 16 may be substituted for Greek 2 and 3.

Required Upper Division Courses (20 units): Five courses selected from Greek 100 through 133.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Latin Minor

The Latin minor is designed to recognize a serious commitment to the study of the Latin language. After a year of elementary Latin (Latin 1,

2, 3) or its equivalent, students select departmental upper division reading courses in classical (and/or late antique and medieval) Latin prose and poetry that provide close analysis of individual texts, with attention to their historical, literary, and cultural context. Subjects of study include Roman comedy, epic, lyric, elegy, satire, history, rhetoric, philosophy, epistemography, and the novel.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (14 units): Latin 2, 3, 20, or equivalent. Latin 16 may be substituted for Latin 2 and 3.

Required Upper Division Courses (20 units): Five courses selected from Latin 100 through 133.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Classics offers the Master of Arts (MA) degree in Greek, Master of Arts (MA) degree in Latin, and Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Classics. MA degrees can be earned only after students have been admitted to the PhD program.

Classics

Lower Division Courses

10. Discovering Greeks. (5) Lecture, three hours; discussion, one hour. Knowledge of Greek not required. Study of Greek life and culture from age of Homer to Roman conquest. Readings focus on selections from works of ancient authors in translation. Lectures illustrated with images of art, architecture, and material culture. P/NP or letter grading.

20. Discovering Romans. (5) Lecture, three hours; discussion, one hour. Knowledge of Latin not required. Study of Roman life and culture from time of city's legendary foundations to end of classical antiquity. Readings focus on selections from works of ancient authors in translation. Lectures illustrated with images of art, architecture, and material culture. P/NP or letter grading.

30. Classical Mythology. (5) Lecture, three hours; discussion, one hour. Introduction to myths and legends of ancient Greece and/or Rome, role of those stories in their societies, and modern approaches to studying them. P/NP or letter grading.

40W. Reading Greek Literature: Writing-Intensive.

(5) Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Exploration in detail and from variety of critical perspectives of carefully selected literary texts characteristic of ancient Greece and significant in Western literary tradition. Satisfies Writing II requirement. Letter grading.

41W. Reading Roman Literature: Writing-Intensive.

(5) Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Exploration in detail and from variety of critical perspectives of carefully selected set of literary texts characteristic of ancient Rome and significant in Western literary tradition. Satisfies Writing II requirement. Letter grading.

42. Cinema and Ancient World.

(5) Lecture/screenings, five hours; discussion, 75 minutes. Use of popular culture and cinema to introduce students to ancient Greek and/or Roman culture; focus at discretion of instructor. P/NP or letter grading.

51A. Art and Archaeology of Ancient Greece.

(5) Lecture, three hours; discussion, one hour. Survey of major period, theme, or medium of Greek art and archaeology at discretion of instructor. P/NP or letter grading.

51B. Art and Archaeology of Ancient Rome.

(5) Lecture, three hours; discussion, 75 minutes. Survey of major period, theme, or medium of Roman art and archaeology at discretion of instructor. P/NP or letter grading.

60. Fantastic Journey: Antiquity and Beyond.

(5) Lecture, two and one half hours; discussion, one hour. Investigation of phenomenon of fantastic or imaginary journey, from Homer's *Odyssey* to Stanley Kubrick's *2001: A Space Odyssey*. Examination of ways in which travel to strange or new worlds is presented through number of texts (and occasionally films) across different cultures and periods, with focus primarily on antiquity but also looking at how important motifs from ancient Greek and Roman travel narratives have endured to present day. Issues include cultural relativism, what makes space either familiar or alien, rebuilding of home in fantastic territories, methods of travel (both fantastic and mundane), methods of measuring time and distance across space, modern classifications of fantasy and science fiction, and to what extent these terms are applicable to ancient world. P/NP or letter grading.

88A-88Z. Lower Division Seminars. (4 each) Seminar, three hours. Variable topics; consult Schedule of Classes or department for topics to be offered in specific term. P/NP or letter grading.

88GE. General Education Seminar Sequences. (5)

Seminar, three hours. Focused study of one aspect of ancient Greek or Roman culture or reception of classical tradition. Topics are interdisciplinary in nature (literature, arts, religion, politics, culture) and make connections between ancient and postclassical eras. Topics include rediscovery of Pompeii and Herculaneum; Roman religion and literature; pleasures of Greek or Roman body; and 18th-century British literature and reception of classics. P/NP or letter grading.

Upper Division Courses

M114A. History of Ancient Mediterranean World.

(4) (Same as History M112C.) Lecture, five hours. Intensive on-site study of history and culture of ancient Rome from founding of city to conversion of Christianity. Part of UCLA Summer Travel Program. P/NP or letter grading.

M114B. History and Monuments of Rome: Field Studies.

(4) (Same as History M112E.) Fieldwork, five hours. Enforced corequisite: course M114A. Examination of history, art, and monuments of ancient Rome through daily lectures and field walks to museums and archaeological sites. Field trips outside Rome to Pompeii, Hadrian's Villa, and ancient Ostia. Reception and ruins of Roman antiquity in medieval, Renaissance, and modern eras explored in their historical context. Part of UCLA Summer Travel Program. P/NP or letter grading.

M121. Ancient and Medieval Political Theory. (4) (Same as Political Science M111A.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exposition and critical analysis of major thinkers such as Plato, Aristotle, Thucydides, St. Augustine, Aquinas, Machiavelli, and More and questions such as forms of government, citizenship, justice, happiness, rhetoric, religion, emotion. P/NP or letter grading.

M124. Modern Receptions of Ancient Political Thought. (4) (Same as Political Science M119A.) Lecture, three hours. Designed for juniors/seniors. Study of how Western culture has conceived and reinterpreted political thought of ancient Greeks and Romans. Topics include examination of influential case(s) of modern reception of classical antiquity. P/NP or letter grading.

M125. Invention of Democracy. (5) (Same as Political Science M112B.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Democracy was invented in ancient Greece as political form grounded on equality before law, citizenship, and freedom. It came into existence as struggle by *demos*, people, aware of its excellence and proud of its power, *kratos*. It became only regime capable of including all members of community while disregarding wealth, status, and diverging interests. Examination of history and theory of ancient democracy. P/NP or letter grading.

137. Ancient Lives: Art of Biography. (4) Lecture, three hours. Study of origins, development, and practice of writing lives (i.e., biography) represented in cultures of ancient Greece and Rome. Readings include examples from Greek and Roman lives of Plutarch and lives of Roman Emperors (Caesars) by Suetonius. Comparisons with modern biographical traditions in literature and film. P/NP or letter grading.

138. Ancient Letters. (4) Lecture, three hours. Requisite: course 10 or 20. Study of practice of letter writing in ancient Greek and Roman worlds. Broad survey of letters as literary compositions and historical documents or more focused analysis of one particular period, author, or theme. P/NP or letter grading.

140. Topics in History of Greek Literature. (4) Lecture, three hours. Requisite: course 10 or 40W. Investigation of specific issue in understanding of Greek literature, such as definition of one genre or evaluation of particular author. May be repeated for credit with topic change. P/NP or letter grading.

141. Topics in History of Latin Literature. (4) Lecture, three hours. Requisite: course 20 or 41W. Investigation of specific issue in interpretation of Latin literature, such as definition of one genre or evaluation of particular author. May be repeated for credit with topic change. P/NP or letter grading.

142. Ancient Epic. (4) Lecture, three hours. Requisite: one course from 10, 20, 30, 40W, or 41W. Homer's *Iliad* and *Odyssey*, Vergil's *Aeneid*, and Ovid's *Metamorphoses*, studied in translation. P/NP or letter grading.

143A. Ancient Tragedy. (4) Lecture, three hours. Requisite: course 10 or 40W. Survey of tragedy from 5th-century Athens through later antiquity. P/NP or letter grading.

143B. Ancient Comedy. (4) Lecture, three hours. Requisite: course 10 or 20. Survey of comedy as it developed in Greek and Roman worlds. P/NP or letter grading.

144. Topical Studies in Ancient Culture. (4) Lecture, three hours. Requisite: one course from 10, 20, 30, 40W, or 41W. Investigation of one problem in ancient culture that involves discussion of both Greek and Roman material. May be repeated for credit with topic change. P/NP or letter grading.

M145A. Ancient Greek and Roman Philosophy. (4) (Same as Philosophy M103A.) Lecture, three hours. Study of some major Greek and Roman philosophical texts, including those of pre-Socratics, Plato, Aristotle, and Hellenistic philosophers, with emphasis on

historical and cultural setting of texts, their literary form, interrelations, and contribution to discussion of basic philosophical issues. P/NP or letter grading.

M145B. Later Ancient Greek Philosophy. (4) (Same as Philosophy M103B.) Lecture, three hours. Requisite: one course from M145A, Philosophy 1, 100A, M101B, or M102. Study of some major texts in Greek philosophy of Hellenistic and Roman periods. Readings vary and include works by Stoics, skeptics, philosophers of science, Neoplatonists, etc. P/NP or letter grading.

M146A. Plato—Earlier Dialogues. (4) (Same as Philosophy M101A.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected topics in early and middle dialogues of Plato. P/NP or letter grading.

M146B. Plato—Later Dialogues. (4) (Same as Philosophy M101B.) Lecture, three hours; discussion, one hour. Requisite: course M146A. Study of selected topics in middle and later dialogues of Plato. P/NP or letter grading.

M147. Aristotle. (4) (Same as Philosophy M102.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected works of Aristotle. P/NP or letter grading.

148. Early Greek Medicine and Thought. (5) Lecture, three hours; discussion, one hour. Versions of medical theory and practice in context of Greek intellectual and cultural developments. Readings from medical, philosophical, and historical texts. P/NP or letter grading.

M149. Bodies in Antiquity. (4) (Same as Disability Studies M122.) Lecture, three hours. Investigation of individuals and groups that compose ancient Greek and Roman societies and relationship they have with larger social body, with particular focus on marginalized or minority groups such as women, noncitizens (resident aliens and provincials), slaves, children, elderly, and disabled. Examination of ways these groups contribute to or detract from our understanding of ancient society as whole. May be repeated for credit with topic change. P/NP or letter grading.

150A. Female in Greek Literature and Culture. (4) Lecture, three hours. Requisite: course 10. Interdisciplinary study of concept of female in Greek literature and culture. P/NP or letter grading.

150B. Female in Roman Literature and Culture. (4) Lecture, three hours; discussion, one hour. Requisite: course 20. Interdisciplinary study of concept of female in Roman literature and culture. P/NP or letter grading.

C151E. Archaeological Field Techniques. (12) Off-campus field archaeology, 36 hours. Preparation: at least one classical archaeology course. Training in techniques of archaeological research in field, including topographic and area survey, mapping and recording artifacts, excavation and data analysis. Conducted in Mediterranean area. Concurrently scheduled with course C251E. P/NP or letter grading.

152A. Ancient City: Greek World. (4) Lecture, three hours. Enforced requisite: course 10 or 51A or Art History 20 or History 1A. Range of interdisciplinary approaches to study of Athens and/or cities of Greek world, including Asia Minor, south Italy, and Sicily. Approaches, themes, and periods (both ancient city and receptions of city from classical antiquity to modern era) vary depending on individual instructor and topic. May be repeated for credit with topic change. P/NP or letter grading.

152B. Ancient City: Roman World. (4) Lecture, three hours. Enforced requisite: course 20 or 51B or Art History 20 or History 1A. Range of interdisciplinary approaches to study of Rome and/or cities of Italy and Roman Empire. Approaches, themes, and periods (both ancient city and receptions of city from classical antiquity to modern era) vary depending on individual instructor and topic. May be repeated for credit with topic change. P/NP or letter grading.

M153A. Minoan Art and Archaeology. (4) (Same as Art History M111.) Lecture, three hours. Requisite: course 10 or 51A or Art History 20. Study of development of art and architecture in Minoan Crete from circa 3000 to 1000 B.C. P/NP or letter grading.

M153B. Mycenaean Art and Archaeology. (4) (Same as Art History M112A.) Lecture, three hours. Requisite: course 10 or 51A or Art History 20. Study of development of art and architecture in Mycenaean Greece from circa 2000 to 1000 B.C. P/NP or letter grading.

M153C. Archaic Greek Art and Archaeology. (4) (Same as Art History M112B.) Lecture, three hours. Requisite: course 10 or 51A or Art History 20. Study of development of art and architecture of Greek world from approximately 800 through 490 B.C. P/NP or letter grading.

M153D. Classical Greek Art and Archaeology. (4) (Same as Art History M112C.) Lecture, three hours. Requisite: course 10 or 51A or Art History 20. Study of development of art and architecture of Greek world from approximately 490 through 350 B.C. P/NP or letter grading.

M153E. Hellenistic Greek Art and Archaeology. (4) (Same as Art History M112D.) Lecture, three hours. Requisite: course 10 or 51A or Art History 20. Study of development of art and architecture of Greek world from middle of 4th century B.C., including transmittal of Greek art forms to Romans. P/NP or letter grading.

M153F. Etruscan Art. (4) (Same as Art History M113A.) Lecture, three hours. Requisite: course 20 or 51B or Art History 20. Arts of Italic peninsula from circa 1000 B.C. to end of Roman Republic. P/NP or letter grading.

M153G. Roman Art and Archaeology. (4) (Same as Art History M113B.) Lecture, three hours. Requisite: course 20 or 51B or Art History 20. Art and architecture of Rome and its Empire from circa 300 B.C. to A.D. 300. P/NP or letter grading.

M153H. Late Roman Art. (4) (Same as Art History M113C.) Lecture, three hours. Requisite: course 20 or 51B or Art History 20. Art of Roman Empire from 2nd through 4th century (A.D.). P/NP or letter grading.

M153I-M153J-M153K. Classical Archaeology. (4-4-4) (Same as Art History M114A-M114B-M114C.) Lecture, three hours. Requisite: one course from 10, 20, 51A, 51B, Art History 20, or History 1A. Knowledge of Greek and Latin not required. General introduction to study of Aegean, Greek, and Roman architecture, sculpture, and painting. May be repeated for credit with department consent. P/NP or letter grading. **M153I.** Greco-Roman Architecture; **M153J.** Greco-Roman Sculpture; **M153K.** Greco-Roman Painting.

160. Legal Advocacy in Ancient World. (4) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 10 or 20. Study of theory and practice of legal advocacy in classical Greece and Rome. May be repeated for credit. Letter grading.

161. Women's History in Ancient Mediterranean. (4) Lecture, three hours. Overview of approaches to problem of writing women's history in ancient Mediterranean world. Topics include law, medicine, work, religion (pagan, Christian, Jewish), and literature, with particular attention to themes of war, slavery, and sex trafficking. Exercises train students in critical use of primary documents and ancient sources, including inscriptions and other forms of material culture. P/NP or letter grading.

162. Classical Myth in Literature. (4) Lecture, three hours. Use of myth in principal authors and genres of Greek and Roman literature, with examples of its influence in later literatures. May be repeated once for credit with topic change. P/NP or letter grading.

163. Ovid and Consequences. (4) Lecture, three hours. Study of Ovid's *Metamorphoses* and persistence and extent of Roman poet's influence on subsequent literature, art, and film. Close analysis of Ovid's seminal text before turning to poem's classical, medieval, Renaissance, and modern imitators, from Apuleius to Shakespeare to Picasso and beyond. P/NP or letter grading.

164. Spectacle Entertainments of Ancient Rome. (4) Lecture, three hours. Requisite: course 20. Study of culture and politics of urban entertainment in ancient Rome, including gladiatorial competitions, chariot races, and theatrical productions. P/NP or letter grading.

165. Ancient Athletics. (4) Lecture, three hours. Requisite: course 10 or History 1A. Study of ancient Greek and Roman athletics and their connections with religion, politics, literature, and art. P/NP or letter grading.

166A. Greek Religion. (4) Lecture, three hours. Requisite: course 10 or 30. Study of religion of ancient Greeks. P/NP or letter grading.

166B. Roman Religion. (4) Lecture, three hours. Requisite: course 20. Study of religion of ancient Romans. P/NP or letter grading.

M167. Magic in Ancient World. (4) (Same as Ancient Near East M167.) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 10 or 20. Exploration of art of influencing natural course of events by occult means as practiced in ancient world at large. Coverage of beliefs in supernatural forces, rites aimed at controlling these forces effectively, and character and social roles of ritual experts in various cultures of ancient world. Source material includes types of magical spells, literary texts about magic and magicians, and artifacts such as amulets and ritual implements. P/NP or letter grading.

168. Comparative Mythology. (4) Lecture, three hours. Requisites: course 30, or GE Clusters 30A, 30B, and 30CW. Religious, mythical, and/or historical traditions of Greece and Rome compared with each other and with other traditions worldwide. P/NP or letter grading.

169. Sex in Ancient World. (4) Lecture, three hours. Requisite: course 10 or 20 or History 1A. Examination of sex and gender systems of Greek and Roman cultures in ancient Mediterranean world. What Greek and Roman sex/gender systems were, how they changed over time, and difference it makes. Readings include both modern theories about sex and history as foundation for course and broad range of ancient texts in translation. P/NP or letter grading.

M170C. Power and Imagination in Byzantium. (4) (Same as History M116C.) Lecture, three hours; discussion, one hour (when scheduled). Requisites: History 116A, 116B. Designed for juniors/seniors. Study of relations of authority and intelligentsia in highly centralized Byzantine Empire. Topics include criticism of emperor, iconoclasm, intellectual freedom, attempts at reform. Letter grading.

180. Introduction to Classical Linguistics. (4) Lecture, three hours. Requisite: Greek 3 or Latin 3. Linguistic approach to Greek and Latin, including Indo-European background, etymology, pronunciation, alphabets, sociolinguistics (dialects, bilingualism), and applications to classical literature. P/NP or letter grading.

185. Origins and Nature of English Vocabulary. (5) Lecture, three hours. Origins and nature of English vocabulary, from Proto-Indo-European prehistory to current slang. Topics include Greek and Latin component in English (including technical terminology), alphabet and English spelling, semantic change and word formation, vocabulary in literature and film. P/NP or letter grading.

190. Research Colloquia in Classics. (1) Seminar, one hour. Limited to juniors/seniors. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

191. Capstone Seminar: Classics. (5) Seminar, three hours. Requisites: courses 10, 20, at least four upper division major courses. Limited to declared junior/senior departmental majors; minors may be admitted with consent of instructor. Topical research seminar on important themes, periods, genres of ancient Greek and Roman world. Intended to provide students with opportunity for serious engagement

with research in discipline under close faculty supervision. Readings, discussions, oral presentations, and final research paper or project. May be repeated for credit. Letter grading.

193. Journal Club Seminars: Classics. (1) Seminar, one hour. Limited to undergraduate students. Group discussion of readings and topics selected from current issues in classics and related disciplines. May be repeated for credit. P/NP grading.

197. Individual Studies in Classics. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198A-198B. Honors Research in Classics. (2-5) Limited to junior/senior departmental honors program students. May be repeated for credit. Individual contract required. **198A.** Tutorial, six hours. Requisite: course 191. Tutorial under direct supervision of faculty member. Research and development of thesis outline in preparation of paper to be completed in course 198B. In Progress grading. **198B.** Tutorial, 15 hours. Requisite: course 198A. Completion of final research thesis under direct supervision of faculty member. Letter grading.

199. Directed Research in Classics. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. History of Classical Scholarship. (4) Lecture, four hours. S/U or letter grading.

201B. Topics in Ancient History: Roman World. (2 or 4) Seminar, three hours. Introduction to basic methods and approaches to study of Roman history by intensive examination of selected topics, including readings of ancient texts and modern scholarship. S/U or letter grading.

M218. Paleography of Latin and Vernacular Manuscripts, 900 to 1500. (4) (Same as English M215, French M210, and History M218.) Lecture, three hours; discussion, two hours. Introduction to history of Latin and vernacular manuscript book from 900 to 1500 to (1) train students to make informed judgments with regard to place and date of origin, (2) provide training in accurate reading and transcription of later medieval scripts, and (3) examine manuscript book as witness to changing society that produced it. Focus on relationship between Latin manuscripts and vernacular manuscripts with regard to their respective presentation of written texts. S/U or letter grading.

220A. Interfaces: Transmission of Roman Literature. (2 or 4) Seminar, three hours. Examination of transmission of Latin classical literature in late antiquity, Middle Ages, and Renaissance to understand processes by which Latin literature has been preserved. S/U (2-unit course) or letter (4-unit course) grading.

244. Textual Criticism: Studies in Preparation of Critical Edition of Greek and/or Latin Texts. (2 or 4) Seminar, three hours. Different steps required in preparation of critical edition of ancient text: localizing manuscripts; collation; establishing *stemma*; selecting right reading on basis of knowledge of context, of language of author, and of sources; emendations; formulation of *apparatus criticus* and *apparatus fontium*. S/U (2-unit course) or letter (4-unit course) grading.

245. Computing and Classics. (2 or 4) Seminar, three hours. Introduction to processing and analysis of digitized texts of classical authors for purposes of literary history and criticism. S/U (2-unit course) or letter (4-unit course) grading.

246. Greek and Latin Meter. (2 or 4) Seminar, three hours. Comprehensive study of meter as it functions in classical poetry. S/U (2-unit course) or letter (4-unit course) grading.

250. Topics in Greek and Roman Culture and Literature. (2 or 4) Seminar, three hours. Interdisciplinary study on topics of ancient Greek and Roman culture and/or literature. May be repeated for credit with topic change. S/U or letter grading.

251A. Seminar: Classical Archaeology—Aegean Bronze Age. (2 or 4) Seminar, three hours. S/U or letter grading.

251B. Seminar: Classical Archaeology—Greco-Roman Architecture. (2 or 4) Seminar, three hours. Studies in style and iconography of various periods of Aegean, Greek, and Roman architecture. S/U (2-unit course) or letter (4-unit course) grading.

251C. Seminar: Classical Archaeology—Greco-Roman Sculpture. (2 to 4) Seminar, three hours. Studies in style and iconography of various periods of Aegean, Greek, and Roman sculpture. S/U (2-unit course) or letter (4-unit course) grading.

251D. Seminar: Classical Archaeology—Greco-Roman Painting. (2 or 4) Seminar, three hours. Studies in style and iconography of various periods of Aegean, Greek, and Roman painting. May be repeated for credit with consent of instructor. S/U or letter grading.

C251E. Archaeological Field Techniques. (12) Off-campus field archaeology, 36 hours. Preparation: at least one classical archaeology course. Training in techniques of archaeological research in field, including topographic and area survey, mapping and recording artifacts, excavation and data analysis. Conducted in Mediterranean area. Concurrently scheduled with course C151E. S/U or letter grading.

252. Topography and Monuments of Athens. (2 or 4) Lecture, two or four hours. Detailed studies in topography and monuments of Athens, combining evidence of literature, inscriptions, and actual remains. S/U or letter grading.

253. Topography and Monuments of Rome. (2 or 4) Lecture, two or four hours. Detailed studies in topography and monuments of ancient Rome, combining evidence of literature, inscriptions, and actual remains. S/U or letter grading.

260. Topics in Ancient Religion. (2 or 4) Seminar, three hours. S/U or letter grading.

287. Graduate Colloquium in Classical Literature. (2) Seminar, three hours. Survey of basic methods of and approaches to classical scholarship, including textual criticism, literary interpretation and theory, hermeneutics, interdisciplinary studies, and computer applications to classics. Emphasis varies from year to year, depending on instructor(s). May be repeated for credit with topic change. S/U grading.

288. Literary Theory. (2 or 4) Discussion, three hours. Designed for graduate students. Introduction to chief texts in literary theory and criticism for readers of classical literature, with application to classical texts. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Classics. (2) Seminar, two hours. Normally to be taken by all graduate students in term before or during their first assignments as teaching assistants. Seminar/workshop in various pedagogical issues and strategies in preparation for teaching classical civilization, Greek, and/or Latin undergraduate courses. Readings and group discussions in topics related to teaching in field of classics. May not be applied toward MA or PhD course requirements. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U grading.

- 597. Study for MA Comprehensive Examination or PhD Qualifying Examinations. (2 to 8)** Tutorial, to be arranged. S/U grading.
- 599. Research for PhD Dissertation. (2 to 8)** Tutorial, to be arranged. S/U grading.

Greek

Lower Division Courses

1. Elementary Greek. (5) Lecture, three hours; discussion, two hours. P/NP or letter grading.

2. Elementary Greek. (5) Lecture, three hours; discussion, two hours. Enforced requisite: course 1. P/NP or letter grading.

3. Elementary Greek. (5) Lecture, three hours; discussion, two hours. Enforced requisite: course 2. P/NP or letter grading.

8A-8B-8C. Elementary Modern Greek. (4-4-4) Lecture, three hours. Course 8A is enforced requisite to 8B, which is enforced requisite to 8C. Introductory modern Greek sequence, with emphasis on spoken modern Greek. P/NP or letter grading.

9A-9B-9C. Intermediate Modern Greek. (4-4-4) Lecture, three hours. Enforced requisite: course 8C. Course 9A is enforced requisite to 9B, which is enforced requisite to 9C. Intermediate-level program in modern Greek language study from communicative and task-based approach. Continued development of student understanding and use of Greek syntax and morphology through oral and written activities, reading, and listening. Students master basic communication skills, communicate in everyday real-life situations, comprehend simple passages, announcements, and advertisements, master basic rules of modern Greek grammar and syntax, read fluently, and write accurately. P/NP or letter grading.

15. Elementary Modern Greek. (12) Lecture, 18 to 19 hours. Eight-week intensive introduction to principles of speaking, reading, and writing modern (demotic) Greek. Offered in summer only. P/NP or letter grading.

16. Intensive First-Year Greek. (12) Lecture, 19 hours. Eight-week intensive introduction to Greek language equivalent to courses 1, 2, and 3. Offered in summer only. P/NP or letter grading.

20. Intermediate Greek. (4) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 3 or 16. Formal review of Greek grammar and syntax and development of skills in reading original texts of Greek prose. Readings selected to introduce literature and culture of ancient Greece. P/NP or letter grading.

Upper Division Courses

100. Readings in Greek Prose and Poetry. (4) Lecture, three hours. Enforced requisite: course 20. Close study of prose text supplemented with related readings in poetry. Attention to historical and cultural context. Course is normally requisite to other courses in Greek 100 series. P/NP or letter grading.

101A. Homer: *Odyssey*. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

101B. Homer: *Iliad*. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

102. Lyric Poets. (4) Lecture, three hours. Requisite: course 100. Selections from Archilochus to Bacchylides. P/NP or letter grading.

103. Aeschylus. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

104. Sophocles. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

105. Euripides. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

106. Aristophanes. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

107. Hesiod. (4) Lecture, three hours. Requisite: course 100. Reading of *Theogony* and excerpts from *Works and Days*, with emphasis on Hesiod's place in Greek literature and his role in transmission of Greek mythology. P/NP or letter grading.

110. Study of Greek Prose. (4) Lecture, three to four hours. Requisite: course 100. Work in sight reading and grammatical analysis of Attic prose texts; writing Attic prose. P/NP or letter grading.

111. Herodotus. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

112. Thucydides. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

113. Attic Orators. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

115. Xenophon. (4) Lecture, three hours. Requisite: course 100. Reading of one major work of Xenophon—*Memorabilia*, *Cyropaedia*, *Anabasis*, *Hellenica*, or *Oeconomus*—in Greek. P/NP or letter grading.

121. Plato. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

122. Plato: *Republic*. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

123. Aristotle: *Poetics and Rhetoric*. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

124. Aristotle: *Ethics*. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

130. Readings in New Testament. (4) Lecture, three hours. Requisite: course 3. P/NP or letter grading.

131. Readings in Later Greek. (4) Lecture, three hours. Requisite: course 100. Topics vary from year to year and include "Longinus," "On Sublime"; Marcus Aurelius; Arrian; Second Sophistic; Plutarch; later epic; epigram; *epistolographi Graeci*. P/NP or letter grading.

132. Survey of Byzantine Literature. (4) Lecture, three hours. Requisite: course 100. Readings based on (1) *Anthology of Byzantine Prose*, ed. Nigel Wilson and (2) *Oxford Book of Medieval and Modern Greek Verse*, ed. C.A. Trypanis, or if unavailable, *Poeti bizantini*, ed. R. Cantarella. In addition, necessary historical and cultural background provided by readings and lectures. P/NP or letter grading.

133. Readings in Byzantine Literature. (4) Lecture, three hours. Requisite: course 132. Topics vary from year to year and include Procopius, Agathias, Michael Psellus, *Alexiad* of Anna Commena, and Digenis Akratas. P/NP or letter grading.

197. Individual Studies in Greek. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research in Greek. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A-200B-200C. History of Greek Literature. (4-4-4) Lecture, three hours. Lectures on history of Greek literature, supplemented by reading of Greek texts in original language. Each course may be taken independently for credit. S/U or letter grading.

201A-201B. Homer: *Iliad*. (2 or 4 each) Lecture, three hours. Course 201A is requisite to 201B. S/U (2-unit course) or letter (4-unit course) grading.

202A-202B. Homer: *Odyssey* and Epic Cycle. (2 or 4 each) Lecture, three hours. Course 202A is requisite to 202B. S/U (2-unit course) or letter (4-unit course) grading.

203. Hesiod. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

204. Homeric Hymns. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

205. Aeschylus. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

206A-206B. Sophocles. (2 or 4 each) Lecture, three hours. Course 206A is requisite to 206B. S/U (2-unit course) or letter (4-unit course) grading.

207A-207B. Euripides. (2 or 4 each) Lecture, three hours. Course 207A is requisite to 207B. S/U (2-unit course) or letter (4-unit course) grading.

208A-208B. Aristophanes. (2 or 4 each) Lecture, three hours. Course 208A is requisite to 208B. S/U (2-unit course) or letter (4-unit course) grading.

209A-209B. Seminars: Hellenistic Poetry. (2 or 4 each) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

210. Advanced Greek Prose Composition. (4) Lecture, three hours. Requisite: course 110. S/U or letter grading.

211A-211B. Herodotus. (2 or 4 each) Lecture, three hours. Course 211A is requisite to 211B. S/U (2-unit course) or letter (4-unit course) grading.

212A-212B. Thucydides. (2 or 4 each) Lecture, three hours. Course 212A is requisite to 212B. S/U (2-unit course) or letter (4-unit course) grading.

213. Greek Historiography. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

214. Demosthenes. (2 or 4) Lecture, three hours. S/U (2-unit course) or letter (4-unit course) grading.

215. Early Greek Orators. (2 or 4) Seminar, three hours. Studies in works of Antiphon, Andocides, and Lysias. S/U (2-unit course) or letter (4-unit course) grading.

216. Menander. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

217A-217B. Greek Lyric Poetry. (2 or 4 each) Seminar, three hours. Each course may be taken independently for credit. S/U (2-unit course) or letter (4-unit course) grading. **217A.** Archaic Lyric. Study of lyric poetry of Archaic period, both choral and monodic, with elegiac and iambic included. **217B.** Pindar and Bacchylides. Study of choral odes of Pindar and Bacchylides, with special attention to conventions of epicinian.

220. Greek Novel. (2 or 4) Seminar, three hours. Study of Greek romance and its place in Greek literature. Two texts (Chariton: *Chaereas and Callirhoe* and Longus: *Daphnis and Chloe*) studied in some detail. S/U (2-unit course) or letter (4-unit course) grading.

221. Pre-Socratic Philosophers. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

222A-222B. Plato. (2 or 4 each) Lecture, three hours. Course 222A is requisite to 222B. S/U (2-unit course) or letter (4-unit course) grading.

223A-223B. Aristotle. (2 or 4 each) Lecture, three hours. Course 223A is requisite to 223B. S/U (2-unit course) or letter (4-unit course) grading.

224. Post-Aristotelian Philosophy. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

229. Sight Translation. (2) Seminar, three hours. Preparation: graduate-level knowledge of ancient Greek. Practice in translation of previously unseen texts from variety of authors and genres. Topics include peculiarities of style and vocabulary of distinct genres, literary versus scholarly translation, semantic properties of particular words and constructions. S/U grading.

240A-240B. History of Greek Language. (2 or 4 each) Lecture, four hours. S/U or letter grading.

240A. Linguistic history of classical Greek. **240B.** Requisite: course 240A. Postclassical, medieval, and modern Greek.

241. Greek Epigraphy. (2 or 4) Seminar, three hours. Survey of Greek historical inscriptions, chiefly Attic. S/U (2-unit course) or letter (4-unit course) grading.

242. Greek Dialects and Historical Grammar. (2 or 4) Lecture, three hours. Linguistic situation in early Greece. Readings in classical Greek dialectal texts. Greek grammar in context of common Greek and Indo-European linguistics. S/U or letter grading.

243. Mycenaean Greek. (2 or 4) Seminar, three hours. Script, language, and grammar of Linear B inscriptions; their relevance to ancient Greek linguistic and cultural history. S/U or letter grading.

244. Greek Papyrology. (2 or 4) Seminar, three hours. Preparation: reading knowledge of Greek. Introduction to Greek papyri, considered both as historical documents and as carriers of literature. S/U (2-unit course) or letter (4-unit course) grading.

245. Greek Palaeography. (2 or 4) Seminar, three hours. Studies in development of book hand in Greek manuscripts earlier than invention of printing. S/U (2-unit course) or letter (4-unit course) grading.

250. Topical Studies of Ancient Greece. (2 or 4) Lecture, three hours. Advanced study of some aspect of ancient Greek language, literature, and/or culture. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U grading.

597. Study for MA Comprehensive Examination or PhD Qualifying Examinations. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for PhD Dissertation. (2 to 8) Tutorial, to be arranged. S/U grading.

Latin

Lower Division Courses

1. Elementary Latin. (5) Lecture, three hours; discussion, two hours. P/NP or letter grading.

1G. Elementary Latin for Graduate Students. (No credit) Lecture, eight hours. Concurrently scheduled with course 14. No grading.

2. Elementary Latin. (5) Lecture, three hours; discussion, two hours. Enforced requisite: course 1. P/NP or letter grading.

3. Elementary Latin. (5) Lecture, three hours; discussion, two hours. Enforced requisite: course 2 or 14. P/NP or letter grading.

14. Elementary Latin: Intensive. (10) Lecture, 10 hours. Declensions of nouns and adjectives, conjugations in indicative mood, and primary uses of subjunctive mood. Emphasis on development of ability to read easy selections of classical prose. P/NP or letter grading.

16. Intensive First-Year Latin. (12) Lecture, 19 hours. Eight-week intensive introduction to Latin language equivalent to courses 1, 2, and 3. Offered in summer only. P/NP or letter grading.

20. Intermediate Latin. (4) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 3 or 16. Formal review of Latin grammar and syntax and development of skills in reading original texts of Latin prose. Readings selected to introduce literature and culture of ancient Rome. P/NP or letter grading.

Upper Division Courses

100. Readings in Latin Prose and Poetry. (4) Lecture, three hours. Enforced requisite: course 20. Close study of prose text supplemented with related readings in poetry. Attention to historical and cultural context. Course is normally requisite to other courses in Latin 100 series. P/NP or letter grading.

101. Plautus. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

102. Terence. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

103. Lucretius. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

104. Ovid. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

105A. Beginning Vergil: Selections from *Aeneid* I-VI. (4) Lecture, three hours. Requisite: course 100. Reading of one or more books from first half of *Aeneid*, designed especially for students with only limited experience in reading Latin poetry. May be repeated for credit with change in readings and consent of instructor. P/NP or letter grading.

105B. Advanced Vergil. (4) Lecture, three hours. Requisite: course 105A. Reading and discussion of Vergil's *Eclogues*, *Georgics*, and/or second half of *Aeneid*. May be repeated for credit with change in readings. P/NP or letter grading.

106. Catullus. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

107. Horace. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

108. Roman Elegy. (4) Lecture, three hours. Requisite: course 100. Selections from Catullus, Tibullus, and Propertius. P/NP or letter grading.

109. Roman Satire. (4) Lecture, three hours. Requisite: course 100. Readings from author(s) of Roman satire, including Horace, Persius, and Juvenal, or related satiric texts. May be repeated for credit with change in readings and consent of instructor. P/NP or letter grading.

110. Study of Latin Prose. (4) Lecture, three hours. Requisite: course 100. Work in sight reading and grammatical analysis of classical prose texts; writing of classical prose. P/NP or letter grading.

111. Livy. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

112. Tacitus. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

113. Cicero: *Orations*. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

114. Roman Epigraphy: Cicero and Pliny. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

115. Caesar. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

116. Roman Novel. (4) Lecture, three hours. Requisite: course 100. Reading and discussion of either Petronius' *Satyricon* or Apuleius' *Metamorphoses* and development of genre of prose novel in antiquity. May be repeated for credit with change in author and text. P/NP or letter grading.

117. Sallust. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

118. Seneca. (4) Lecture, three hours. Requisite: course 100. Selection of Seneca's works read in Latin. P/NP or letter grading.

119A. Readings in Roman Prose. (4) Lecture, three hours. Requisite: course 100. Readings of selected Roman prose author(s). Topics may vary from year to year and may be organized in terms of chronology (Republican or imperial), literary genre (Roman biography, antiquarian learning, or science), and/or theme. May be repeated for credit with topic change. P/NP or letter grading.

119B. Readings in Roman Poetry. (4) Lecture, three hours. Requisite: course 100. Readings of selected Roman poetry author(s). Topics may vary from year to year and may be organized in terms of chronology (Republican or imperial), epic, lyric, elegy, and/or theme. May be repeated for credit with topic change. P/NP or letter grading.

120. Vulgate. (4) Lecture, three hours. Requisite: course 3. Reading of selected chapters of St. Jerome's translation of Bible, with emphasis on unclassical features of Latin. P/NP or letter grading.

121. Patristic Texts. (4) Lecture, three hours. Requisite: course 100. Reading and discussion of one or more Latin patristic texts (especially works of Ambrose, Augustine, and/or Jerome), with emphasis on specific features of patristic, as opposed to classical, Latin. P/NP or letter grading.

130. Introduction to Postclassical Latin. (4) Lecture, three hours. Basic competence in classical Latin required. Readings in postclassical Latin. P/NP or letter grading.

131. Postclassical Latin Prose. (4) Lecture, three hours. Advanced readings of selected texts in post-classical Latin prose. P/NP or letter grading.

133. Postclassical Latin Poetry. (4) Lecture, three hours. Advanced readings of selected texts in post-classical Latin poetry. P/NP or letter grading.

197. Individual Studies in Latin. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research in Latin. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A-200B-200C. History of Latin Literature (4-4-4) Lecture, three hours. Lectures on history of Latin literature, supplemented by reading of Latin texts in original language. Each course may be taken independently for credit. S/U or letter grading.

201. Roman Epic Tradition. (2 or 4) Seminar, three hours. Close study of one epic poet other than Vergil (e.g., Ennius, Lucan, Valerius Flaccus, Statius, Silius Italicus), with attention to literary tradition of epic. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

202. Seminar: Catullus. (2 or 4) Seminar, three hours. Detailed consideration of entire Catullan corpus. S/U (2-unit course) or letter (4-unit course) grading.

203A. Elegiac Poetry. (2 or 4) Lecture, three hours. S/U (2-unit course) or letter (4-unit course) grading.

203B. Propertius. (2 or 4) Lecture, three hours. Course 203A is not requisite to 203B. S/U (2-unit course) or letter (4-unit course) grading.

204A-204B. Vergil's *Aeneid*. (2 or 4 each) Lecture, three hours. Course 204A is requisite to 204B. S/U (2-unit course) or letter (4-unit course) grading.

205A. Seminar: Vergil's *Bucolics*. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

205B. Seminar: Vergil's *Georgics*. (2 or 4) Seminar, three hours. Course 205A is not requisite to 205B. Close reading of Vergil's text; careful evaluation of influential criticism on poem, much of it recent; examination of work's place within tradition of rural poetry. S/U (2-unit course) or letter (4-unit course) grading.

206. Horace. (2 or 4) Lecture, three hours. S/U (2-unit course) or letter (4-unit course) grading.

207. Roman Comedy. (2 or 4) Seminar, three hours. Survey of history of Roman comedy. S/U (2-unit course) or letter (4-unit course) grading.

208. Ovid. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

209. Seminar: Roman Satire. (2 or 4) Seminar, three hours. Detailed study of one individual satirist, with attention to his position in development of satirical genre in Roman literature. Choice of author varies from year to year. Close study of text, of characteristics of writer as social critic and artist, and of contemporary literary and social environment. S/U (2-unit course) or letter (4-unit course) grading.

210. Advanced Latin Prose Composition. (4) Lecture, three hours. Requisite: course 110. S/U or letter grading.

211A-211B-211C. Seminars: Roman Historians. (2 or 4 each) Seminar, three hours. Study of considerable portions of writings of following historians. Each course may be taken independently for credit. S/U (2-unit course) or letter (4-unit course) grading. **211A.** Sallust; **211B.** Livy; **211C.** Tacitus.

214. Ancient Biography: Roman Lives. (2 or 4) Seminar, three hours. Study of biography in ancient Rome. Literary survey or focused readings on lives of Cornelius Nepos, Suetonius, Tacitus, or imperial chroniclers of 4th century C.E. S/U (2-unit course) or letter (4-unit course) grading.

215. Seminar: Roman Novel. (2 or 4) Seminar, three hours. Works such as Petronius' *Satyricon* and Apuleius' *Metamorphoses*: study of literary problems. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

216. Roman Rhetoric. (2 or 4) Seminar, three hours. Close study of one rhetorical text (e.g., *Rhetorica ad Herennium*, Cicero's *de Oratore*, Seneca's *Controversiae* or *Suasoriae*, Quintilian's *Institutio*), with attention to its place in rhetorical tradition. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

220. Cicero's Orations. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

221A. Cicero's Philosophical Works. (2 or 4) Lecture, three hours. S/U (2-unit course) or letter (4-unit course) grading.

221B. Cicero: De Natura Deorum. (2 or 4) Lecture, three hours. Course 221A is not requisite to 221B. S/U (2-unit course) or letter (4-unit course) grading.

222. Seminar: Roman Stoicism. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

223. Lucretius. (2 or 4) Lecture, three hours. S/U (2-unit course) or letter (4-unit course) grading.

224. Seneca. (2 or 4) Seminar, three hours. Detailed study of one work of prose or poetry by younger Seneca. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

229. Sight Translation. (2) Seminar, three hours. Preparation: graduate-level knowledge of Latin. Practice in translation of previously unseen texts from variety of authors and genres. Topics include peculiarities of style and vocabulary of distinct genres, literary versus scholarly translation, semantic properties of particular words and constructions. S/U grading.

231A-231B. Seminars: Medieval Latin. (2 or 4 each) Seminar, three hours. Preparation: at least one upper division Latin course. Course 231A is not requisite to 231B. Studies in various areas of language and literature of medieval Latin. May be repeated for credit with consent of instructor. S/U (2-unit course) or letter (4-unit course) grading.

232. Vulgar Latin. (2 or 4) Lecture, three hours. History and characteristics of popular Latin; its development into early forms of Romance languages. S/U or letter grading.

235. Late Latin Poetry. (2 or 4) Seminar, three hours. Close study, with attention to literary and historical background, of work of one or several poets who flourished between death of Ovid and fall of Roman Empire. May be repeated for credit with change in author. S/U or letter grading.

236. Late Latin Prose. (2 or 4) Seminar, three hours. Close study, with attention to literary and historical background, of work of one or several prose authors who flourished between death of Tacitus and fall of Roman Empire. May be repeated for credit with change in author. S/U or letter grading.

240. History of Latin Language. (2 or 4) Lecture, three hours. Development of Latin from earliest monuments until its emergence in Romance languages. S/U or letter grading.

242. Italic Dialects and Latin Historical Grammar. (2 or 4) Lecture, three hours. Linguistic situation in early Italy. Readings in Oscan, Umbrian, and early Latin texts. Latin grammar in context of Italic and Indo-European linguistics. S/U or letter grading.

243. Seminar: Latin Palaeography. (2 or 4) Seminar, three hours. Studies in development of book hand in Latin manuscripts earlier than invention of printing. S/U (2-unit course) or letter (4-unit course) grading.

245. Neo-Latin. (2 or 4) Seminar, three hours. Preparation: at least two upper division Latin courses. Requisite: course 100. Survey of texts by one or more authors from Renaissance to present, written on related topics. S/U or letter grading.

250. Topical Studies of Ancient Rome. (2 or 4) Seminar, three hours. Advanced study of some aspect of Latin language or literature or Roman culture. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

495. College Teaching of Latin. (2) Seminar, to be arranged. Preparation: appointment as teaching assistant. Methodology of instruction in conjunction with classroom practice. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U grading.

597. Study for MA Comprehensive Examination or PhD Qualifying Examinations. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for PhD Dissertation. (2 to 8) Tutorial, to be arranged. S/U grading.

Adjunct Assistant Professors

Abigail H. Goldman, MS
Barry A. Sanders, JD

Scope and Objectives

The major in Communication Studies is an interdisciplinary curriculum leading to a Bachelor of Arts degree. It seeks to provide students with a comprehensive knowledge of the nature of human communication, the symbol systems by which it functions, the environments in which it occurs, its media, and its effects. Employing critical and empirical approaches, the major draws its resources from the social sciences, humanities, and fine arts. Four areas of focus are offered: communication technology and digital systems, interpersonal communication, mass communication and media institutions, and political and legal communication.

Undergraduate Study

Communication Studies BA

Students fulfilling the major in Communication Studies must complete the seven required lower division courses and a minimum of 10 or 11 upper division courses as set forth below. Enrollment in the major is limited. Admission to the major is by application to the committee in charge. Applications are available at <http://www.commstudies.ucla.edu> to regularly enrolled UCLA students during spring quarter.

Preparation for the Major

Students are encouraged but not required to complete as many lower division preparation for the major courses as possible before admission to the program.

Required: Communication Studies 1, 10, one course selected from Anthropology 33, Communication Studies M70, or Linguistics 1, one statistics course from Economics 41 or Statistics 10. Three additional courses must be selected from Political Science 40, Psychology 10, Sociology 1, and Economics 1 or 5 or Political Science 30.

Transfer Students

Transfer applicants to the Communication Studies major with 90 or more units must complete at least four of the following seven lower division required courses: Communication Studies 10 or one interpersonal communication and one mass communication course, one public address course, one linguistics course, one statistics course, and three courses from psychology, American government, sociology, and microeconomics or political economy.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Students must complete 10 or 11 upper division courses. The practicum requirement can be satisfied by a course that also satisfies a core or an additional area elective course requirement.

COMMUNICATION STUDIES

College of Letters and Science

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Tim J. Groeling, PhD, Chair

Professors

Steven E. Clayman, PhD
Charles Goodwin, PhD
Tim J. Groeling, PhD
Martie G. Haselton, PhD
Neil M. Malamuth, PhD
Lynn Vavreck Lewis, PhD

Professors Emeriti

William W. Johnson, PhD
Paul I. Rosenthal, PhD
John H. Schumann, PhD

Associate Professors

Gregory A. Bryant, PhD
Kerri L. Johnson, PhD
Francis F. Steen, PhD

Assistant Professors

Georgia C. Kornell, PhD
PJ Lamberson, PhD

Senior Lecturers

Marde S. Gregory, MA, *Emeritus*
Thomas E. Miller, MA
Paul Von Blum, JD, *Emeritus*

Lecturers

Nushin Arbabzadah, MPhil
Dee A. Bridgewater, PhD
Celia Feramisco, MBA
Keith A. Fink, JD
Mark A. Huppin, JD, PhD
Raffi Kassabian, JD
Karyl K. Kicenski, PhD
John Kochian, MA
Nazo L. Koulloukian, JD
Karen S. Mack, MA
Judith B. Milestone, MA
James S. Newton, BA
Steven M. Peterson, PhD
Michael W. Suman, PhD

Required Core Courses: Communication Studies 100, 150.

Required Area Courses: A total of eight courses from the following four areas, including at least one core course in each area:

Communication Technology and Digital Systems—Core courses: Communication Studies 129, 151, 154, 156, 158; elective courses: Communication Studies 157, 188C, 191C, Geography 138.

Interpersonal Communication—Core courses: Communication Studies 110, 111, M113, 114, 120, 126; elective courses: Anthropology 135A, M140, 141, Communication Studies 109, 112, 116, M117, 118, 119, M123W, M125, M127, M144A, M144B, 188B, 191B, Linguistics 103, 170, Philosophy 172, Psychology 135 (or Sociology 132), 137C, 137I, M165, 177, 178, Sociology 134, 156.

Mass Communication and Media Institutions—Core courses: Communication Studies 133, 140, M147, 152; elective courses: Communication Studies 105, 106, 107, 128, 132, 136, M137, 141, 143, 145, 146, 148, M149, M153, M159, M165, 166, M169, 175, 179, 182, 183, 187, 188A, 191A, Film and Television 106A, 108, 110A, Political Science M142D.

Political and Legal Communication—Core courses: Communication Studies 101, 160, M161, 162, 170; elective courses: Communication Studies 102, 163, 164, 167, 168, 171, M172, M176, 178, 184, 188D, 191D, Political science M141A, 141B (or Sociology 133), 141C, 141E.

Required Practicum Course: One course from Communication Studies 101, 102, 103A, 103B, 104, 109, 111, 116, M117, 160, M176, 188E, or 191E.

Honors Program

The departmental honors program provides exceptional students an opportunity for advanced research and study, under the guidance of a faculty member, that leads to the completion of an honors thesis. To qualify for graduation with departmental honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average of 3.6 or better in upper division coursework in the major and an overall GPA of 3.3 or better in all completed University coursework, (3) complete Communication Studies 198A, 198B, and 198C, and (4) produce a completed satisfactory honors thesis (as determined by a recommendation of their thesis adviser and final approval by the department chair). Consult the student affairs officer for further information.

Computing Specialization

Majors in Communication Studies may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the major, (2) completing Program in Computing 10A and 10B, and (3) completing four courses (at least one of which must be in communication studies) from Communication Studies 129, 151, 154, 156, 158, Program in Computing 10C, 20A, 20B, 40A. Courses need to be com-

pleted with a grade of C- or better in each course and a combined grade-point average of at least 2.0. Students must petition for admission to the program and are advised to do so after they complete Program in Computing 10B (petitions should be filed in the Counseling Office). Students graduate with a bachelor's degree in communication studies and a specialization in Computing.

Communication Studies

Lower Division Courses

1. Principles of Oral Communication. (4) Lecture, four hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Examination of foundations of communication and public speaking. Consideration of number of basic theories related to study of communication and development of skills to enable composition and delivery of speeches in accordance with specific rhetorical concepts. Improvement of ability to analyze, organize, and critically think about communicative messages while becoming better equipped to articulate ideas. P/NP or letter grading.

1A. Public Speaking for Nonnative Speakers. (4) Lecture, four hours. Designed for nonnative speakers of English to increase fluency and vocabulary while improving presentation skills, language usage, reasoning, style, and delivery. Conversation and pronunciation practice. Focus on theory and practice of public speaking, including selection of content, organization of ideas, language, and delivery. Practice in extemporaneous and manuscript speaking. Critical analysis of speeches in both contemporary and historical settings. Special emphasis on group discussions, evaluations, practice of both public and private speaking skills. Offered in summer only. P/NP or letter grading.

1B. Learning American English and Culture from Movies. (4) Lecture, four hours. Advancement of students' fluency in conversational English while increasing their awareness of American popular culture. Primer on American-style colloquial English and nuances of contemporary customs and values offered through guided immersion in popular cinema. Offered in summer only. P/NP or letter grading.

10. Introduction to Communication Studies. (5) Lecture, four hours; discussion, one hour. Introduction to fields of mass communication and interpersonal communication. Study of modes, media, and effects of mass communication, interpersonal processes, and communication theory. Letter grading.

M70. Origin of Language. (5) (Same as German M70 and Indo-European Studies M70.) Lecture, three hours; discussion, one hour. Theoretical and methodological issues surrounding origin of language. Topics include evolutionary theory, evolution of man, how language is organized in brain, and science of language, including physiology of speech, phonetics, and comparative reconstruction. Letter grading.

M72A-M72B-M72CW. Sex from Biology to Gendered Society. (6-6-6) (Same as GE Clusters M72A-M72B-M72CW, Society and Genetics M72A-M72B-M72CW, and Sociology M72A-M72B-M72CW.) Course M72A is enforced requisite to M72B, which is enforced requisite to M72CW. Limited to first-year freshmen. Letter grading. **M72A-M72B.** Lecture, three hours; discussion, two hours. Examination of many ways in which sex and sexual identity shape and are shaped by biological and social forces, approached from complementary perspectives of anthropology, biology, medicine, and sociology. Specific topics include biological origins of sex differences, intersex, gender identity, gender inequality, homosexuality, sex differences, sex/gender and law, and politics of sex research. **M72CW.** Special Topics. Seminar, three hours. Enforced requisite: course M72B. Topics may include politics of reproduction, sexuality, sexual identity, social construction of gender, and reproductive technologies. Satisfies Writing II requirement.

88. Sophomore Seminars: Communication Studies. (4) Seminar, three hours. Limited to maximum of 20 lower division students. Readings and discussions designed to introduce students to current research in discipline. Culminating project may be required. P/NP or letter grading.

Upper Division Courses

100. Communication Theory. (4) Lecture, four hours. Requisite: course 10 or Linguistics 1 or Sociology 1 or Psychology 10. Analysis of fundamental nature of human communication; its physical, linguistic, psychological, and sociological bases. Study of theoretical models explicating process and constituents of communicative act. P/NP or letter grading.

101. Freedom of Communication. (4) Lecture, four hours. Analysis of legal, political, and philosophical issues entailed in rights of free expression, access to audience, and access to information. Study of court decisions governing freedom of communication in U.S. P/NP or letter grading.

102. Principles of Argumentation. (4) Lecture, four hours. Analysis of propositions, tests of evidence, briefing. Study of hindrances to clear thinking, ambiguity of terms, and prejudices. Critical analysis of selected argumentative speeches. P/NP or letter grading.

103A-103B. Forensics. (4-4) Lecture, three hours. Participation in on-campus and intercollegiate forensics activities, including exposure to fundamentals of competitive forensic events. Students practice public address, interpretation of literature, debate, oratory, and extemporaneous speaking and engage in independent research and analysis. P/NP or letter grading. **103A.** Basic preparation; **103B.** Advanced practicum in speech.

104. Analysis and Briefing. (4) Lecture, three hours. Intensive study of selected political or social issues, preparation of bibliography, analysis and evaluation of issues and arguments. P/NP or letter grading.

105. Conspiracy Theories, Media, and Middle East. (4) Lecture, three hours. Background knowledge of Middle East not required. Through mass and digital media, conspiracy theories reshape politics and society around world. Although globally widespread, they find particularly fertile ground in Middle East. Definition, identification, and analysis of conspiracy theories as they appear in media of Muslim societies. Interdisciplinary approach to question of what conspiracy theories tell about relationship between media and society in Middle East. Case studies, such as conspiracies about 9/11, to be taken from Middle Eastern media sources in English translation. P/NP or letter grading.

106. Reporting America. (4) Lecture, three hours. Introduction to main western European and Middle Eastern news media, with materials in English. Exploration of how U.S. is represented in Europe, Middle East, Iran, and Afghanistan, with focus on three comparative case studies of Britain, Spain, and Germany. In-depth coverage of American news as reflected in Europe and Middle East. P/NP or letter grading.

107. Terrorism in Journalism. (4) Lecture, three hours. How do media outlets in Middle East represent Islamist terrorism? How do they describe, analyze, and comment on suicide attacks? Focus on Arab, Afghan, and Iranian media discussions of this phenomenon to explore evolution of meaning of terrorism in Muslim societies. P/NP or letter grading.

109. Entrepreneurial Communication. (4) Lecture, four hours. Study of entrepreneurial communication from foundations in internal and external communication and development of data analysis, interpretation, and presentational skills utilized in existing, as well as in development of, contemporary innovative businesses. P/NP or letter grading.

110. Gender and Communication. (4) Lecture, four hours. Understanding gender is fundamental part of understanding who we are as human beings. Exploration of crucial role of gender in spheres of life involving communication and role and origins of gender differences in communication. Contexts of commun-

cation include family, workplace, sexuality, and intimate relationships. Discussion of how media influence conceptions of gender. P/NP or letter grading.

111. Conflict and Communication. (4) Seminar, three hours. Analysis of when and why conflict is prevalent in daily lives (including mass media) and how communication affects reactions to and consequences of conflict. Conflict is part of our evolutionary heritage. How well we handle various conflicts affects, to great degree, our success or failure wherever we interact with others, including intimate relations, school, and workplace. P/NP or letter grading.

112. Current Issues in Vocal Communication. (4) Seminar, three hours. Requisite: course 118 or 120 or 126. Examination of contemporary issues in evolutionary communication research. Topics include design of communication systems, animal signaling, social communication, and speech production and perception. P/NP or letter grading.

M113. Nonverbal Communication and Body Language. (4) (Same as Psychology M137B.) Lecture, three hours. Examination of how various forms of nonverbal communication convey meaningful information to perceivers, with focus on both production and perception of multiple communication formats (e.g., affect expression of face and body, gesture, and kinematics), with strong emphasis on body language. Readings from variety of related fields. P/NP or letter grading.

114. Understanding Relationships. (4) Lecture, four hours. Explanation of types of communication that occur in close relationships, especially romantic relationships. In-depth coverage of variety of relationship topics, including intimacy, stages of intimate relationships, why we choose to get involved with some people as opposed to others, flirting, and self-disclosure. P/NP or letter grading.

116. Communication and Conflict in Couples and Families. (4) Lecture, three hours. Examination of (1) dysfunctional communication and conflict in couples and families and (2) relationship of these processes to individual psychopathology, marital discord, and family disruption (e.g., separation and divorce). P/NP or letter grading.

M117. Negotiation. (4) (Same as Labor and Workplace Studies M117.) Lecture, four hours. Art and science of negotiation in securing agreements between independent parties. Theory and practice that underlies successful negotiation. Experiential course in which students learn broad array of negotiation skills, including identifying one's own (and others') communication style, identifying and incorporating components of successful negotiation, and resolving conflict between parties. Letter grading.

118. Language and Music. (4) Lecture, three hours. Cognitive science exploration of structure and evolution of language and music and their relationships to communication, cognition, and culture. P/NP or letter grading.

119. Voice and Its Perception. (4) Lecture, four hours. Focus on how human voice conveys information about identity of speakers, physical characteristics, personality, and emotional state, and on how listeners utilize this information to make judgments about speakers. Letter grading.

120. Group Communication. (4) Lecture, four hours. Examination of group communication from perspectives of evolutionary psychology, communications, and psycholinguistics. Topics include evolution of cooperation, ingroup and outgroup dynamics, gossip, music improvisation, and conversational behavior. P/NP or letter grading.

M123W. Talk and Body. (5) (Same as Anthropology M148W.) Lecture, four hours; discussion, one hour. Enforced requisite: English Composition 3. Relationship between language and human body raises host of interesting topics. New approaches to phenomena such as embodiment become possible when body is analyzed, not as isolated entity, but as visible agent whose talk and action are lodged within both processes of human interaction and rich settings where people pursue courses of action that count in their lives. Satisfies Writing II requirement. Letter grading.

M125. Talk and Social Institutions. (4) (Same as Sociology CM125.) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Practices of communication and social interaction in number of major institutional sites in contemporary society. Setting varies but may include emergency services, police and courts, medicine, news interviews, and political oratory. P/NP or letter grading.

126. Evolution of Interpersonal Communication. (4) Lecture, four hours. Examination of current issues in interpersonal communication from perspectives of evolutionary psychology and biology. Topics include coevolution of signaler and receiver adaptations, non-verbal communication, courtship behavior, miscommunication between sexes, implied language use, and deception. Letter grading.

M127. Animal Communication. (5) (Same as Anthropology M127.) Lecture, four hours. Designed for Anthropology and Communication Studies majors. Evolution, functions, design, and diversity of animal communication systems such as bird song, dolphin calls, whale song, primate social signals, and human language. Letter grading.

128. Play and Entertainment. (4) Lecture, three hours. Entertainment is significant component of both interpersonal and mass communication. Examination of evolutionary history, cognitive mechanisms, and social dimensions of play and entertainment, as well as their possible pedagogical effects. Letter grading.

129. Gaming Mind. (4) Lecture, three hours. Exploration of various aspects of online computer games that are becoming increasingly popular and technically sophisticated, with focus on what people learn from games, how they learn it, and whether learning is potentially useful. Letter grading.

132. Multicultural Television. (4) Lecture, four hours. Critical evaluation of television programming and scholarly research of new developments in television. Application of research findings by students to real-world contexts in course discussions, papers, and presentations. Letter grading.

133. Decoding Media Strategies. (4) Lecture, three hours. Today's mass media are thriving business, central part of cultural identity, and vital component of democracy. How do these different and often conflicting functions determine content of mass media? Examination of psychological dynamics of advertising, nature of entertainment and mass culture, practice of propaganda, and changing patterns of media ownership. Assessment of impact of mass media on individuals and social institutions. Letter grading.

136. Media Portrayals of Gays and Lesbians. (4) Lecture, three hours. How mass media have portrayed gays and lesbians and why. Media's depiction, portrayal, and handling of homosexuality, with particular focus on how gays and lesbians have been negatively stereotyped, portrayed unrealistically, and often not portrayed at all. Exploration not only of how gays and lesbians have been represented, but also why certain portrayals have tended to dominate. P/NP or letter grading.

M137. Transnational Bollywood. (4) (Same as Asian American Studies M172C.) Lecture, three hours. Study of how popular Bollywood cinema materializes colonial and postcolonial formations pertaining to gender, class and caste, sexuality, race, and economic liberalization in South Asia, as well as across South Asian communities in North America, U.K., and Africa. Examination of how complex relationships between Bollywood and transnational South Asian diasporas enable us to better understand South Asian American communities. P/NP or letter grading.

140. Theory of Persuasive Communication. (4) Lecture, four hours. Dynamics of communication designed to influence human conduct; analysis of structure of persuasive discourse; integration of theoretical materials from relevant disciplines of humanities and social sciences. Letter grading.

141. Films of Persuasion: Social and Political Advocacy in Mass Society. (4) Lecture, four hours. Films often provide commentary about public issues. Examination of how films communicate to large audi-

ences about history, society, and politics. Critical evaluation of these works to understand power and limitations of films as social persuasion. Letter grading.

143. Rhetoric of Popular Culture. (4) Lecture, three hours. Rhetorical approach to study of U.S. popular culture. Examination, both at theoretical level and through specific case studies, of ways in which popular cultural texts perform rhetorically to influence political and social struggles shaping everyday life. How do particular artifacts or communicative texts constitute source for (re)negotiation of cultural meanings as well as greater understanding of ways language functions as vehicle for human action. Letter grading.

M144A-M144B. Conversational Structures I, II. (4-4) (Same as Sociology M124A-M124B.) Lecture, three hours; discussion, one hour. P/NP or letter grading. **M144A.** Introduction to some structures that are employed in organization of conversational interaction, such as turn-taking organization, organization of repair, and some basic sequence structures with limited expansions. **M144B.** Requisite: course M144A. Consideration of some more expanded sequence structures, story structures, topical sequences, and overall structural organization of single conversations.

145. Situation Comedy and American Culture. (4) Lecture, three hours. Historical analysis of sitcom genre from its beginning in late 1940s to present. Investigation of how sitcoms have influenced American life and culture and how American life and culture have influenced sitcoms. Exploration of issues of family, race and ethnicity, class and economy, gender roles, and political culture. P/NP or letter grading.

146. Evolution of Mass Media Images. (5) Lecture, four hours; discussion/laboratory, one hour. Analysis of evolutionary psychology as basis for images selected by media portraying women and/or minorities in entertainment, advertising, and informational communication. Letter grading.

M147. Sociology of Mass Communication. (4) (Same as Sociology M176.) Lecture, four hours; discussion, one hour (when scheduled). Studies in relationship between mass communication and social organization. Topics include history and organization of major media institutions, social forces that shape production of mass media news and entertainment, selected studies in media content, and effects of media on society. P/NP or letter grading.

148. Integrated Marketing Communications. (4) Lecture, three hours. Examination of key concepts and methods in marketing communications in both traditional and digital media. Development and execution of communications strategies, with primary emphasis on consumer insight, branding, market segmentation and positioning, message strategy, promotion, and execution of marketing communications through appropriate media technologies. Letter grading.

M149. Media: Gender, Race, Class, and Sexuality. (5) (Same as Gender Studies M149 and Labor and Workplace Studies M149.) Lecture, four hours; activity, one hour. Limited to junior/senior Communication Studies and Gender Studies majors and Labor and Workplace Studies minors. Examination of manner in which media culture induces people to perceive various dominant and dominated and/or colonized groups of people. Ways in which women, gay, lesbian, bisexual, transgendered, racial, and ethnic marginalized peoples, class relations, and other subaltern or subordinated groups are presented and often misrepresented in media. Investigation and employment of practical applications of communications and feminist theories for understanding ideological nature of stereotyping and politics of representation through use of media, guest presentations, lectures, class discussions, and readings. Introduction to theory and practice of cultural studies. Letter grading.

150. Methodologies in Communication Research. (5) Lecture, four hours; discussion, one hour. Requisite: Economics 41 or Statistics 10. Limited to Communication Studies majors. Critical studies of quantitative and qualitative methodologies in communication research. Letter grading.

151. Computer-Mediated Communication. (4) Lecture, four hours. Examination of how computer technology, particularly Internet, has influenced patterns of human communication. History and distinctiveness of computer-mediated communication (CMC). CMC's influence on modern economic, political, and social interaction. Letter grading.

152. Analysis of Communication Effects. (4) Lecture, four hours. Survey of experimental and field research on effects of communications. Study of source, message, and environmental factors affecting audience response. P/NP or letter grading.

153. Media and Aggression against Women. (4) (Same as Gender Studies M153.) Lecture, three hours. Social scientific study of intersection between mass media and men's aggression against women. Particular consideration of sexual aggression, pornography, and characteristics of aggressive men. Analysis of interaction between nature and nurture. Letter grading.

154. Social Communication and New Technology. (4) Lecture, four hours. Internet's digital core was designed for military command. Yet emerging network was gradually co-opted to perform communicative functions such as gossip, dating, news, entertainment, and trade. Exploration of history, social effects, and possible futures of digital communication. Letter grading.

155. Social Networking. (4) Lecture, three hours. Investigation of how new online social networks have facilitated interpersonal interactions for knowledge sharing, romance, business, politics, and entertainment. Critical investigation of current popular social networking websites (e.g., Facebook, MySpace, Friendster, You Tube) through social network analysis and other social science research methods. P/NP or letter grading.

157. Celebrity, Fame, and Social Media. (4) Lecture, three hours. Analysis of how following personal lives of media-created celebrities impacts self-esteem, connectedness, and personal relationships from cultural studies and social sciences perspectives, and how entities cultivate celebrity for financial gain. Topics include celebrity gossip and privacy, news sharing, public relations, and impact of social media on fan support, image construction, and damage control. P/NP or letter grading.

158. Revolutions in Communication Technology. (4) Lecture, three hours. Study of dynamic processes of innovation in history of communication from its earliest expressions to information age. Examination of developments in speech, images, and writing. Investigation of interactions of cognitive factors, social change, and technological innovation. Letter grading.

159. Pornography and Evolution. (4) (Same as Gender Studies M159.) Lecture, three hours. Discussion of theories and research on why pornography exists and its effects. Use of topic to illustrate value of evolutionary theory to social sciences generally. Letter grading.

160. Political Communication. (4) Lecture, four hours; discussion, one hour. Study of nature and function of communication in political sphere; analysis of contemporary and historical communications within established political institutions; state papers; deliberative discourses; electoral campaigns. Letter grading.

161. Electoral Politics: Mass Media and Elections. (4) (Same as Political Science M141D.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Assessment of manner in which Americans' political beliefs, choices, and actions are influenced by mass media presentations, particularly during election campaigns. Topics include processes of political attitude formation and change, different types of media "effects," and role of media in American political process. P/NP or letter grading.

162. Presidential Communication. (4) Lecture, three hours. Examination of historical evolution of presidential communication environment, resources,

and strategies, as well as how presidential campaign communication has evolved over time and implications for how presidents govern. Letter grading.

163. Public Diplomacy. (4) Seminar, four hours. Exploration of field of public diplomacy and its theory and practices. How points of view and imagery in context of international politics can be influenced and changed. Development of presentation skills and understanding of structure of profession. Letter grading.

164. Entertainment Law. (4) Lecture, three hours. Various issues in entertainment industry, with primary focus on business, legal, and free speech-related concepts. P/NP or letter grading.

165. Agitational Communication. (4) (Same as Labor and Workplace Studies M175.) Lecture, four hours; discussion, one hour (when scheduled). Theory of agitation; agitation as force for change in existing institutions and policies in democratic society. Intensive study of selected agitational movements and technique and content of their communications. Letter grading.

166. Communicative Dynamics in Film and Television Production. (4) Lecture, four hours. Identification of how motivation and creativity interact with business interest, research, and policies in producing entertainment for media market. Letter grading.

167. Sex, Politics, and Race: Free Speech on Campus. (4) Lecture, three hours. Focus on concept of freedom of expression on campus during postsecondary education. How First Amendment, case law, and federal and state statutes affect students' and teachers' abilities to speak on and off campus. Discussion of harassment and campus speech codes, campus demonstrations, student publications, student conduct regulations, and restrictions on displays of art and academic freedom. P/NP or letter grading.

168. Free Speech in Advertising. (4) Lecture, three hours. Exploration of First Amendment and commercial speech within context of product and service advertising (e.g., vice products such as tobacco, alcohol, illegal drugs, gambling; pharmaceutical drugs; and political advertisements). Examination of when, where, and how (time/place/manner) restrictions imposed on advertising and commercial speech, with specific reference to shopping malls, news tabloid racks, and billboards, among other places. P/NP or letter grading.

169. Critical Vision: History of Art as Social and Political Commentary. (5) (Same as Honors Collegium M179.) Seminar, three hours. Study of tradition of visual arts (painting, graphic art, photography, sculpture) as vehicles for social and political commentary. P/NP or letter grading.

170. Legal Communication. (4) Lecture, four hours. Study of trial and appellate processes as systems of communication. Analysis of elements of juridical process as they affect quality of communication content. Study of rules of evidence, jury behavior, and structure of legal discourse. Letter grading.

171. Theories of Freedom of Speech and Press. (4) Lecture, three hours. Exploration of relationship between freedoms of speech and press and values of liberty, self-realization, self-government, truth, dignity, respect, justice, equality, association, and community. Study of significance of these values examined in connection with issues such as obscenity, defamation, access to media, and control of commercial, corporate, and government speech. P/NP or letter grading.

172. Free Speech in Workplace. (4) (Same as Labor and Workplace Studies M172.) Lecture, three hours. Focus on concept of freedom of expression in workplace and how First Amendment, case law, and federal and state statutes affect one's ability to speak at work. Conflict between discrimination law and ability to speak freely at work as well as meaning and limits of academic freedom. P/NP or letter grading.

175. Criticism and Public Arts. (4) Lecture, four hours; discussion, one hour (when scheduled). Introduction to methods and problems of criticism in public arts. Study of several types of critical methods: formalistic, analogue, pragmatic, and aesthetic criti-

cism. Topics include definition of art and criticism, aesthetic media, genre and resources of film, television, theater, and public discourse, varieties of critical method, problems of critical judgment. Letter grading.

176. Visual Communication and Social Advocacy. (4) (Same as Labor and Workplace Studies M176.) Lecture, four hours. Visual communication reaches diverse audiences in communicating major social and political topics. Cartoons, posters, murals, and documentary photography have had powerful world impact. Survey of all four genres of visual communications as features of modern mass media. Letter grading.

178. Propaganda and Media. (4) Lecture, three hours. Examination of nature of propaganda, institutional structure of American media, and relationship between propaganda and American news media. History of propaganda in America from World War I era forward, competing theories of democracy and media, and role of corporations in propaganda and news. Letter grading.

179. Images of U.S. (4) Lecture, four hours. Awareness of international role of U.S. necessitates clear understanding of way our nation is perceived by others. Exploration of roots of U.S. images in minds of people abroad. Analysis of influences that contribute to images and ways in which images affect practical matters. P/NP or letter grading.

182. Nonverbal Communication in Architecture. (4) Lecture, four hours. Study of how elements of design and style of various buildings in architectural history send messages to viewers and users of such buildings. Letter grading.

183. Media and Mind. (4) Lecture, three hours. Investigation of media persuasion and entertainment appeal through three intersecting approaches: study of cognition, reflection on personal experience, and hands-on analysis of television, film, and radio. Topics include perception, imagination, narrative, play, emotion, and dreams. Students collaborate with each other to assemble media critiques and create their own short stories. P/NP or letter grading.

184. Abortion, Death Penalty, and Gun Control: Arguing Contemporary Social Issues. (4) Lecture, four hours. Focus on variety of hot-button contemporary social issues to provide students with knowledge of arguments on both sides of issues covered, with emphasis on sound reasoning to support various arguments. P/NP or letter grading.

185. Field Studies in Communication. (2 to 4) Lecture, two hours. Designed for juniors/seniors. Fieldwork in communication. Students participate in two-hour seminar sessions and spend seven hours in approved community settings each week for each 2 units of credit. May be taken for maximum of 4 units per term. P/NP grading.

187. Ethical and Policy Issues in Institutions of Mass Communication. (4) Lecture, three hours. Intensive examination of ethical and policy issues arising from interaction of media institutions (print, film, broadcasting, and new technologies) and societal institutions (Congress, federal agencies, courts, Presidency, schools, churches, political action groups, advertisers, and audiences). P/NP or letter grading.

188A. Variable Topics in Mass Communication and Media Institutions. (4) Lecture, four hours. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. Letter grading.

188B. Variable Topics in Interpersonal Communication. (4) Lecture, three hours. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. Letter grading.

188C. Variable Topics in Communication Technology and Digital Systems. (4) Lecture, four hours. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

188D. Variable Topics in Political and Legal Communication. (4) Lecture, four hours. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

188E. Variable Topics: Practicum. (4) Lecture, three hours. Practicum lectures on selected topics in communication. Reading, writing, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

191A. Variable Topics Research Seminars: Mass Communication and Media Institutions. (4) Seminar, three hours. Research seminars on selected topics in mass communication. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

191B. Variable Topics Research Seminars: Interpersonal Communication. (4) Seminar, three hours. Research seminars on selected topics in interpersonal communication. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

191C. Variable Topics Research Seminars: Communication Technology and Digital Systems. (4) Seminar, three hours. Research seminars on selected topics in communication technology and digital systems. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

191D. Variable Topics Research Seminars: Political and Legal Communication. (4) Seminar, three hours. Research seminars on selected topics in political and legal communication. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

M191DC. CAPPP Washington, DC, Research Seminars. (8) (Same as History M191DC, Political Science M191DC, and Sociology M191DC.) Seminar, three hours; laboratory, 24 hours. Limited to CAPPP Program students. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

191E. Variable Topics Research Seminars: Practicum. (4) Seminar, three hours. Practicum seminars on selected topics in communication. Reading, writing, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

194. Research Group Seminars: Communication Studies. (2) Seminar, two hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP grading.

195. Summer Internships. (4) Tutorial, to be arranged. Internship in supervised setting in community agency or business. Students meet with adviser and provide final reports of their experiences. May be repeated for credit. Individual contract with supervising faculty member required. Offered in summer only. P/NP grading.

197. Individual Studies in Communication Studies. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject area required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198A-198B-198C. Honors Research in Communication Studies. (4-4-4) Tutorial, three hours. Limited to junior/senior majors. May be repeated for credit. Individual contract required. Letter grading. **198A.** Requisites: courses 10, 150. Development of comprehen-

sive research project under direct supervision of faculty member. **198B.** Requisite: course 198A. Continuation of work initiated in course 198A. Presentation of summary of data gathered and relevant progress to supervising faculty member. **198C.** Requisite: course 198B. Completion of research developed in courses 198A, 198B. Presentation of honors project to supervising faculty member.

199. Directed Research or Senior Project in Communication Studies. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

COMMUNITY HEALTH SCIENCES

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Gilbert C. Gee, PhD
Deborah C. Glik, ScD
Kimberly D. Gregory, MD, MPH, *in Residence*
Robert J. Kim-Farley, MD, MPH, *in Residence*
Joel D. Kopple, MD, *in Residence*
James A. Macinko, PhD
Donald E. Morisky, ScD, MSPH, ScM
Anne R. Pebley, PhD (*Fred H. Bixby Professor of Population Policy*)
Michael L. Prelip, DPA, MPH, CHES, *in Residence*
Michael G. Ross, MD, MPH
Mary Jane Rotheram-Borus, PhD, *in Residence*
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Alfred K. Neumann, MD, MA, MPH, FABPM
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Lecturers

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Susan D. Kirby, MPH, DrPH
Bonnie Taub, PhD

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Diana M. Bontá, DrPH, RN
Elizabeth D'Amico, PhD
Daniel H. Ershoff, DrPH
Ronald J. Halbert, MD
Wendelin M. Slusser, MD, MS
Samuel J. Stratton, MD, MPH

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Linda Delp, MPH, PhD
Janet C. Frank, DrPH
Sheba M. George, PhD
Paula A. Tavrow, PhD
Valentine M. Villa, PhD

Adjunct Assistant Professors

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Alina H. Dorian, PhD
Dena R. Herman, MPH, PhD, RD
Dana E. Hunnes, MPH, PhD, RD
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Field Studies Director

Michael L. Prelip, DPA, MPH, CHES

Scope and Objectives

The Department of Community Health Sciences is concerned with health equity and well-being for all individuals and communities. To understand and foster optimal health among diverse communities, the mission of the department is to (1) prepare students to be interdisciplinary global leaders who can effectively address persistent and emerging public health issues, (2) conduct and disseminate innovative research on the social determinants of health, (3) translate the findings for public health practice, and (4) collaborate with communities in research and training.

The department offers schoolwide professional (MPH and DrPH) and academic (MS and PhD) degree programs. Graduates of the professional programs assume positions in the planning, administration, and evaluation of public health programs and policies in the U.S. and abroad. Graduates of the academic programs assume teaching, research, and managerial positions in universities, government agencies, nongovernmental organizations, international health agencies, and research centers.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Community Health Sciences offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Community Health Sciences and a Master of Public Health for Health Professionals (MPH-HP) degree. A concurrent degree program (Community Health Sciences MPH/Urban Planning MURP) is also offered.

Community Health Sciences

Lower Division Courses

48. Nutrition and Food Studies: Principles and Practice. (4) Lecture, three hours; discussion, one hour. Overview of nutritional sciences and public health nutrition. Examination of basic science concepts of nutrition and application of them to student lives and real-world issues through lectures, diet analysis, activities, reports, discussion of video and reading assignments, and reviews of community programs that apply nutrition and behavior theory to improve health of public. Description of components of diets and food sources, including proteins, fats, carbohydrates, vitamins, and minerals and their roles in maintaining body health. Exploration of aspects of social, cultural, behavioral, and environmental causes of chronic disease. Letter grading.

60. Intergroup Dialogue: Peer Dialogue. (2) Seminar, two hours. Discussion on issues of difference, conflict, and community to facilitate understanding between social/cultural groups. Student participation in semi-structured face-to-face meetings with students from other social identity groups to learn from each others' perspectives, read and discuss relevant reading material, and explore their own and other groups' experiences in various social and institutional contexts. Exploration of ways of taking action to create change and bridge differences at interpersonal and social/community levels. P/NP or letter grading.

80. FITTED: Fitness Improvement Training through Exercise and Diet. (1) Lecture, one hour; activity, two hours. Success in undergraduate experience is very much influenced by attributes beyond intellectual competence. Examination of personal, social, and environmental factors that influence college students' eating behaviors, physical activity patterns, and body image. Development of individualized student plans for eating well, being active, and feeling good about their bodies. Learning of practical skills with application to nutrition, physical activity, positive body image, stress management, and other aspects of wellness as students participate in critical evaluation of popular diets, healthy body weights, fitness, supplements, media body ideals, and self-destructive thoughts. P/NP grading.

91. Peer Health Counselor Training. (4) Lecture, four hours. Limited to students in Peer Health Counselor Program. Analysis of student healthcare issues as related to campus healthcare delivery system and to healthcare consumer. Identification of health needs, determination of appropriate resources, delivery of preventive and self-care education, and delineation of peer health counselor's role. P/NP or letter grading.

99. Student Research Program. (1 to 2) Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

Upper Division Courses

100. Introduction to Community Health Sciences. (4) Lecture, four hours. Limited to students in Public Health minor and graduate students. Introductory course to provide non-Community Health Sciences MPH students and qualified undergraduate students with broad and comprehensive overview of concepts, empirical research, and public health practice in community health sciences, with emphasis on social context and determinants of population health and principles of planning interventions to protect and improve public health. Ways to define and measure health and illness, social construction of illness, social and behavioral determinants of health, and health disparities, including socioeconomic status, race/ethnicity, gender, and age. Social and behavioral theories of

health-related behavior change, health promotion strategies and methods, and public policy. Case studies of evidence-based health promotion programs provided. Letter grading.

130. Nutrition and Health. (4) Lecture, three hours; laboratory, one hour. Preparation: one biology course, one chemistry course. Basic and clinical nutrition theory and practice for students in health sciences curricula. P/NP or letter grading.

131. Healthy Food Access in Los Angeles: History and Practice of Urban Agriculture. (4) Lecture, three hours; laboratory, 90 minutes. History and recent revival of urban agriculture (gardening) in Los Angeles area. Exploration of how urban gardening is response to crises such as U.S. obesity epidemic and resulting health problems. Critiques of industrial agriculture in California and elsewhere in U.S. Exploration of how urban agriculture springs from healthy food/active living and consumer movements that advocate access to locally grown, in-season, affordable food. Biweekly hands-on gardening laboratory in Sunset Canyon Recreation Center Organic Garden. P/NP or letter grading.

132. Health, Disease, and Health Services in Latin America. (4) Lecture, four hours. Introduction to health, disease, and health services in Latin America, with emphasis on epidemiology, health administration, medical anthropology, and nutrition. P/NP or letter grading.

M140. Health Issues for Asian Americans and Pacific Islanders: Myth or Model? (4) (Same as Asian American Studies M129.) Lecture, three hours; fieldwork, one hour. Introductory overview of mental and physical health issues of Asian Americans and Pacific Islanders; identification of gaps in health status indicators and barriers to both care delivery and research for these populations. Letter grading.

160. Intergroup Dialogue: Theory and Practice of Peer Facilitation. (4) Lecture, four hours. Recommended requisite: course 60. Discussion on issues of difference, conflict, and community to facilitate understanding between social/cultural groups. Peer facilitator training course to develop understanding of theoretical and research foundations of intergroup dialogue, peer-facilitated discussions involving relationship building (and coalition building) through thoughtful engagement around different social identity issues. Study of variety of techniques, tools, and strategies to support students in their capacity to implement sustained dialogues with students from other social identity groups. Letter grading.

161. Intergroup Dialogue: Training Practicum. (4) Seminar, four hours. Enforced requisite: course 160. Application and further development of content and skills learned in course 160. Co-facilitation of weekly dialogues with students on specific identity theme and further development of knowledge and techniques in areas of group dynamics, conflict intervention, communication and community, and mental health effects of structural inequality as they relate to discussions of social justice and multicultural issues. Readings in these areas and discussions of ongoing dialogue dynamics. May be repeated once for credit. Letter grading.

CM170. Improving Worker Health: Social Movements, Policy Debates, and Public Health. (4) (Same as Labor and Workplace Studies M170.) Lecture, three hours; fieldwork, two hours. Examination of intersection between work, health, and environment, analysis of social causes of health disparities, investigation of historical trends and social movements, interpretation of current policy debates, and development of innovative interventions. Concurrently scheduled with course CM470. P/NP or letter grading.

179. Life Skills for College Students. (4) Seminar, four hours. Multidisciplinary exploration of student development in undergraduate experience, with focus on processes of identity formation and emotional and social development. Emphasis on variability associated with gender, race, ethnicity, culture, and sexual orientation. Testing of real-life relevance of theory and research. P/NP or letter grading.

180. Field Studies in Cancer Control. (4) Lecture, two hours; discussion, one hour; fieldwork, four hours. Requisite: Molecular, Cell, and Developmental Biology 50. Designed for juniors/seniors. Opportunity for students to become involved in cancer control through classroom discussion, lectures, service in field, and guided research. Biology of cancer, its prevention, early detection, treatment, and rehabilitation. Letter grading.

181. Campus/Community Health and Wellness Promotion: From Theory to Practice. (4) Lecture, two hours; discussion, two hours. Limited to juniors/seniors. Theory, training, and experience in health/wellness promotion and health/wellness education in selected campus communities. Participation in supervised small-group program planning project. Letter grading.

187A-187B. Introduction to Interventions for At-Risk Populations. (4-4) Lecture, three hours; committee meetings/community service, two to six hours. Course 187A is requisite to 187B. Designed for juniors/seniors. Health and social needs/services from primarily public health perspective, drawing on related academic/professional disciplines. Community-based service learning strategy used to enhance knowledge of concepts covered. As part of service portion, students trained as caseworkers and committee members. Letter grading.

188A-188B. Special Courses in Community Health Sciences. (4-2) Lecture, two hours (188B) and three hours (188A). Examination of current topics or particular subfields or experimental or temporary courses in community health sciences. Specific topic areas vary with instructor. May be repeated for credit with topic change. P/NP or letter grading.

195. Community or Corporate Internships in Community Health Sciences. (4) Tutorial, six hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Further supervision provided by public health organization for which students do internship. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising placement sponsor required. P/NP or letter grading.

197. Individual Studies in Community Health Sciences. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Global Health Problems. (4) Lecture, two hours; discussion, two hours. Overview of health profile of world in the century. Global health problems and methods by which they have been dealt in context of Alma Ata goal of health for all by year 2000. Letter grading.

205. Immigrant Health. (4) Lecture, two hours; discussion, one hour. Limited to graduate students. Overview of key topics in public health for documented and undocumented immigrants and refugees in U.S. Demographics, health status, behavioral risk factors, and social determinants, health and human rights, and access to healthcare and prevention services. Analysis of public policy across topics. Builds skills necessary to develop integrated approach to health of immigrant populations. Letter grading.

M208. Introduction to Demographic Methods. (4) (Same as Biostatistics M208, Economics M208, and Sociology M23A.) Lecture, four hours. Preparation: one introductory statistics course. Introduction to methods of demographic analysis. Topics include demographic rates, standardization, decomposition of differences, life tables, survival analysis, cohort analysis, birth interval analysis, models of population growth, stable populations, population projection, and demographic data sources. Letter grading.

209. Demographic Techniques II: Modeling Population Processes and Dynamics. (4) Lecture, three hours. Enforced requisite: course M208. Population models and their dynamics in population processes. How demographic models are used in estimation of population size, its age structure, and dynamics associated with these processes. Advancements in computer science used to provide students with understanding of simulation of demographic processes to gauge conclusions from demographic models. Emphasis on estimation of demographic models in human population while making clear broader relevance of demographic analysis to study of any population or system, including health and social systems. Letter grading.

210. Community Health Sciences. (4) Lecture, three hours. Preparation: one social sciences course. Basic concepts, relationships, and policy issues in field of community health, variability in definitions of health and illness, correlates of health and illness behavior, impact of social and community structure on health status, major contemporary approaches to health promotion and health education at community level. Use of comparative international perspective. Letter grading.

211A-211B. Program Planning, Research, and Evaluation in Community Health Sciences. (4-4) Lecture, three hours; discussion, one hour; outside assignments, eight hours. Course 211A is requisite to 211B. Development, planning, and administration of public health programs in community settings. Introduction to range of research methods and techniques used in designing and conducting health research, with particular emphasis on evaluation of community-based public health programs. Course organized into three modules. Letter grading. **211A.** Requisite: course 210; **211B.** Requisites: courses 210, 211A, and Biostatistics 100A or Epidemiology 100.

212. Advanced Social Research Methods in Health. (4) Lecture, four hours; laboratory, two hours; outside assignments, eight hours. Requisites: courses 211A, 211B, Biostatistics 100B, 406. Problems of health survey design and data collection; measurement issues in data analysis and interpretation; use of computer for analysis of large-scale survey data using various statistical techniques. Letter grading.

213. Research in Community and Patient Health Education. (4) Lecture, three hours; discussion, two hours. Requisite: course 210. Application of conceptual, theoretical, and evaluation skills to community-based health education risk-reduction programs. Computer applications, data management, and research methodologies taught through microcomputer and mainframe computer management and analysis of program databases. Letter grading.

214. Issues in Program Evaluation. (4) Discussion, three hours; reading and research paper, one hour. Requisite: course 212. Advanced seminar that explores problems of planning and implementing evaluation research in context of local demonstration projects. Letter grading.

M216. Qualitative Research Methodology. (4) (Same as Anthropology M284.) Discussion, three hours; laboratory, one hour. Intensive seminar/field course in qualitative research methodology. Emphasis on using qualitative methods and techniques in research and evaluation related to healthcare. Letter grading.

M218. Questionnaire Design and Administration. (4) (Same as Epidemiology M218.) Lecture, four hours. Requisites: courses 211A and 211B, or Epidemiology 200B and 200C. Design, testing, field use, and administration of data collection instruments, with particular emphasis on questionnaires. Letter grading.

219. Theory-Based Data Analysis. (4) Seminar, three hours. Enforced requisites: Biostatistics 100A, 100B, 406. Translation of theory into data analytic plan, its application to real data, and interpretation of results obtained through multivariate analysis. Analysis of quantitative data using range of multivariate techniques, such as linear multiple regression and lo-

gistic regression. Analysis of theoretical problem using student quantitative data or public use data. Letter grading.

220. Racism and Public Health: Social Epidemiologic Approaches. (4) Seminar, two hours; discussion, one hour. Requisite: Biostatistics 100B. Integration of social epidemiologic methods and critical approaches to study of racial stratification and public health, with focus on (1) conceptualizing racism-related factors as social determinants of health, (2) building methodological competence for conducting research on racism as social determinant of health, and (3) developing critical self-consciousness to better understand how persons' racial- or racism-related perspectives and experiences might inform their research. Letter grading.

M222. Understanding Fertility: Theories and Methods. (4) (Same as Sociology M206.) Lecture, three hours. Preparation: one formal or social demography course. Requisite: Biostatistics 100A. Application of demographic theories and methods to describe fertility trends and differentials and social and proximate determinants of fertility, with emphasis on understanding key proximate determinants. For advanced students interested in population, demography of health, and social demography. Letter grading.

224. Social Determinants of Nutrition and Health. (4) Lecture, three hours; discussion, one hour. Preparation: one basic nutrition course. Health promotion strategies aimed at reducing chronic disease risk through lifestyle changes have not been particularly successful in addressing needs of socioeconomically disadvantaged groups. Overview of literature supporting relationship between socioeconomic disadvantage and food-related health conditions such as obesity, diabetes, and osteoporosis. Critical examination of plausible pathways from perspectives of multidisciplines (economics, nutrition, sociology, and more), with focus on linkages between social and physical environment (including built environment) and food equity/access; discussion of how food may be catalyst for improving social capital and health. Discussion of examples of local and international efforts to improve access to healthy foods and/or limit access to unhealthy foods. Exploration of methods for assessing social capital and food-related aspects of neighborhood environments. S/U or letter grading.

225. Writing for Publication in Public Health. (4) Seminar, four hours. Requisites: course 219, two graduate biostatistics courses, one graduate epidemiology course. Development of skills for advanced doctoral students in producing peer-review-quality research papers, with focus on theoretically informed empirical research papers. Examination of other types of manuscripts (e.g., reviews) included. Letter grading.

226. Women's Health and Well-Being. (4) Lecture, four hours. Limited to graduate students. Interdisciplinary perspective critically examining research on women's health. Overview of scientific inquiry and methods; gender roles; status attainment and medical sociology. Review of current data on women's health. Letter grading.

229. Policy and Public Health Approaches to Violence Prevention. (4) Lecture, four hours. How policies relate to violence and development of skills to transmit this knowledge. Examination of wide range of policy topics and how each might be associated with reduction/increase in violence/violent injury. Letter grading.

230. Family and Sexual Violence. (4) Lecture, three hours; community, three to four hours. Examination of rape, incest, and spouse and elder abuse. Presentation of definitions, causes, outcomes of research on family and sexual violence, as well as response of social service, medical, and criminal justice systems. Letter grading.

231. Maternal and Child Nutrition. (4) Lecture, four hours. Nutrition of mothers, infants, and children in countries at various levels of socioeconomic development; measures for prevention and treatment of protein/calorie malnutrition; relationship between nutri-

tion and mental development; impact of ecological, socioeconomic, and cultural factors on nutrition, nutrition education, and service. Letter grading.

M232. Determinants of Health. (4) (Same as Health Policy M242.) Lecture, three hours; discussion, one hour. Designed for graduate students. Critical analysis of models for what determines health and evidence for social, economic, environmental, genetic, health system, and other factors that influence health of populations and defined subgroups. Letter grading.

233. Hunger and Food Insecurity as Public Health Issues. (4) Lecture, three hours. Designed for graduate students. Public health aspects of hunger and food insecurity in historical and international perspectives, including measurement and identification of vulnerability, prevention, and options for relieving acute food shortage. Letter grading.

M234. Obesity, Physical Activity, and Nutrition Seminar. (4) (Same as Health Policy M255.) Seminar, three hours; outside study, one hour. Designed for graduate students. Multidisciplinary introduction at graduate level to epidemiology, physiology, and current state of preventive and therapeutic interventions for obesity in adults and children, including public health policy approaches to healthy nutrition and physical activity promotion. S/U or letter grading.

235. Influence of Social and Physical Environment on Racial Health Disparities. (4) Seminar, three hours. Preparation: at least one biostatistics or epidemiology course. Limited to graduate students. Examination of how community stressors and neighborhood resources may contribute to health disparities. Discussion of multiple factors that contribute to environmental injustice and their potential solutions. Do health disparities arise because minorities and low-income populations live in harmful environments? Is relationship between environment and health disparities merely one of potential exposure to chemical/physical hazards, or are there psychosocial mechanisms at community level that act above or beyond effects of physical environment? Letter grading.

M237. Evolving Paradigms of Prevention: Interventions in Early Childhood. (4) (Same as Health Policy M290.) Seminar, three hours; fieldwork, one hour. Designed for graduate students. Introduction to use of early childhood interventions as means of preventing adverse health and developmental outcomes. Concepts of developmental vulnerability, approaches to assessment, models of service delivery, evaluation and cost-benefit issues, funding, and other policy issues. Letter grading.

238. Evolving Paradigms of Prevention: Interventions in Adolescence. (4) Seminar, three hours. Adolescent health and interventions, with focus on sex, alcohol, and drug use. Focus on adolescent identity development, adolescent sexuality, discussion of gay, lesbian, bisexual, transgender, and queer issues, components of sexual risk-taking behavior, and alcohol and drug use (e.g., peer influence, changes in brain activity) and interventions that have been developed to address these behaviors. Building of skills to work with adolescent populations and in community-based settings. Letter grading.

M239. Race, Ethnicity, and Culture as Concepts in Practice and Research. (4) (Same as Asian American Studies M239.) Seminar, three hours. Integration of cross-cultural findings in healthcare with current American (U.S.) healthcare system paradigms to facilitate designing culturally based public health programs and train culturally competent practitioners. Letter grading.

240. Child and Reproductive Health in Communities: Global Environmental Perspective. (4) Lecture, three hours. Recommended requisites: course 100, Epidemiology 100. Limited to graduate students. Examination of global issues of child and reproductive health in relation to environmental factors in interplay with socioeconomic and biological factors. Environmental influences are responsible for one quarter of total burden of disease worldwide, and for more than one third of burden among children—most of them living in resource-poor countries and communities. Discussion of impacts of qualitatively different, and

potentially modifiable, factors such as access to safe water or urbanization, as well as environmental contribution to high-burden outcomes in childhood and reproduction. Focus on lower income settings and discussion of relevant population-based approaches to assessment and intervention. Letter grading.

M244. Advanced Seminar: Medical Anthropology. (2 to 4) (Same as Anthropology M263Q, Nursing M273, and Psychiatry M273.) Seminar, three hours. Limited to 15 students. Examination of interrelationships between society, culture, ecology, health, and illness. Bases for written critical analysis and class discussion provided through key theoretical works. S/U or letter grading.

M245A-M245B-M245C. Child Abuse and Neglect. (2-2-1) (Same as Dentistry M300A-M300B-M300C, Education M217G-M217H-M217I, Law M281A-M281B, Medicine M290A-M290B, Nursing M290A-M290B-M290C, and Social Welfare M203F-M203G-M203H.) Lecture, two hours. Course M245A is requisite to M245B, which is requisite to M245C. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of Schools of Dentistry, Law, Medicine, Nursing, and Public Health and Departments of Education and Psychology, as well as by relevant public agencies. Letter grading.

246. Women's Roles and Family Health. (4) Lecture, two hours; discussion, one hour. Rapidly changing roles of women throughout world are having important effects on women's own health and that of their families. Analysis of multidisciplinary research from both developing and industrialized countries to provide basis for in-depth discussion of programmatic and policy implications. Letter grading.

247. Population Change and Public Policy. (4) Lecture, four hours. Examination of international population change, population-related policies, and public health implications of demographic processes. Letter grading.

M249L. Ethical Theory and Applications in Public Health. (4) (Same as Health Policy M285.) Lecture, four hours. Requisites: Health Policy 200A, 200B. Introduction to ethical theories and critical ethical issues pertaining to healthcare policy and healthcare management. Research, writing, and discussion on variety of topics related to health and human rights to enhance professionalism, leadership, and systems thinking and improve student sensitivity to needs of patients, coworkers, and fiduciary shareholders. How ethics are foundation of leadership. Letter grading.

M250. HIV/AIDS and Culture in Latin America. (4) (Same as Latin American Studies M262.) Seminar, three hours. Exploration of cultural, political, and public health context for people living with and at risk for HIV/AIDS and their families in Latin America. Public health aspects, including epidemiology, comorbidity concerns and community interventions, medical anthropological study of experience of those impacted, and grass-roots responses, as well as political/economic context addressing poverty and structural violence. Letter grading.

M251. Nutritional Epidemiology I. (4) (Same as Epidemiology M254.) Lecture, two hours; discussion/laboratory exercise, one hour. Preparation: introductory biostatistics and epidemiology courses. Review of all aspects of contemporary nutrition sciences that require application of epidemiologic principles and methods, ranging from food-borne outbreak investigation to evidence-based regulatory assessment of health claims for foods. Experience in actual world of collecting, analyzing, and interpreting data related to nutrition and health or disease outcomes. S/U or letter grading.

M252. Health Policy Analysis. (4) (Same as Health Policy M233.) Lecture, three hours. Requisites: Health Policy 100 or 200A, M236, M287. Conceptual and procedural tools for analysis of health policy, emphasizing role of analysis during various phases of life-cycle of public policy. Letter grading.

254. Intentional Disasters: War and Refugees. (2) Lecture, two hours. Recommended requisites: courses 211A, 211B, 295, Epidemiology 100, one survey methods course. Previous international experience strongly encouraged. Overview of intentional disasters, with focus on technically underdeveloped areas and consequent population migration. Principal focus on health consequences of these events and strategies to address health issues. Letter grading.

M256. Interdisciplinary Response to Infectious Disease Emergencies: Public Health Perspective. (4) (Same as Medicine M256, Nursing M298, and Oral Biology M256.) Lecture, three hours; discussion, one hour. Designed to instill in professional students ideas of common emergency health problems and coordinated response, with specific attention to bioterrorism. Examination of tools to help students prevent, detect, and intervene in infectious disease emergencies. Interdisciplinary sessions also attended by students in Schools of Dentistry, Medicine, and Nursing during weeks two through five. Letter grading.

257. Program Planning in Community Disaster Preparedness. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 211A, 211B, 295. Health education and emergency management principles combined to design, plan, implement, and evaluate community disaster preparedness programs, including needs assessment, identification of target population, objective writing, program planning, and process, outcome, and impact evaluation. Letter grading.

258. Cooperative Interagency Management in Disasters. (4) Lecture, four hours. Recommended requisite: course 295. Designed for graduate students. Broad overview of how different agencies involved in disaster responses work together to handle impact of mass population emergencies. Identification of role of local, state, and federal governments, nonprofit and private sector organizations, media, and healthcare facilities in disaster situations. Students meet with representatives of different agencies involved in disaster responses and visit one of area's state-of-art emergency management operations facilities. Letter grading.

M260. Health and Culture in Americas. (4) (Same as Anthropology M266 and Latin American Studies M260.) Lecture, three hours. Recommended requisite: course 132. Health issues throughout Americas, especially indigenous/Mestizo Latin American populations. Holistic approach covering politics, economics, history, geography, human rights, maternal/child health, culture. Letter grading.

M263. Social Demography of Los Angeles. (4) (Same as Sociology M263.) Lecture, three hours. Designed for graduate students. Use of city of Los Angeles to examine major social and demographic factors that characterize cities in U.S. Examination of role of these factors in affecting health outcomes. Letter grading.

M264. Latin America: Traditional Medicine, Shamanism, and Folk Illness. (4) (Same as Anthropology M264 and Latin American Studies M264.) Lecture, three hours. Recommended preparation: course 132, bilingual English/Spanish skills. Examination of role of traditional medicine and shamanism in Latin America and exploration of how indigenous and mestizo groups diagnose and treat folk illness and Western-defined diseases with variety of health-seeking methods. Examination of art, music, and ritual and case examples of religion and healing practices via lecture, film, and audiotape. Letter grading.

270A-270B. Foundations of Community Health Sciences. (4-4) Lecture, four hours. Enforced requisite: course 210. Course 270A is enforced requisite to 270B. Limited to departmental doctoral students. In-depth analysis of theories, methods, and research on which community health sciences are based. Letter grading.

271. Health-Related Behavior Change. (4) Lecture, four hours. Requisite: course 210. Unified behavioral science approach to natural determinants of change,

as foundation for planned change in health-related behavior at community, group, and individual levels. Letter grading.

M272. Social Epidemiology. (4) (Same as Epidemiology M272.) Lecture, two hours; discussion, one hour. Requisite: Epidemiology 100. Relationship between sociological, cultural, and psychosocial factors in etiology, occurrence, and distribution of morbidity and mortality. Emphasis on lifestyles and other socio-environmental factors associated with general susceptibility to disease and subsequent mortality. Letter grading.

276. Complementary and Alternative Medicine. (4) Lecture, three hours. Requisites: course 100 or 210, Health Policy 100. Analysis of use and acceptance of complementary and alternative medicine (CAM) by clients and providers. Core beliefs of CAM, relationship of CAM and spirituality, licensure and certification of CAM providers, relationship of CAM and conventional medicine, impact of CAM on client identity. Letter grading.

277. Advanced Community Health Education. (4) Lecture, two hours; discussion, two hours. Requisite: course 210. Before planning educational components of health program, one must assess behaviors and factors influencing health problem. Conceptual, theoretical, and evaluative skills developed and applied in constructing community-based educational program. Letter grading.

M278. Work and Health. (4) (Same as Environmental Health Sciences M270.) Lecture, three hours; practicum, one hour. Recommended preparation: graduate-level methods/statistics course, basic epidemiology. Designed for graduate students. Exploration of impact of work on physical and psychological health in context of newly emerging discipline. Focus on psychosocial models, measurement (including hands-on experience), contextual factors (gender, ethnicity, social class), and how work stressors can be ameliorated. S/U or letter grading.

281A. Capstone Seminar: Health Promotion and Education. (4) (Formerly numbered 281.) Seminar, 90 minutes; discussion, 90 minutes. Enforced requisite: course 210. Current problems and findings in health promotion and education (e.g., nutrition, family health, AIDS/HIV, minority health); learning from presentations and critical discussions of master's project reports completed under faculty supervision. Letter grading.

281B. Capstone Seminar: Health Promotion and Education. (2) Seminar, one hour; discussion, one hour. Current problems and findings in health promotion and education (e.g., nutrition, family health, AIDS/HIV, minority health); learning from presentations and critical discussions of master's project reports completed under faculty supervision. Letter grading.

282. Social Marketing for Health Promotion and Communication. (4) Lecture, three hours; fieldwork, one hour. Requisite: course 210. Planning, creating, implementation, and evaluation of comprehensive health communication campaigns, including use of social marketing practices and strategies of audience research, marketing psychology, creative message development, branding, comprehensive media use for dissemination, transmedia. Competencies: conducting focus group interviews, creating and evaluating effective health campaigns, critical assessment of existing campaigns. Letter grading.

283. Evidence-Based Health Promotion Programs for Older Adults. (4) Seminar, three hours. Requisite: course 210. Graduate seminar intended to explore sociocultural determinants of health-related behaviors among aged. Letter grading.

284. Sociocultural Aspects of Mental Health. (4) Discussion, three hours. Designed for graduate students. Examination of how society shapes mental health of its members and lives of those who have been identified as mentally ill. Group differences (e.g., gender, ethnicity) in disorder and how it is socially constructed. Letter grading.

286. Doctoral Roundtable in Community Health Sciences. (4) Seminar, two hours. Designed for departmental doctoral students who must enroll every term until they are advanced to candidacy. Interactive seminar with focus on research process and social mechanisms in science. May be repeated for credit. S/U grading.

M287. Politics of Health Policy. (4) (Same as Health Policy M287.) Lecture, three hours; discussion, one hour. Requisites: course 210, or Health Policy 200A and 200B. Examination of politics of health policy process, including effects of political structure and institutions; economic and social factors; interest groups, classes, and social movements; media and public opinion; and other factors. Letter grading.

288. Health Communication in Popular Media. (4) Lecture, three hours; discussion, one hour. Requisites: course 210 or prior social sciences courses. Media utilization, media effects, media content, media advocacy, media literacy, health journalism, video and audio storytelling techniques, new media, entertainment education, and transmedia. Competencies: media content analysis, writing popular nonfiction (blogs, journalism), creating and evaluating effective communications using popular media. Letter grading.

290. Race, Class, Culture, and Aging. (4) Lecture, three hours; discussion, one hour. Experience of aging for African American, Latino, and Asian elderly examined in context of their families, communities, and nation. Exploration of cultural and structural influences on health and lived experiences of those elders. Letter grading.

291. Health Policy and Aged. (4) Lecture, three hours; discussion, one hour. Examination of political, economic, and social forces that shape health policy for aged, identifying failings in those policies within framework of broader health policy problems. Letter grading.

292. Information Technology for Health Promotion and Communication. (4) Lecture, three hours; field practice, one hour. Requisites: course 210 or prior social sciences courses. Health literacy, Internet use and health communication, design of health communication materials using digital media that integrates practice and theory and includes websites, print materials, short videos, curricula, and training materials. Laboratory sessions for materials production. Competencies: creating health communication materials for diverse audiences using new media information technology applied to website, social media, print media, video, and audio platforms. Letter grading.

293. Social and Behavioral Research in AIDS: Roundtable Discussion. (2 to 4) Discussion, two hours; individual consultation, two hours. Review and discussion of research programs directed toward identification of psychosocial, biobehavioral, environmental, and community factors related to prevention and control of AIDS/HIV. Letter grading.

M294. Social and Behavioral Factors of HIV/AIDS: Global Perspective. (4) (Same as Psychiatry M288.) Lecture, four hours. Requisites: course 100 and Epidemiology 100, or prior social sciences courses. Overview of social and behavioral factors that influence both transmission and prevention of HIV/AIDS throughout world. Letter grading.

295. Overview of Emergency Public Health. (4) Lecture, four hours. Designed for graduate students. Overview of issues involved in disaster preparedness and response for public health agencies. Introduction to theoretical and practice aspects of field of emergency public health. Examination of disaster cycle and various natural and human-induced hazards from public health perspective. Letter grading.

296. Advanced Research Topics in Community Health Sciences. (2 to 4) Discussion, two to four hours. Advanced study and analysis of current topics in community health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U or letter grading.

M299. Intervention to Reduce HIV and Its Consequences. (4) (Same as Psychiatry M289.) Lecture, three hours. Examination of interventions to reduce HIV/AIDS transmission. Review of theory and research supporting efficacy of HIV interventions for variety of high-risk populations. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Field Studies in Public Health. (4) Fieldwork, to be arranged. Field observation and studies in selected community organizations for health promotion or medical care. Students must file field placement and program training documentation on form available from Student Affairs Office. May not be applied toward MS minimum course requirement; 4 units may be applied toward 60-unit minimum total required for MPH degree. Letter grading.

M411. Issues in Cancer Prevention and Control. (4) (Same as Health Policy M411.) Lecture, four hours. Designed for juniors/seniors and graduate students. Introduction to causes and characteristics of cancer epidemic, cancer control goals for nation, and interventions designed to encourage smoking cessation/prevention, cancer screening, and other dietary, psychosocial, and lifestyle changes. Letter grading.

M420. Children with Special Healthcare Needs: Systems Perspective. (4) (Same as Health Policy M420 and Social Welfare M290L.) Lecture, three hours; fieldwork, one hour. Examination and evaluation of principles, policies, programs, and practices that have evolved to identify, assess, and meet special needs of infants, children, and adolescents with developmental disabilities or chronic illness and their families. Letter grading.

427. Reproductive Health in Sub-Saharan Africa. (4) Lecture, four hours. Recommended requisite: course 247. In-depth understanding of reproductive health challenges facing sub-Saharan Africa and main programs designed to address them. Topics include family planning, STIs, abortion, adolescents, HIV/AIDS, and refugees. Letter grading.

M428. Child and Family Health Program Community Leadership Seminar. (2) (Same as Health Policy M428.) Seminar, two hours. Designed for graduate students. Examination of characteristics of community-based organizations (CBOs) and role of leadership in decision-making process involved in major issues facing maternal and child health in Los Angeles County. Focus on specific leadership competencies that are or should be employed by organizations effective in shaping maternal and child health programs and policies (or any population-level policies and programs). Leaders from CBOs in Los Angeles meet with students, comment on their practicum experiences, and underscore community leadership concepts demonstrated by those CBOs. S/U or letter grading.

M430. Building Advocacy Skills: Reproductive Health Focus. (4) (Same as Health Policy M434.) Seminar, three hours. Recommended requisite: one prior health policy course such as Community Health Sciences 247 or Health Policy 235. Designed for School of Public Health graduate and doctoral students. Skills-building course to develop competency in assessing, developing, and implementing advocacy strategies for reproductive health initiatives. Introduction to legislative and community advocacy initiatives and to policymaking process, including policy analysis and development of resources necessary for legislative advocacy. Identification of advocacy goals and objectives, development of advocacy plan, coalition building, organizational capacity building, media relations, and message development for various audiences. Students learn about range of former and current reproductive health advocacy campaigns. Letter grading.

431. Foundations of Reproductive Health. (4) Lecture, three hours. Limited to graduate students. Understanding reproductive technologies and practices

is critical for public health students interested in designing programs to address problems such as unwanted pregnancy, family planning, sexually transmitted diseases, and inadequate preventive services. Examination of foundations of reproductive health from medical perspective, with particular attention to implications for public health programs, health services, and policy. Topics include anatomy and physiology of male and female reproductive health tracts, methods of birth control, medical and surgical abortion, infertility, maternal care, and sexual violence and trauma. S/U or letter grading.

432. Perinatal Healthcare: Principles, Programs, and Policies. (4) Lecture, three hours; discussion, one hour. Comprehensive examination of perinatal healthcare, including perinatal epidemiology, outcome measures, public programs, controversies surrounding new technology, regionalization, organization of services at federal, state, and county levels, and medical/legal issues. S/U or letter grading.

434A. Maternal and Child Health in Developing Areas. (4) Lecture, four hours. Requisite: course 231. Major health problems of mothers and children in developing areas, stressing causation, management, and prevention. Particular reference to adapting programs to limited resources in cross-cultural milieux. S/U or letter grading.

435. Seminar: Advanced Issues in Women's Health. (4) Seminar, three hours. Preparation: at least one prior women's health course, one to two biostatistics courses, one research methods course. Provides more advanced and in-depth understanding of ways in which scientists "know" and considerations of women's place in scientific discourse. Examination of series of case studies as starting point for discussion. Letter grading.

M436A-M436B. Child Health, Programs, and Policies. (4-4) (Same as Health Policy M449A-M449B.) Lecture, four hours. Requisite: Health Policy 100. Course M436A is requisite to M436B. Examination of history of child health policy trends and determinants of health, structure, and function of health service system; needs, programs, and policies affecting especially at-risk populations. Letter grading.

440. Public Health and National Security at U.S.-Mexico Border. (4) Lecture, two hours; discussion, one hour; research and literature review, one hour. Designed for graduate students. Exploration of community and environmental health and health services issues that are present along U.S.-Mexico and coastal California borders. Integrated within public health framework are issues and mitigation of national security and disaster/terrorist risks and hazards. Letter grading.

441. Planning and Evaluation of Global Health Programs. (4) Lecture, four hours. Theory, guidelines, and team exercise for planning community health/family planning projects in U.S. and in developing countries. Phases include community needs identification; goal setting; budget and work plan development; funding; staffing; evaluation design; data and cost analysis; and project presentation. Letter grading.

444. Anthropometric and Dietary Aspects of Nutritional Assessment. (4) Lecture, two hours; laboratory, two hours. Requisite: course 443. Practical skills in anthropometric and dietary assessment, including selection of appropriate methods, data gathering and handling, and analysis and presentation. Letter grading.

446. Nutrition Education and Training: Third World Considerations. (4) Lecture, two hours; discussion, one hour; student participation, one hour. Requisite: course 434A. Problems and priorities in nutrition education and training for families and health workers in Third World countries, including new concepts in primary healthcare services, mass media, communications, and governmental and international interventions. S/U or letter grading.

447. Health and Social Context in Middle East. (4) Lecture, four hours. Recommended preparation: background in Islamic or Middle Eastern studies. Requisite: course 200 or 231 or 434A. Current health

issues and problems of countries in Middle East and implications for socioeconomic development. Review of economic, demographic, and cultural variation of region to provide background for discussion of trends and patterns of health and nutritional status of population in area. Letter grading.

448. Nutrition Policies and Programs: Domestic and International Perspectives. (4) Lecture, two hours; discussion, two hours; field visits. Preparation: one nutrition sciences course and/or nutrition program experience. Nutrition programs and policies in U.S. and developing countries compared and contrasted. Analysis of role of major international, governmental, and nongovernmental agencies. Emphasis on meeting needs of vulnerable populations. Letter grading.

449. Nutrition and Chronic Disease. (4) Lecture, four hours. Requisite: course 130 or one introductory nutrition or biology course. Advanced-level seminar on nutritional needs of healthy individuals, current knowledge of role of nutrition in disease prevention, nutritional and metabolic responses to disease, and role of nutritional therapy in management of disease. Letter grading.

451. Post-Disaster Community Health. (4) Lecture, four hours. Examination of how public health research and practices can be combined to address post-disaster community health needs. Identification of disaster-related health problems, data collection strategies, and service delivery approaches in post-disaster environment. Letter grading.

452. Management of Food and Nutrition in Major Emergencies. (4) Lecture, three hours. Designed for second-year master's or doctoral students interested in humanitarian relief. Basic principles required to design rational and cost-effective food and nutrition emergency relief approaches and programs. Letter grading.

CM470. Improving Worker Health: Social Movements, Policy Debates, and Public Health. (4) (Same as Environmental Health Sciences M471 and Urban Planning M470.) Lecture, three hours; fieldwork, two hours. Examination of intersection between work, health, and environment, analysis of social causes of health disparities, investigation of historical trends and social movements, interpretation of current policy debates, and development of innovative interventions. Concurrently scheduled with course CM170. S/U or letter grading.

477. Health Disparities, Health Equity, and Sexual Minority Populations. (4) Lecture, two hours; discussion, one hour. Limited to graduate students. Examination of health disparities affecting sexual minority populations, category that includes lesbians, gay men, bisexuals, and transgender (LGBT) persons. Use of Healthy People 2010 Companion Document for LGBT Health to outline key health issues and national recommendations for achieving reductions in each area. Discussion of considerations for providing clinical care and public health practice in this population, unique social and contextual factors influencing LGBT health, and methodological issues for conducting research among LGBT persons. S/U or letter grading.

482. Practicum: Community Health Sciences. (4) Discussion, two hours; fieldwork, up to 20 hours. Requisites: courses 210, 211A, 211B. Understanding of professional practice in health-related organizations. Letter grading.

484. Risk Communications. (4) Lecture, three hours; fieldwork, one hour. Requisites: courses 210, 211A, and 211B, or prior public health and behavioral sciences courses. Risk communication theory, research, and practice, including social and psychological bases of population risk perceptions, media theories, and how risk is portrayed in media. Environmental, product safety, food-borne and infectious diseases, disasters, and bioterrorism communication. Competencies: understanding everyday and emergency risk communication principles, creating valid risk communication messages and materials, working proactively with new media. Letter grading.

485. Resource Development for Community Health Programs. (4) Lecture, three hours; fieldwork, one hour. Designed for graduate students. Overview course of fund and resource development for public health and community-based programs. Lectures and workshops include developing grant proposals, researching funding sources, evaluating proposals, developing volunteer and in-kind resources, and implementing capital campaigns. Letter grading.

487. Community Organization for Health. (4) Lecture, three hours; fieldwork, four to six hours. Preparation: three public health, sociology, or anthropology courses. Requisite: course 210. Theory and practice of community organizations, including models and strategies of community organization and their application to health problems and health policy. Particular attention to use of community organization for health promotion and to change public policy. Letter grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward MPH and MS minimum total course requirement. May be repeated for credit. S/U or letter grading.

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

598. Master's Thesis Research. (2 to 8) Tutorial, to be arranged. Only 4 units may be applied toward MPH and MS minimum total course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

599. Doctoral Dissertation Research. (2 to 12) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

Todd S. Presner, PhD (*Michael and Irene Ross Endowed Professor of Yiddish Studies*)

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Samuel Weber, PhD

Associate Professors

Nouri Gana, PhD

Elizabeth A. Marchant, PhD

Kenneth Reinhard, PhD

Assistant Professor

Stephanie B. Santana, PhD

Scope and Objectives

Standing at the forefront of innovative work in literary, theoretical, and cultural studies, comparative literature is one of the most exciting fields in the humanities. As a discipline it requires exceptional linguistic ability, theoretical knowledge, and high intellectual caliber. UCLA's program offers students the opportunity to work with faculty members in any of the University's language and literature departments as well as with the Department of Comparative Literature faculty.

The department, which is interdisciplinary and multilingual in scope, is committed to continuing its pioneering work in defining new literary paradigms and fostering new directions for exploration in literary studies, including such areas as the relationship between translation and transnationalism, literary theory and emerging media, the future of national literatures in an era of globalization, gender and sexuality studies, East-West cultural encounters, human rights and global censorship, postcolonial and diaspora studies, and experimental approaches to literature and culture.

Focusing on elements that preoccupy literary studies in general, such as genre, period, theme, language, and theory, comparative literature also extends its range to questions that concern other disciplines such as anthropology, art history, film and media studies, gender studies, history, and philosophy. Courses are designed to provide students with both a historical and theoretical understanding of literary and cultural forms, themes, and movements. Given its focus on interdisciplinary research and pedagogy, comparative literature is a natural site around which to explore the boundaries of modern language and literary studies.

Undergraduate Study

Comparative Literature BA

Preparation for the Major

Required: (1) Two courses from the Comparative Literature 1, 2, or 4 series (with approval of the director of undergraduate studies, a comparable and appropriate lower division course in another department may be substituted for one of the courses), (2) completion of the College Writing requirement, and (3) literary profi-

COMPARATIVE LITERATURE

College of Letters and Science

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Efraín Kristal, PhD, Chair

Professors

Ali Behdad, PhD (*John Charles Hillis Professor of Literature*)
Massimo Ciavolella, PhD
Gil Z. Hochberg, PhD
Eleanor K. Kaufman, PhD
Kathleen L. Komar, PhD
Efraín Kristal, PhD
Françoise Lionnet, PhD
David W. MacFayden, PhD
Saree Makdisi, PhD
Kirstie M. McClure, PhD
Aamir R. Mufti, PhD

ciency in at least one language other than English, to be demonstrated by admission into one upper division literature course in the original language.

Transfer Students

Transfer applicants to the Comparative Literature major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one English composition course, two literature survey courses, at least one of which must be world literature, and the equivalent of at least one year of foreign language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Ten courses, of which (1) five must be from comparative literature offerings, including Comparative Literature 100 and at least four additional comparative literature courses selected from M101 through 197, (2) three upper division literature courses using original language texts in the primary language area, and (3) two upper division literature courses using original language texts in the secondary language area (students may petition the undergraduate adviser to take two upper division literature courses in translation if their primary literature area is in a language other than English).

Honors Program

The honors program is open to Comparative Literature majors with a 3.5 departmental and a 3.25 overall grade-point average. Eligible interested students should contact the undergraduate adviser to enter the program.

Honors candidates must complete all requirements for the major and an honors research paper (in addition to regular course requirements) in two of the four required upper division comparative literature courses. Candidates must also complete a fourth course in the primary literature area and Comparative Literature 198 with a core faculty member in which they write a senior honors paper of approximately 25 pages.

Comparative Literature Minor

The Comparative Literature minor offers students interested in literature and the humanities the opportunity to gain insight into the critical problems and theories addressed by comparative literature and to apply that knowledge in literature and comparative literature courses.

To enter the minor students must have fulfilled the College Writing requirement, have completed 40 units with an overall grade-point average of 2.0 or better, have taken at least one year or equivalent of a language other than English, and file a petition with either the faculty or staff undergraduate adviser, 350B Humanities Building, 310-825-7650.

Required Courses (28 units minimum): (1) Four upper division comparative literature courses

(one course from Comparative Literature 1A through 4DW may be substituted), (2) two upper division courses in one literature (e.g., Arabic, Chinese, English, French, German, Korean, Russian, Spanish) in the original language, and (3) one upper division course in a second literature in the original language (one level six foreign language course may be substituted). If students complete two upper division courses in a language other than English, they may petition to take one upper division course taught in English translation to fulfill the third requirement.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Comparative Literature offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Comparative Literature.

Comparative Literature

Lower Division Courses

1A. World Literature: Antiquity to Middle Ages. (5) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to students with credit for course 2AW or 4AW. Study of major texts in world literature, with emphasis on Western civilization. Texts include major works and authors such as *Iliad* or *Odyssey*, Greek tragedies, portions of Bible, Virgil, Petronius, St. Augustine, and others such as *Gilgamesh* or *Tristan and Iseult*. P/NP or letter grading.

1B. World Literature: Middle Ages to 17th Century. (5) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to students with credit for course 2BW or 4BW. Study of world literature, with emphasis on Western civilization as it grapples with its past and with other civilizations. Examination of works such as Dante's *Divine Comedy*, Cervantes' *Don Quixote*, Shakespeare's *King Lear*, and Sor Juana's Mexican poetry. P/NP or letter grading.

1C. World Literature: Age of Enlightenment to 20th Century. (5) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to students with credit for course 2CW or 4CW. Study of major texts in world literature, with emphasis on Western civilization. Authors include Swift, Voltaire, Diderot, Rousseau, Goethe, Flaubert, Ibsen, Strindberg, M. Shelley, Dostoevsky, Kafka, James Joyce, Garcia Marquez, and Jamaica Kincaid. Satisfies Writing II requirement. Letter grading.

1D. Great Books from World at Large. (5) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to students with credit for course 2DW or 4DW. Study of major literary texts usually overlooked in courses that focus only on canon of Western literature. Texts from at least three of following areas read in any given term: African, Caribbean, East Asian, Latin American, and Middle Eastern literature. P/NP or letter grading.

1E. Social Media and Storytelling: Comparing Cultures. (5) Lecture, two hours; discussion, two hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Study of social media as platform for storytelling, with core focus on three distinct cultures: U.S., China, and Russia. History, form, and various functions of social media. Examination of how we tell stories about ourselves and how we interpret digital narratives we see, hear, or read from organizations near and far. Analysis of networked narratives encountered online. P/NP or letter grading.

2AW. Survey of Literature: Antiquity to Middle Ages. (5) Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1A or 4AW. Study of selected texts from antiquity to Middle Ages, with emphasis on literary analysis and expository writing. Texts include works and authors such as *Odyssey*, *Gilgamesh*, Sappho, Greek tragedies, *Aeneid*, Petronius, *Beowulf*, Marie de France, *Tristan and Iseult*, *1001 Nights*, *Popul Vuh*. Satisfies Writing II requirement. Letter grading.

2BW. Survey of Literature: Middle Ages to 17th Century. (5) Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1B or 4BW. Study of selected texts from Middle Ages to 17th century, with emphasis on literary analysis and expository writing. Texts may include works by authors such as Chaucer, Dante, Cervantes, Marguerite de Navarre, Shakespeare, Calderón, Molière, and Racine. Satisfies Writing II requirement. Letter grading.

2CW. Survey of Literature: Age of Enlightenment to 20th Century. (5) Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1C or 4CW. Study of selected texts from Age of Enlightenment to 20th century, with emphasis on literary analysis and expository writing. Texts may include works by authors such as Swift, Voltaire, Diderot, Rousseau, Goethe, Flaubert, Ibsen, Strindberg, M. Shelley, Dostoevsky, Kafka, James Joyce, Garcia Marquez, and Jamaica Kincaid. Satisfies Writing II requirement. Letter grading.

2DW. Survey of Literature: Great Books from World at Large. (5) Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1D or 4DW. Study of major literary texts usually overlooked in courses that focus only on canon of Western literature, with emphasis on literary analysis and expository writing. Texts from at least three of following areas read in any given term: African, Caribbean, East Asian, Latin American, and Middle Eastern literature. Satisfies Writing II requirement. Letter grading.

4AW. Literature and Writing: Antiquity to Middle Ages. (5) Discussion, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1A or 2AW. Study and discussion of selected texts from antiquity to Middle Ages, with emphasis on literary analysis and expository writing. Texts include works and authors such as *Iliad*, *Odyssey*, *Gilgamesh*, Sappho, Greek tragedies, *Aeneid*, Petronius, *Beowulf*, or Marie de France. Satisfies Writing II requirement. Letter grading.

4BW. Literature and Writing: Middle Ages to 17th Century. (5) Discussion, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1B or 2BW. Study and discussion of selected texts from Middle Ages to 17th century, with emphasis on literary analysis and expository writing. Texts may include works and authors such as Chaucer, Dante's *Divine Comedy*, Cervantes' *Don Quixote*, Shakespeare, *1001 Nights*, Christine de Pizan, *Popul Vuh*, Molière, and Racine. Satisfies Writing II requirement. Letter grading.

4CW. Literature and Writing: Age of Enlightenment to 20th Century. (5) Discussion, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1C or 2CW. Study and discussion of selected texts from Age of Enlightenment to 20th century, with emphasis on literary analysis and expository writing. Texts may include works by authors such as Swift, Voltaire, Diderot, Rousseau, Goethe, M. Shelley, Flaubert, Ibsen, Strindberg, Dostoevsky, Gogol, Kafka, Joyce, Beckett, L. Hughes, and García Marquez. Satisfies Writing II requirement. Letter grading.

4DW. Literature and Writing: Great Books from World at Large. (5) Discussion, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1D or 2DW. Study and discussion of major literary texts usually overlooked in courses that focus only on canon of Western literature, with emphasis on literary analysis and expository writing. Texts from at least three of following areas read in any given term: African, Caribbean, East Asian, Latin American, and Middle Eastern literature. Texts may include works by authors such as Ngugi, Desai, Kincaid, Emecheta, El Saadawi, Achebe, Pak, Can Xue, Neruda, and Rushdie. Satisfies Writing II requirement. Letter grading.

Upper Division Courses

100. Introduction to Literary and Critical Theory. (5) Lecture, four hours. Preparation: satisfaction of Entry-Level Writing and College Writing requirements. Requisites: two courses from Comparative Literature 1 or 2 series or English 10 series or Spanish 60 series, etc. Seminar-style introduction to discipline of comparative literature presented through series of texts illustrative of its formation and practice. Letter grading.

M101. Hebrew Literature in English—Literary Traditions of Ancient Israel: Bible and Apocrypha. (4) (Same as Jewish Studies M150A.) Lecture, three hours. Study of literary culture of ancient Israel through examination of principal compositional strategies of Hebrew Bible and Apocrypha (read in translation). P/NP or letter grading.

102. Classical Tradition: Epic. (4) Seminar, three hours. Designed for upper division literature majors. Analysis of *Iliad*, *Odyssey*, *Aeneid*, *Gerusalemme Liberata*, and *Paradise Lost* both in relation to their contemporary societies and to literary traditions. Emphasis on how poets build on work of their predecessors. P/NP or letter grading.

103. People on Run: Migrants, Minorities, and Multiculturalism in Europe. (4) Seminar, three hours. Problem of migrants and refugees in ongoing crisis of European Union. Examination of contemporary crisis of European Union and of European multiculturalism in particular. Overview of history of European integration since World War II, as well as more focused examination of ways in which culture and migration have come to dominate discussions of future of what had primarily been conceived of as one economic union. Offered in summer only. P/NP or letter grading.

C105. Comic Vision. (4) Lecture, three hours. Designed for upper division literature majors. Literary masterpieces, both dramatic and nondramatic, selected to demonstrate varieties of comic expression. May be concurrently scheduled with course C205. Undergraduate students read all works in translation. P/NP or letter grading.

106. Archetypal Heroes in Literature. (4) Seminar, three hours. Designed for juniors/seniors. Survey and analysis of function and appearance of such archetypal heroes as Achilles, Ulysses, Prometheus, Oedipus, and Orpheus in literature from antiquity to modern period. All works read in translation. P/NP or letter grading.

108. Autobiography in Francophone and Anglophone Worlds. (5) Seminar, three hours. Designed for juniors/seniors. Focus on number of narratives that use autobiographical mode to situate self in relation to history of nations and biography of family members. Introduction to theories of subjectivity and to genre of self-writing in France, Africa, and Caribbean. Comparison of serial autobiographies of Assia Djebar, Annie Ernaux, and Jamaica Kincaid to better understand limits of genre. Texts represent different limit cases of autobiography and can be read as biography, auto/ethnography, and auto/historiography. Examination of differences that emerge between autobiographical pact (Lejeune) that some authors create with their readers and liberties that others take with history. Attention to way visual culture (painting, photography, film) helps authors make their point, access memory, or create metaphors of self. P/NP or letter grading.

M110. Thousand and One Nights/Alf Layla Wa Layla. (4) (Same as Arabic M110.) Lecture, three hours. Knowledge of Arabic not required. Since its appearance in Europe in 1704, *Thousand and One Nights* is most well-known work of Arabic literature in West. Examination of cycle of tales more commonly known as *Arabian Nights*, including history of its translation, contemporary oral performances of tales in Arabic-speaking world, literary emergence of vernacular language in relation to classical Arabic, and Western appropriations of tales in music, film, and novels (Ravel, Rimsky-Korsakov, Barth, Poe, and Walt Disney). P/NP or letter grading.

111. Histories and Methodologies of Comparative Literature. (5) Seminar, three hours. Preparation: satisfaction of Entry-Level Writing and College writing requirements. Requisites: two courses from Comparative Literature 1 or 2 series or English 10 series or Spanish 60 series. Recommended: course 100. Exploration of history of comparative literature discipline and variety of central methodological past and present debates concerning nature of discipline. Introduction to several key theoretical texts from early 20th century to present, addressing these and other related questions: what does it mean to read comparatively? What is significance of reading literature across existing national and linguistic borders? What are criteria for conducting such comparative readings? Is comparative reading more concerned with finding similarities or differences? P/NP or letter grading.

M119. Al-Andalus: Literature of Islamic Spain. (4) (Same as Arabic M155.) Lecture, three hours. Study of literature of Islamic Spain to learn about interaction of Arabic and Western and Arabic and Jewish cultures and to recognize Islamic culture as vital force in European life and letters. P/NP or letter grading.

C122. Renaissance Drama. (4) Lecture, three hours. Designed for upper division literature majors. Broad introduction to subject matter and types of plays in Renaissance, with consideration of historical and literary influences on plays. Readings include works of such dramatists as Tasso, Machiavelli, Lope de Vega, Racine, Jonson, Shakespeare. May be concurrently scheduled with course C222. Undergraduate students read all works in translation. P/NP or letter grading.

M123. Oral Literature and Performance of Arab World. (4) (Same as Arabic M123.) Lecture, three hours. Knowledge of Arabic not required. Introduction to study of living oral traditions of troubadours, storytellers, oral poets, and performers in Arabic-speaking Middle East. P/NP or letter grading.

M132. Comparative Media Studies. (4) (Same as Russian M132.) Lecture, three hours. History, form, and function of various media. Grounded in political and commercial experience of Eastern Europe, com-

parative investigation of media technologies, today's burgeoning markets, and yesterday's tragic abuses. Development of media form(s) and content across various times, places, and cultures, with special attention to Slavic phenomena. Letter grading.

M148. Contemporary Arab Film and Song. (4) (Same as Arabic M148.) Seminar, three hours. Exploration of conjunctures between contemporary Arab film and song and between popular cultures and cultures of commitment (Iltizam), with possible focus on specific genres such as realist/neorealist Arab film; feminist Arab film or popular Arab film and song; topics such as nation, gender, and representation or democracy and human rights or censorship, reception, and resistance. Possible examination of various national cinemas such as Tunisian, Egyptian, Moroccan, Algerian, and Palestinian. Various musical genres such as Rai, Mizoud, and Hip-hop also examined in relation to emergence not only of national cinemas, national music industries, and iconic singers but also of video clip, satellite TV, star academy, and reality shows—all products of transnational and pan-Arab mass media. P/NP or letter grading.

C152. Symbolism and Decadence. (5) Seminar, four hours. Designed for upper division literature majors. Study of symbolist and decadent movements in 19th- and 20th-century English and French poetry and prose, including authors such as Baudelaire, Rimbaud, Verlaine, Mallarmé, Wilde, Yeats, and Eliot. May be concurrently scheduled with course C252. Undergraduate students may read all required French texts in translation. P/NP or letter grading.

C153. Post-Symbolist Poetry and Poetics. (5) Seminar, four hours. Designed for upper division literature majors. Study of specific poets and poetics related to them during first half of 20th century. Texts may include poets such as W.B. Yeats, Ezra Pound, T.S. Eliot, Paul Valéry, R.M. Rilke, Gunnar Ekelöf, and Wallace Stevens. May be concurrently scheduled with course C253. Undergraduate students may read all works in translation. P/NP or letter grading.

154. Adventures of Avant-Garde. (5) Seminar, four hours. Designed for upper division literature majors. Interdisciplinary study of avant-garde literature and art, including futurism, Dadaism, Expressionism, Surrealism, new avant-gardes. Works by Marinetti, Boccioni, Picasso, Stein, Malevich, Popova, Mayakovsky, Brecht, Fritz Lang, Duchamp, Breton, Bunuel, Lisspector, Warhol, Orlan. Emphasis on cross-fertilization among different kinds of aesthetic expression. P/NP or letter grading.

C156. Fantastic Fictions. (4) Seminar, three hours. Designed for upper division literature majors. Time and again in modern literature, corpses become conduits or catalysts for revelation. What are ghosts that fiction frequently cannot put to rest, and what is their connection to national history or nation language or narrative? Readings from James Joyce, John Banville, Henry James, Toni Morrison, Adolfo Bioy Casares, Juan Carlos Onetti, Juan Rulfo, and Carlos Fuentes, with films by Alejandro Amenabar, Andrei Tarkovsky, and Kenji Mizoguchi. May be concurrently scheduled with course C256. Undergraduate students read all works in translation. P/NP or letter grading.

C160. Literature and Visual Arts. (4) Lecture, three hours. Designed for juniors/seniors. Knowledge of art history valuable but not required. Assuming that literature and visual arts are in some degree expressions of cultural and philosophical patterns of eras, study of relationships between writers and movements in painting, architecture, and sculpture. Interdisciplinary investigation of similarities and differences between plastic and verbal arts in comparative study. May be repeated for credit with instructor and/or topic change. May be concurrently scheduled with course C260. Undergraduate students read all works in translation. P/NP or letter grading.

C161. Fiction and History. (4) Seminar, three hours. Designed for upper division literature majors. Analysis of use of historical events, situations, and characters in literary works of Renaissance and/or modern period. Texts and individual assignments range from Re-

naissance historical narratives (Italian humanists, Machiavelli) to 19th- and 20th-century novels by authors such as Stendhal, Verga, Tomasi di Lampedusa, Carpenter, and Kundera. Use of fictional methods by historians. Emphasis on how aesthetic, ideological, and political factors influence authors' choice and use of historical material. May be concurrently scheduled with course C261. P/NP or letter grading.

M162. Israel Seen through Its Literature. (4) (Same as Jewish Studies M162.) Lecture, three hours. Attempt to impart profound understanding of Israel as seen through its literature. Examination of variety of literary texts—stories, novels, and poems—and reading of them in context of their historical backgrounds. P/NP or letter grading.

C163. Crisis of Consciousness in Modern Literature. (5) Seminar, three hours. Designed for upper division literature majors. Study of modern European and American works that are concerned both in subject matter and artistic methods with growing self-consciousness of human beings and their society, with focus on works of Kafka, Rilke, Woolf, Sartre, and Stevens. May be concurrently scheduled with course C263. Undergraduate students may read all works in translation. P/NP or letter grading.

C164. Modern European Novel. (5) Seminar, three hours. Designed for upper division literature majors. Study of modern European novel's development from 19th to 21st century. Use of authors such as Hardy, Strindberg, Lagerkvist, Gide, Proust, Mann, Joyce, Kafka, Woolf, Nabokov, Grass, Christa Wolf, and Enquist to focus on development of themes such as shifting authority, gender conflicts, change versus stability, formal experimentation, and self-consciousness in narrative. May be concurrently scheduled with course C264. Undergraduate students may read all works in translation but are encouraged to read in original language whenever possible. P/NP or letter grading.

M165. Holocaust in Literature. (4) (Same as Jewish Studies M187.) Lecture, three hours. Investigation of how Holocaust informs variety of literary and cinema works and raises wide range of aesthetic and moral questions. P/NP or letter grading.

M166. Modern Jewish Literature in English: Diaspora Literature. (4) (Same as Jewish Studies M151A.) Lecture, three hours. Study of literary responses of Jews to modernity, its challenges, and threats. Readings in texts originally written in English or translated from Hebrew, Yiddish, German, Russian, French, and Italian. Analysis of formal aspects of each work. P/NP or letter grading.

M167. Modern Arabic Literature in English. (4) (Same as Arabic M151.) Lecture, three hours. Designed for upper division literature majors. Topics may include constructions of otherness in modern Arab culture; East-West debate; memory, trauma, and mourning; violence, narrative, and ethics; globalization, oil, and cultural insurgency; Arab culture in transnational context or questions of reception, exoticism, translation, and marketing. Genres may include prison narratives; novel of terror; memoirs by women and/or by refugees and exiles; 19th- and 20th-century travel narratives; Arabic romantic poetry; literature of pre-1948; rise of Arab novel. Areas may range from generic look at Arab world to narrow focus on Maghreb or one country such as Algeria, Palestine, Iraq, Lebanon, or Egypt. May also be organized around Arab literatures written in one specific language, namely English, Arabic, or French. Letter grading.

169. Continental African Authors. (4) Lecture, three hours. Requisite: one course from 1A, 1B, 1C, 2AW, 2BW, 2CW, or English Composition 3 or 3H. Introduction to new set of African authors and attempt to discern similarities or differences they may have with major authors such as Achebe, Ngugi, Armath, Soyinka, etc. P/NP or letter grading.

CM170. Alternate Traditions: In Search of Female Voices in Contemporary Literature. (5) (Same as Gender Studies CM170.) Seminar, three hours. Designed for upper division literature majors. Investigation of narrative texts by contemporary French, German, English, American, Spanish American, Af-

rican, and Asian women writers from cross-cultural perspective. Common themes, problems, and techniques. Concurrently scheduled with course CM270. P/NP or letter grading.

M171. Chinese Immigrant Literature and Film. (4) (Same as Asian American Studies M130B and Chinese M153.) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. In-depth look at Chinese immigrant experience by reading literature and watching films. Theories of diaspora, gender, and race to inform thinking and discussion of relevant issues. P/NP or letter grading.

C172. Postmodern Novel. (4) Seminar, three hours. Designed for upper division literature majors. Study of postmodern novel as it developed out of modernism. Postmodernism defined in three different ways—philosophically, scientifically, and economically. Emphasis on relationship of recent novels to theories of structuralism and poststructuralism. Readings include authors such as Borges, Beckett, Nabokov, Pynchon, Fuentes, Grass, Böll, and Calvino. Concurrently scheduled with course C272. Undergraduate students read all works in translation. P/NP or letter grading.

M175. Race, Gender, Class. (5) (Same as Asian American Studies M165.) Seminar, three hours. Theoretical and literary readings combined to explore three main aspects of social and cultural experience (race, gender, class) as separate but interconnected spheres affecting both minority and majority populations in U.S. Examination of these issues from comparative perspectives. P/NP or letter grading.

M176. Literature and Technology. (4) (Same as Japanese M156.) Lecture, three hours. Knowledge of Japanese not required. Examination of representation of technology in 20th-century fiction. Discussion of impact of technology on shifting images of gender, subjectivity, and national identity. P/NP or letter grading.

177. Comparative Literature of Francophone and Anglophone Caribbean. (5) Seminar, three hours. Designed for juniors/seniors. Introduction to literature and culture of Caribbean basin from New Orleans to Haiti, Martinique, Guadeloupe, Jamaica, Antigua, or Trinidad. Topics include history of French and English colonial influences and rivalries, Haitian revolution and its literary legacies, emergence of nationalist discourses, search for cultural identity, rhetoric of negritude, global poetics of relation, créolité movement, and literary achievements of African diaspora. P/NP or letter grading.

C178. India Ink: Literature and Culture of Modern South Asia. (5) Seminar, three hours. Survey of significant issues in history of 20th-century Indian literature and culture. Great works of modern Indian culture by such figures as Rabindranath Tagore, Satyajit Ray, Faiz Ahmed Faiz, and U.R. Ananthamurthy, including novels, short stories, poetry, films, music, and works in cultural criticism and historical scholarship. Central and defining issue for 20th-century Indian culture is experience of British colonial rule and massive cultural and material changes that accompanied it. Exploration of manner in which literature and culture have developed in interaction with powerful social forces, such as struggle for national independence from Britain under leaders like Mahatma Gandhi and expansion of Indian diaspora. Concurrently scheduled with course C278. P/NP or letter grading.

180. Variable Topics: Medical Humanities in Comparative Contexts. (4) Seminar, three hours. Designed for juniors/seniors. Study and discussion of defined periods and approaches in medical humanities, giving pride of place to literary and cultural expressions in dialogue with other disciplines such as anthropology, history, linguistics, philosophy, psychology, or sociology. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

180SL. Variable Topics: Medical Humanities in Comparative Contexts and Community-Based Learning. (4) Seminar, three hours; fieldwork, three hours. Exploration of topics in medical humanities with community service component, giving pride of place to literary and cultural expressions with other disciplines such as art, philosophy, or sociology. Ways in which medical humanities can make contributions to Los Angeles community through service learning. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

C187. Reading across Culture. (5) Seminar, three hours. What is it we do when we try to understand words, habits, gestures, and beliefs not our own? Do we understand something foreign to us by immersing ourselves in it or by standing apart? Does ability to understand something foreign imply taking universal standpoint? Can we make judgments about beliefs other than our own? Questions of cultural interpretation have long history in both Western and non-Western cultures. Discussion of history of questions about cross-cultural interpretation and comparative interpretation of cultures in both comparative literature and cultural anthropology. Reading of some very complex and influential works by such writers as Claude Lévi-Strauss, Amitav Ghosh, James Clifford, Edward Said, Gayatri Spivak, and Erich Auerbach. Concurrently scheduled with course C287. P/NP or letter grading.

190. Research Colloquia in Comparative Literature. (2) Seminar, three hours. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

191. Variable Topics in Comparative Literature. (4) Seminar, three hours. Designed for juniors/seniors. Study and discussion of limited periods and specialized issues and approaches in literary theory, especially in relation to other modes of discourse such as history, philosophy, psychology, linguistics, anthropology. Development of culminating project required. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

197. Individual Studies in Comparative Literature. (2 to 4) Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198. Honors Research in Comparative Literature. (2 to 4) Tutorial, three hours. Limited to senior comparative literature honors students. Development and completion of honors thesis or comprehensive project on comparative topic selected by student and written under supervision of core faculty member. Students expected to meet regularly with supervisor throughout term. No more than one course may be used to fulfill four-course requirement for Comparative Literature majors. May be repeated once for maximum of 8 units. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Comparative Literature. (2 to 4) Tutorial, three hours. Requisite: course 100. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with consent of chair. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Theory of Comparative Literature. (6) Seminar, three hours. Study of theory of literature, with emphasis on genealogy of theoretical problems. S/U or letter grading.

200B. Methodology of Comparative Literature. (6) Seminar, three hours. Requisite: course 200A. Study of methodology of comparative literature, with emphasis on its history. S/U or letter grading.

202. Classical Tradition: Epic, Tragedy, or Comedy. (4) Seminar, three hours. Preparation: reading knowledge of Greek, Latin, or Italian. Analysis of Greek and Roman works and their re-creations in Renaissance and modern periods. Emphasis on how poets build on work of their predecessors. Reading may range from *Iliad* or *Odyssey* to tragedies by Sophocles and Euripides or satires by Aristophanes. S/U or letter grading.

C205. Comic Vision. (4) Lecture, three hours. Preparation: reading knowledge of one appropriate foreign language. Literary masterpieces, both dramatic and nondramatic, selected to demonstrate varieties of comic expression. May be concurrently scheduled with course C105. Graduate students required to prepare papers based on texts read in original languages and to meet as group one additional hour each week. S/U or letter grading.

206. Archetypal Heroes in Literature. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Survey and analysis of function and appearance of such archetypal heroes as Achilles, Ulysses, Prometheus, Oedipus, and Orpheus in literature from antiquity to modern period. S/U or letter grading.

210. Comparative Studies in Autobiography. (5) Seminar, three hours. Limited to graduate students. Introduction to theories of autobiography and subjectivity and to genre of autobiography in literatures in French and English and across centuries. Topics include early modern approaches to self-writing, Rousseau and emergence of modern self, women's autobiography, postcolonial autobiography, cultural studies and turn to personal, fictions of self-representation, serial autobiography, and virtual selves. Theorists may include Georges Gusdorf, Philippe Lejeune, Paul de Man, Jacques Derrida, Helene Cixous, Michel Foucault, Pierre Bourdieu, and Toril Moi. S/U or letter grading.

C222. Renaissance Drama. (4) Lecture, three hours. Preparation: reading knowledge of one appropriate foreign language. Broad introduction to subject matter and types of plays in Renaissance, with consideration of historical and literary influences on plays. Readings include works of such dramatists as Tasso, Machiavelli, Lope de Vega, Racine, Jonson, Shakespeare. May be concurrently scheduled with course C122. Graduate students required to prepare papers based on texts read in original languages and to meet as group one additional hour each week. S/U or letter grading.

M251. Literatures and Cultures of Maghreb. (4) (Same as Arabic M255.) Seminar, three hours. Limited to graduate students. Examination of traditionally diverse literatures of Maghreb in their multiple and competing contexts of language and gender politics, religious and cultural formations, Pan-Arabism and post-colonial nationhood, Third-Worldism and economic development, modernity and globalization, immigration and citizenship, soccer industry and Rai music, mass media and Star Academy Maghreb, and more. Readings of literatures in English and in English translations from different Maghrebian languages (particularly Arabic and French) in conjunction with theories of language and linguistic pluralism, cultural translation, deconstruction, and host of other relevant theories of gender, globalization, and postcolonial cultural studies. S/U or letter grading.

C252. Symbolism and Decadence. (5) Seminar, four hours. Preparation: reading knowledge of French. Study of symbolist and decadent movements in 19th- and 20th-century English and French poetry and prose, including authors such as Baudelaire, Rimbaud, Verlaine, Mallarmé, Wilde, Yeats, and Eliot. May be concurrently scheduled with course C152. Graduate students required to prepare papers based on texts read in original languages and may meet as group one additional hour each week. S/U or letter grading.

C253. Post-Symbolist Poetry and Poetics. (5) Seminar, four hours. Study of specific poets and poetics related to them during first half of 20th century. Texts may include poets such as W.B. Yeats, Ezra Pound, T.S. Eliot, Paul Valéry, R.M. Rilke, Gunnar Ekelöf, and Wallace Stevens. May be concurrently scheduled with course C153. Graduate students may meet as group one additional hour each week. S/U or letter grading.

C256. Fantastic Fictions. (4) Seminar, three hours. Time and again in modern literature, corpses become conduits or catalysts for revelation. What are ghosts that fiction frequently cannot put to rest, and what is their connection to national history or nation language or narrative? Readings from James Joyce, John Banville, Henry James, Toni Morrison, Adolfo Bioy Casares, Juan Carlos Onetti, Juan Rulfo, and Carlos Fuentes, with films by Alejandro Amenabar, Andrei Tarkovsky, and Kenji Mizoguchi. May be concurrently scheduled with course C156. Graduate students have additional meetings and theoretical readings by Benjamin, Freud, Barthes, Derrida, Rabaté, Rickels, and Caruth. S/U or letter grading.

C260. Literature and Visual Arts. (4) Lecture, three hours. Knowledge of art history valuable but not required. Assuming that literature and visual arts are in some degree expressions of cultural and philosophical patterns of eras, study of relationships between writers and movements in painting, architecture, and sculpture. Interdisciplinary investigation of similarities and differences between plastic and verbal arts in comparative study. May be repeated for credit with instructor and/or topic change. May be concurrently scheduled with course C160. Graduate students required to read works in original languages. S/U or letter grading.

C261. Fiction and History. (4) Seminar, three hours. Analysis of use of historical events, situations, and characters in literary works of Renaissance and/or modern period. Texts and individual assignments range from Renaissance historical narratives (Italian humanists, Machiavelli) to 19th- and 20th-century novels by authors such as Stendhal, Verga, Tomasi di Lampedusa, Carpenter, and Kundera. Use of fictional methods by historians. Emphasis on how aesthetic, ideological, and political factors influence authors' choice and use of historical material. May be concurrently scheduled with course C161. Graduate students required to prepare papers based on texts read in original languages. S/U or letter grading.

C263. Crisis of Consciousness in Modern Literature. (5) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Study of modern European and American works that are concerned both in subject matter and artistic methods with growing self-consciousness of human beings and their society, with focus on works of Kafka, Rilke, Woolf, Sartre, and Stevens. May be concurrently scheduled with course C163. Graduate students required to prepare papers based on texts read in original languages and to meet as group one additional hour each week. S/U or letter grading.

C264. Modern European Novel. (5) Seminar, three hours. Preparation: reading knowledge of at least one appropriate foreign language. Study of modern European novel's development from 19th to 21st century. Use of authors such as Hardy, Strindberg, Lagerkvist, Gide, Proust, Mann, Joyce, Kafka, Woolf, Nabokov, Grass, Christa Wolf, and Enquist to focus on development of themes such as shifting authority, gender conflicts, change versus stability, formal experimentation, and self-consciousness in narrative. May be concurrently scheduled with course C164. Graduate students required to prepare papers based on texts read in original languages whenever possible and to meet one additional hour each week. S/U or letter grading.

266. Writing and Photographic Image. (4) Seminar, three hours. Preparation: knowledge of one appropriate foreign language. Designed for graduate students. Investigation of intertextual relations between writing and photography in American and European contexts. Study rests on premise that photograph enters public domain framed by writing and discourse

and that, in turn, some forms of writing are framed by photographic modes of representation. S/U or letter grading.

267. Comparative Arab Studies. (5) Seminar, three hours. Limited to graduate students. Investigation of ways in which Arab littérateurs, artists, and intellectuals have perseveringly sought to imagine and construct viable structures of cultural empowerment on pyre of political project of Arab nationalism and in growing response to globalization and consolidation of Western colonial and imperial ideologies in Arab world. Particular attention to technical and experimental modes of expression through which Arab artists working in different genres have engaged with some persistent and recurrent questions related to their mission, vocation, and commitment (*iltizam*) to fundamental concerns of Arab world, to responsible mimetic urgency, and to general uses/potencies of rhetoric and poetics within contexts of profound asymmetries of power, temporalities, and actualities. S/U or letter grading.

CM270. Alternate Traditions: In Search of Female Voices in Contemporary Literature. (5) (Same as Gender Studies CM270.) Seminar, four hours. Designed for graduate students. Investigation of narrative texts by contemporary French, German, English, American, Spanish American, African, and Asian women writers from cross-cultural perspective. Common themes, problems, and techniques. Concurrently scheduled with course CM170. S/U or letter grading.

271. Imaginary Women. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Examination of archetypal female figures in classical/traditional literatures and their reincarnations in modern African American, Anglo-American, Asian American, European, Native American, and Spanish-American literatures. Particular emphasis on position of women in cultures and ideology of authors. S/U or letter grading.

C272. Postmodern Novel. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Study of postmodern novel as it developed out of modernism. Postmodernism defined in three different ways—philosophically, scientifically, and economically. Emphasis on relationship of recent novels to theories of structuralism and poststructuralism. Readings include authors such as Borges, Beckett, Nabokov, Pynchon, Fuentes, Grass, Böll, and Calvino. Concurrently scheduled with course C172. Graduate students required to meet as group one additional hour each week. S/U or letter grading.

M274. Theorizing Third World. (4) (Same as Asian American Studies M261.) Seminar, three hours. Investigation of politics of power, gender, and race in complex relationships between so-called First World and Third World, using both theoretical and textual approaches. S/U or letter grading.

275. Nationalism and Immigration Today. (4) Seminar, three hours. Preparation: knowledge of one appropriate foreign language. Designed for graduate students. Literary and social discourses on issues of nationalism, immigration, and politics of identity in our postcolonial era, with consideration of broad range of texts (aesthetic representations, theoretical reflections, and legal documents). S/U or letter grading.

M276. Reading Modern Bodies. (4) (Same as Japanese M276.) Seminar, three hours. Designed for graduate students. Exploration of construction of human body through various modern technologies and discourses, including those of disease, diet, race, gender, and sexuality. Examination of texts from variety of locales, with particular emphasis on Japan. S/U or letter grading.

277. Caribbean Literature from Negritude to Diaspora. (4) Seminar, three hours. Historical approach to modern Anglophone and Francophone Caribbean literature, retracing search for cultural identity, beginning with negritude movement's claim to Africa as expressed in Aimé Césaire's classic poem *Cahier d'un retour au pays natal* and ending with consideration of

dispersion of identities in work of writers and intellectuals who contend with problem of diasporic Caribbean culture. S/U or letter grading.

C278. India Ink: Literature and Culture of Modern South Asia. (5) Seminar, three hours. Survey of significant issues in history of 20th-century Indian literature and culture. Great works of modern Indian culture by such figures as Rabindranath Tagore, Satyajit Ray, Faiz Ahmed Faiz, and U.R. Anantha Murthy, including novels, short stories, poetry, films, music, and works in cultural criticism and historical scholarship. Central and defining issue for 20th-century Indian culture is experience of British colonial rule and massive cultural and material changes that accompanied it. Exploration of manner in which literature and culture have developed in interaction with powerful social forces, such as struggle for national independence from Britain under leaders like Mahatma Gandhi and expansion of Indian diaspora. Concurrently scheduled with course C178. S/U grading.

279. Subaltern Studies: Colonial Histories and Cultural Critique. (5) Seminar, three hours. Examination of certain links between practice of cultural criticism and problems in historiography of colonial and postcolonial societies. Use of key texts by members of Subaltern Studies collective of Indian historians to explore some central issues arising from this relationship. What kind of interdisciplinary space is produced by dialog of history and literary and cultural theory? Attention to literary texts to practice such interdisciplinary criticism. Nature of modernity in colonial setting. What is nature of bourgeoisie in colonial society? What kind of modernization does it seek? What is relationship of modern metropolitan bourgeoisie to indigenous one? S/U or letter grading.

280. Latin American Literature in Comparative Contexts. (4) Seminar, three hours. Preparation: reading knowledge of one foreign language. In-depth study of one topic of Latin American literature in comparative context. May be repeated for credit. S/U or letter grading.

284. Theories of Translation. (4) Seminar, three hours. Examination of various approaches to concept of translation and to its significance for literary studies. Readings include authors such as Matthew Arnold, Walter Benjamin, George Steiner, and Susan Bassnett. S/U or letter grading.

285. Translation Workshop. (4) Seminar, three hours. Preparation: solid reading knowledge of at least one foreign language. Open to qualified undergraduates with proper language preparation. Introduction to principles of literary translation heuristically, that is, on basis of texts participating students translate, and presentation of student work for discussion. Opportunity for students to determine whether they have desire and talent to pursue literary translation as part of their professional lives. S/U or letter grading.

286. Workshop: Social Sciences Translation. (4) Seminar, three hours; tutorial, one hour. Preparation: solid reading knowledge of at least one foreign language. Designed for graduate social sciences students. Techniques students need to render scholarly texts in their fields from language they use in their research into English and to advance their knowledge of language to stage where they can use it more effectively in all aspects of their research, as well as take advantage of translation techniques they have learned. S/U or letter grading.

C287. Reading across Culture. (5) Seminar, three hours. What is it we do when we try to understand words, habits, gestures, and beliefs not our own? Do we understand something foreign to us by immersing ourselves in it or by standing apart? Does ability to understand something foreign imply taking universal standpoint? Can we make judgments about beliefs other than our own? Questions of cultural interpretation have long history in both Western and non-Western cultures. Discussion of history of questions about cross-cultural interpretation and comparative interpretation of cultures in both comparative literature and cultural anthropology. Reading of some very complex and influential works by such writers as Claude Lévi-Strauss, Amitav Ghosh, James Clifford,

Edward Said, Gayatri Spivak, and Erich Auerbach. Concurrently scheduled with course C187. S/U or letter grading.

M288. Modern Arab Thought. (4) (Same as Arabic M288.) Seminar, three hours. While much has been written and said about resurgence and spread of political Islam after collapse of ideology of secular nationalism and failure of Arab left to apprehend exigencies of postrevolutionary/postcolonial moment, little has been devoted to less sensational topic of modern Arab thought despite unmistakable proliferation of critical output produced by Arab thinkers and artists in aftermath of 1967. Course addresses and redresses this glaring imbalance by considering new cultural material—literary, critical, philosophical, artistic, and journalistic—produced before and after al-Nahda but mostly before and after 1967 and fosters insightful approaches to unlikely coexistence in Arab contemporaneity of ever-deepening and generalized crisis and of steady and consolidated development (if not effervescence) of cultural and artistic production. S/U or letter grading.

289. Theory of Film and Literature. (5) Seminar, three hours; film screening, two hours. Study of redefinition and aims of theories of film and literature. Approaches vary by instructor (e.g., postcoloniality, psychoanalysis, semiotics, transnationalism, gender theory). S/U or letter grading.

290. Contemporary Theories of Criticism. (4) Seminar, three hours. Requisite: course 200A. Advanced course in theory of literature focusing on structuralist, psychoanalytic, and Marxist approaches. S/U or letter grading.

291. Problems in Theory of Literature. (4) Seminar, three hours. Preparation: reading knowledge of French or German. Requisite: course 290. Study of specific topics in theory of literature for advanced students in criticism and literary theory. May be repeated for credit. S/U or letter grading.

292. Theories of Empire. (4) Seminar, three hours. History of theorizations of modern imperialism and colonialism since relevant writings of Karl Marx and Friedrich Engels. Examination of number of landmark theories of empire and consideration of whether or not they may be said to constitute coherent tradition or line of theoretical development. Question of resistance to imperial rule and role it plays in these theoretical accounts. S/U or letter grading.

M294. Seminar: Literary Theory. (5) (Same as English M270.) Seminar, three hours. Advanced interdisciplinary seminar to explore philosophical, historical, and critical foundations of literary theory as well as current issues in literary and cultural studies. S/U or letter grading.

299. Aesthetics and Literature. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Study of literary theory through exploration of approaches to literature by philosophers grounded on analytic tradition. Careful attention to concepts of truth, meaning, expression, representation, metaphor, fiction, and literature. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Preparation for Teaching Literature and Composition. (4) Seminar, three hours. Seminar on problems and methods of presenting literary texts as exemplary materials in teaching of composition. Deals with theory and classroom practice and involves individual counseling and faculty evaluation of teaching assistants' performance. May not be applied toward MA course requirements. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. Limited to graduate comparative literature students. Necessary for students in comparative literature who need additional individual study and research. May be repeated for credit. S/U or letter grading.

596X. Directed Individual Study. (2 to 4) Tutorial, to be arranged. Preparation for foreign language examination. S/U grading.

597. Preparation for MA and PhD Examinations. (2 to 12) Tutorial, to be arranged. Limited to graduate students. Preparation for MA comprehensive examination or PhD qualifying examinations. May be repeated for credit. S/U grading.

599. Research for PhD Dissertation. (2 to 12) Tutorial, to be arranged. Limited to PhD students. Research for and preparation of PhD dissertation. May be repeated for credit. S/U grading.

COMPUTATIONAL AND SYSTEMS BIOLOGY

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Scope and Objectives

The major in Computational and Systems Biology is designed primarily for highly motivated undergraduate students interested in interdisciplinary studies in life sciences, behavioral sciences, and engineering and computer sciences. Preparation for the major consists of a broad foundation in basic sciences—chemistry, biology, physics, and mathematics, plus an introduction to computing. The major itself provides foundations in mathematical modeling, information processing, and control and sys-

tem analysis, with an emphasis on quantitative ideas and methodologies. Mathematical and other analytical skills are essential in the major.

Computational and Systems Biology majors have several options for in-depth studies: a coherent integration of courses selected from one of five designated concentrations in bioinformatics, biomedical systems, computers and biosystems, neurosystems, or systems biology. The major is appropriate preparation for employment or for graduate studies in any of these areas, with emphasis on interdisciplinary activities. It is also appropriate preparation for professional school studies in dentistry, engineering, management, medicine, and public health.

Undergraduate Study

The Computational and Systems Biology major is a designated capstone major. The capstone experience is a senior-level sequence of two courses integrating the discipline via mathematical modeling, simulation, and active research and report writing. Students are expected to demonstrate critical thinking skills and familiarity with research techniques needed to successfully pursue a research project in computational and systems biology, conceive and execute a research project on which they engage current methods and theory, communicate original scholarly findings to peers both in oral and written form, and work productively with others as part of a research team. The experience culminates with completion of the senior thesis requirement.

Computational and Systems Biology majors select a coherent integration of courses from one of five designated concentrations: bioinformatics, biomedical systems, computers and biosystems, neurosystems, or systems biology. The synergy for all concentrations is integrative systems, information, and computational systems modeling sciences in biology. The focus is primarily quantitative, as mastery of advanced quantitative skills is essential for multidisciplinary understanding. Each concentration emphasizes different systems or modalities, and modeling or other computational approaches. For students interested in broad options for postgraduate studies in life sciences and related areas, including medicine, the systems biology concentration covers the widest spectrum of quantitative systems studies at all levels. The other concentrations are more focused. For example, bioinformatics is more focused on computational aspects of genetics and biology at molecular and cellular levels. Students normally select one, but because the concentrations have substantial methodologic overlap, well-justified combinations are also possible.

The bioinformatics concentration is designed for students interested in computational discovery and management of biological data, primarily genomic, proteomic, or metabolomic data. Bioinformatics emphasizes computational, statistical, and other mathematical approaches for mining, modeling, and analyzing high-throughput biological data, and the inherent structure of biological information. Exam-

ple research problems include finding statistical patterns that reveal genomic or evolutionary or developmental information, or how regulatory sequences give rise to programs of gene expression, or how the genome encodes the capabilities of the human mind.

The biomedical systems concentration is designed for students interested primarily in medical system studies, the systems aspects of biomedical, surgical, or other biomedical engineering system devices, including MEMS or nanoscale system devices, and use of dynamic biosystem modeling for optimizing or developing new clinical diagnostic or therapeutic protocols. Example research problems include feedback biocontrol system model development for imaging-based medical diagnosis and optimal control of therapeutic drug delivery.

The computers and biosystems concentration is designed for students interested primarily in computer hardware, software, data management, data representation, graph theory, computational algorithm, or artificial intelligence applications in biological sciences, medicine, or pharmacology. Research problems are typically algorithm oriented and/or involve graphs, automata, or software development. Examples include algorithmic or graph-theory based studies for managing genomics data, development of knowledge-based systems (KBS) for delivering patient education, and KBS for automating complex biosystem modeling tasks.

The neurosystems concentration is designed for students interested primarily in the nervous system, or quantitative neurophysiology, with emphasis on neural system networks that control behavior at molecular, cellular, and whole-organism levels, neural information and control systems, and systems electrophysiology and neural electronic systems for controlling prostheses. Example research problems include analysis of (real) neural networks in normal and abnormal brain function, design of prosthetic systems for hearing (cochlear implant) and walking (spinal cord stimulation) recovery, and MEMS-based brain-machine interface devices.

The systems biology concentration is designed for students who want to understand biological systems holistically and quantitatively, and pursue research with an emphasis on systems and integrative principles in biology or medicine. The curriculum imparts an understanding of systems biology (often called the new physiology) using dynamical systems modeling, control, computer simulation, and other computational methods—integrated with the biology. For example, at the cellular level, systems biologists integrate proteomic, transcriptomic, and metabolomic information into a more complete systems picture of living organisms. However, the methodologies include single-scale or multiscale modeling for enhancing understanding of regulatory biomechanisms at all levels—molecular, cellular, organ, and/or whole-organism levels—and are prevalent in population and ecosystem studies, as well as systems-level problems in medicine and pharmacology.

Computational and Systems Biology BS

Capstone Major

Computational and Systems Biology Premajor

Students entering UCLA directly from high school or first-term transfer students who declare the Computational and Systems Biology premajor at the time of application are automatically admitted. Current UCLA students need to file a petition with the Undergraduate Advising Office in 4436 Boelter Hall.

All students are identified as premajors until they satisfy the preparation for the major requirements by (1) achieving a minimum 2.7 grade-point average in all premajor mathematics courses, (2) achieving a minimum 2.7 GPA and a minimum grade of C in all premajor courses, and (3) filing a petition to declare the Computational and Systems Biology major.

Preparation for the Major

Required: A minimum of 82 to 96 units (depending on the computer programming course and physics sequence selected), including Chemistry and Biochemistry 20A, 20B, 20L, 30A; Computer Science 31 or Program in Computing 10A; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 115A; Physics 1A, 1B, and 1C, or 1AH, 1BH, and 1CH.

Students must also complete one of two life sciences sequences—either Life Sciences 1, 2, 3, and 4 OR 7A, 7B, and 7C. They may not substitute courses in either sequence.

Students following the bioinformatics or the computer systems concentration must also complete Computer Science 32, or Program in Computing 10B and 10C.

Students are allowed to repeat up to two premajor courses. Those who do not pass a course a second time are dismissed from the program.

A recommended four-year course planner is available in the Undergraduate Advising Office in 4436 Boelter Hall.

Transfer Students

Transfer applicants to the Computational and Systems Biology major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one year of general chemistry with laboratory for majors, two years of calculus for majors, one year of calculus-based physics, one year of biology with laboratory for majors, one psychology course, and one programming course using C++.

Transfer applicants must meet the same academic requirements as current UCLA students, based on all courses transferred from another institution that satisfy premajor requirements, and must have completed one 12-unit term of residence in regular session at UCLA.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Admission to the major is by petition only and is based on successful completion of all preparation for the major courses and requirements (2.7 grade-point average in mathematics, 2.7 GPA overall, and a minimum grade of C in each preparation for the major course).

The major consists of a methodology core of six courses (23 units), a concentration of five upper division courses (20 units minimum), and a two-course capstone research requirement (9 units). Each course in the major must be passed with a grade of C or better.

Methodology Core

Required: (1) Computational and Systems Biology M184, M185, (2) two probability and statistics courses from one of the following groups: (a) Statistics 100A and 100B or (b) Mathematics 170A and Statistics 100B or (c) Electrical Engineering 131A and Statistics 100B, and (3) two signals, systems, and control systems courses: (a) Electrical Engineering 102 and (b) Electrical Engineering 141 or Mechanical and Aerospace Engineering 171A.

Concentrations

Required: A minimum of five courses (20 to 30 units) from the concentrations listed below. No 199 course may be applied toward any concentration. An approved list of courses for each concentration is available in the program office and at <http://web.cs.ucla.edu/C&SB/>.

Bioinformatics (at least 20 units): Computer Science CM121, CM124, Molecular, Cell, and Developmental Biology M140 (or 144), 172 (or Physiological Science 125), and one additional course from the bioinformatics approved course list. Note: Computer Science 32, or Program in Computing 10B and 10C are completed in the premajor.

Biomedical Systems (at least 20 units): Bioengineering CM102, CM103, Electrical Engineering 133A (or Mathematics 151A), and two additional courses from the biomedical systems approved course list.

Computers and Biosystems (at least 20 units): Bioengineering CM102 (or CM103 or Molecular, Cell, and Developmental Biology M140 or 144 or Physiological Science 166), Computer Science 170A (or Electrical Engineering 133A or Mathematics 151A), 180, and two additional courses from the computers and biosystems approved list. Note: Computer Science 32, or Program in Computing 10B and 10C are completed in the premajor.

Neurosystems (20 units): Neuroscience M101A, M101B, 102 (or Electrical Engineering 113 or Mathematics 155), and two additional courses from the neurosystems approved list.

Systems Biology (at least 20 units): Ecology and Evolutionary Biology 170 (or Physiological Science 166), Molecular, Cell, and Developmental Biology 100 (or 144), 172 (or Physiological Science 125), and two additional courses from the systems biology approved list.

Capstone Research Requirement

Required: Computational and Systems Biology M186 to be taken in the sophomore or junior year and M187 to be taken in the junior or senior year after completion of course M186.

Honors Program

Students with a grade-point average of 3.5 or better in required major courses and a 3.0 cumulative GPA may apply for admission to the honors program. Honors or highest honors may be granted at the discretion of the faculty sponsor and the faculty committee to students demonstrating exceptional ability on the senior research thesis.

Mathematical Biology Minor

The Mathematical Biology minor introduces undergraduate students to an active interdisciplinary research field at UCLA. The minor core examines biological systems in a holistic and quantitative manner by emphasizing systems and integrative principles in biology. Students who complete the minor have sufficient training to apply the knowledge they learn in graduate school or employment of their choice. Students complete a core curriculum and an elective course. The minor consists of lower division courses basic to the minor and four core courses and one option course that provide the needed background in mathematical biology, molecular and cell biology, statistics and probability, and mathematical modeling and simulation methods for biological systems.

To enter the minor, students must (1) be in good academic standing (2.0 grade-point average or better) and have completed Computer Science 31 or Program in Computing 10A with a grade of C or better, (2) submit an application essay supporting their interest in pursuing the minor and detailing any projects that they have already undertaken, and (3) file a petition in the Undergraduate Advising Office, 4436 Boelter Hall, after appropriate counseling.

Required Lower Division Courses (4 units): Mathematics 33A.

Required Upper Division Courses (22 units): Chemistry and Biochemistry 153A, M230B, Computational and Systems Biology M184, Microbiology, Immunology, and Molecular Genetics 105, and two elective courses selected from Biostatistics 100A, Chemistry and Biochemistry M117, 156, Electrical Engineering 102, 113, Statistics 100A, 100B.

Structural Biology Minor

The Structural Biology minor introduces undergraduate students to an active interdisciplinary research field at UCLA. It examines biological systems in a holistic and quantitative manner by emphasizing systems and integrative principles in biology and consists of lower division courses basic to the minor, plus three core courses and one option course that provide the needed background in structural biology, biologic microscopy, and biochemistry. Students who complete the minor have sufficient training to apply the knowledge they learn in graduate school or employment of their choice.

To enter the minor, students must (1) be in good academic standing (2.0 grade-point average or better) and have completed Computer Science 31 or Program in Computing 10A with a grade of C or better, (2) submit an application essay supporting their interest in pursuing the minor and detailing any projects that they have already undertaken, and (3) file a petition in the Undergraduate Advising Office, 4436 Boelter Hall, after appropriate counseling.

Required Lower Division Course (4 units): Mathematics 33A.

Required Upper Division Courses (22 units): Chemistry and Biochemistry 153A, M230B, Computational and Systems Biology M184, Microbiology, Immunology, and Molecular Genetics 105, and two elective courses selected from Biostatistics 100A, Chemistry and Biochemistry M117, 156, Electrical Engineering 102, 113, Statistics 100A, 100B.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Systems Biology Minor

The Systems Biology minor introduces undergraduate students to an active interdisciplinary quantitative biosciences research and teaching field at UCLA. It provides a coherent course plan encompassing basic foundations of the field. Beside broadening student knowledge in systems biology, the minor provides enhanced perspective about computational and systems biology methods and applications and better prepares students to make more informed choices about their future directions and careers. The minor consists of lower division courses basic to the minor, a survey seminar course, and four core courses and one option course that provide the needed background in molecular and cell biology, computational and systems engineering, and mathematical modeling and simulation methods for biological systems.

To enter the minor, students must (1) be in good academic standing (2.0 grade-point average or better) and have completed Computer

Science 31 or Program in Computing 10A with a grade of C or better, (2) submit an application essay supporting their interest in pursuing the minor and detailing any projects that they have already undertaken, and (3) file a petition in the Undergraduate Advising Office, 4436 Boelter Hall, after appropriate counseling.

Required Lower Division Courses (8 units): Mathematics 33A, 33B.

Required Upper Division Courses (20 units): Computational and Systems Biology M184, M186, Electrical Engineering 102, 141 (or Mechanical and Aerospace Engineering 171A), Molecular, Cell, and Developmental Biology M140 or 144, and one elective course selected from Biomathematics 106, 108, Mathematics 134, 151A, 151B, 170A, 170B, 171, Molecular, Cell, and Developmental Biology 172, or Physiological Science 125.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Computational and Systems Biology

Upper Division Courses

M184. Introduction to Computational and Systems Biology. (2) (Same as Bioengineering M184 and Computer Science M184.) Lecture, two hours; outside study, four hours. Enforced requisites: one course from Civil Engineering M20, Computer Science 31, Mechanical and Aerospace Engineering M20, or Program in Computing 10A, and Mathematics 3B or 31B. Survey course designed to introduce students to computational and systems modeling and computation in biology and medicine, providing motivation, flavor, culture, and cutting-edge contributions in computational biosciences and aiming for more informed basis for focused studies by students with computational and systems biology interests. Presentations by individual UCLA researchers discussing their active computational and systems biology research. P/NP grading.

M185. Research Opportunities in Computational and Systems Biology. (4) (Formerly numbered 185.) (Same as Computer Science M185.) Lecture, two hours; discussion, two hours. Requisites: course M184, Mathematics 32B, 33A, 33B, Life Sciences 4. Introduction to interdisciplinary laboratory research methods and research opportunities in computational and systems biology to prepare and initiate students for active engagement in research. Presentation of potential projects by faculty members and student visits to individual laboratories and participation in ongoing projects. P/NP or letter grading.

M186. Computational Systems Biology: Modeling and Simulation of Biological Systems. (5) (Same as Bioengineering CM186 and Computer Science CM186.) Lecture, four hours; laboratory, three hours; outside study, eight hours. Corequisite: Electrical Engineering 102. Dynamic biosystems modeling and computer simulation methods for studying biological/biomedical processes and systems at multiple levels of organization. Control system, multicompartmental, predator-prey, pharmacokinetic (PK), pharmacodynamic (PD), and other structural modeling methods applied to life sciences problems at molecular, cellular (biochemical pathways/networks), organ, and organ-

ismic levels. Both theory- and data-driven modeling, with focus on translating biomodeling goals and data into mathematics models and implementing them for simulation and analysis. Basics of numerical simulation algorithms, with modeling software exercises in class and PC laboratory assignments. Letter grading.

M187. Research Communication in Computational and Systems Biology. (2 to 4) (Same as Bioengineering CM187 and Computer Science CM187.) Lecture, four hours; outside study, eight hours. Requisite: course M186. Closely directed, interactive, and real research experience in active quantitative systems biology research laboratory. Direction on how to focus on topics of current interest in scientific community, appropriate to student interests and capabilities. Critiques of oral presentations and written progress reports explain how to proceed with search for research results. Major emphasis on effective research reporting, both oral and written. Letter grading.

198. Honors Research in Cybernetics. (4) Tutorial, to be arranged. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

COMPUTER SCIENCE

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Yuval Tamir, PhD

Assistant Professors

Tyson Condie, PhD (*Symantec Term Professor of Computer Science*)
Jason Ernst, PhD
Raghav Meka, PhD
Ameet S. Talwalkar, PhD
Guy Van den Broeck, PhD

Senior Lecturers S.O.E.

Paul R. Eggert, PhD
Leon Levine, MS, *Emeritus*
David A. Smallberg, MS

Adjunct Professors

Deborah L. Estrin, PhD
David E. Heckerman, PhD
Van Jacobsen, MS
Alan C. Kay, PhD
Rupak Majumdar, PhD
Peter S. Pao, PhD
Peter L. Reiher, PhD

Adjunct Associate Professor

Giovanni Pau, PhD

Adjunct Assistant Professors

Alexander Afanasyev, PhD
Carey S. Nacherberg, MS
Ani Nahapetian, PhD
Ramin Ramezani, PhD
Alessandro Warth, PhD

Scope and Objectives

Computer science is concerned with the design, modeling, analysis, and applications of computer systems. Its study at UCLA provides education at the undergraduate and graduate levels necessary to understand, design, implement, and use the software and hardware of digital computers and digital systems. The programs provide comprehensive and integrated studies of subjects in computer system architecture, computer networks, distributed computer systems, programming languages and software systems, information and data management, artificial intelligence, computer science theory, computational systems biology and bioinformatics, and computer vision and graphics.

The undergraduate and graduate studies and research projects in the Department of Computer Science are supported by significant computing resources. In addition to the departmental computing facility, there are over a dozen research laboratories specializing in areas such as distributed systems, multimedia computer communications, distributed sensor networks, VLSI systems, VLSI CAD, embedded and reconfigurable systems, computer graphics, bioinformatics, and artificial intelligence. Also, the Cognitive Systems Laboratory is engaged in studying computer systems that emulate or support human reasoning. The Bio-

cybernetics Laboratory is devoted to multidisciplinary research involving the application of engineering and computer science methods to problems in biology and medicine.

The BS degree may be attained either through the Computer Science and Engineering major or through the Computer Science major described below.

In addition, HSSEAS offers MS and PhD degrees in Computer Science, as well as minor fields for graduate students seeking engineering degrees. In cooperation with the John E. Anderson Graduate School of Management, the Computer Science Department offers a concurrent degree program that enables students to obtain the MS in Computer Science and the MBA (Master of Business Administration).

Undergraduate Study

The computer science and engineering program is accredited by the Computing Accreditation Commission and the Engineering Accreditation Commission of ABET. See <http://www.abet.org>.

The computer science program is accredited by the Computing Accreditation Commission of ABET. See <http://www.abet.org>.

The Computer Science and Engineering and Computer Science majors are designated capstone majors. Computer Science and Engineering students complete a major product design course, while Computer Science students complete either a software engineering or a major product design course. Graduates are expected to apply the basic mathematical and scientific concepts that underlie modern computer science and engineering; design a software or digital hardware system, component, or process to meet desired needs within realistic constraints; function productively with others as part of a team; identify, formulate, and solve computer software- and hardware-related engineering problems; and demonstrate effective communication skills.

Computer Science and Engineering BS

Capstone Major

The computer science and engineering curriculum at UCLA provides the education and training necessary to design, implement, test, and utilize the hardware and software of digital computers and digital systems. The curriculum has components spanning both the Computer Science and Electrical Engineering Departments. Within the curriculum students study all aspects of computer systems from electronic design through logic design, MSI, LSI, and VLSI concepts and device utilization, machine language design, implementation and programming, operating system concepts, systems programming, networking fundamentals, higher-level language skills, and application of these to systems. Students are prepared for employment in a wide spectrum of high-technology industries.

Preparation for the Major

Required: Computer Science 1, 31, 32, 33, 35L, M51A; Electrical Engineering 3, 10, 11L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61; Physics 1A, 1B, 1C, 4AL, 4BL.

The Major

Required: Computer Science 111, 118, 131, M151B, M152A, 180, 181, Electrical Engineering 102, 110, 111L; one course from Civil and Environmental Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A; one capstone design course (Computer Science 152B); 4 units of elective courses selected from Electrical Engineering 113, 115A, 115C, 132A, 141; 12 units of elective courses selected from Computer Science 111 through CM187 or Electrical Engineering 133A, at least one of which must be Computer Science CM121, CM122, CM124, 143, 161, or 174A; and 12 units of technical breadth courses selected from an approved list available in the Office of Academic and Student Affairs.

Students who want to deepen their knowledge of electrical engineering are encouraged to select that discipline as their technical breadth area.

Credit is not allowed for both Computer Science 170A and Electrical Engineering 133A unless at least one of them is applied as part of the technical breadth area. Four units of either Computer Science 194 or 199 may be applied as an elective by petition.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Computer Science BS

Capstone Major

The computer science curriculum is designed to accommodate students who want professional preparation in computer science but do not necessarily have a strong interest in computer systems hardware. The curriculum consists of components in computer science, a minor or technical support area, and a core of courses from the social sciences, life sciences, and humanities. Within the curriculum, students study subject matter in software engineering, principles of programming languages, data structures, computer architecture, theory of computation and formal languages, operating systems, distributed systems, computer modeling, computer networks, compiler construction, and artificial intelligence. Majors are prepared for employment in a wide range of industrial and business environments.

Preparation for the Major

Required: Computer Science 1, 31, 32, 33, 35L, M51A; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61; Physics 1A, 1B, 1C, 4AL, 4BL.

The Major

Required: Computer Science 111, 118, 131, M151B, M152A, 180, 181; one course from Civil and Environmental Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A; one capstone software engineering or design course from Computer Sci-

ence 130 or 152B; 20 units of elective courses selected from Computer Science 111 through CM187 or Electrical Engineering 133A, at least one of which must be Computer Science 112 or 170A or Electrical Engineering 133A, and at least two of which must be selected from Computer Science CM121, CM122, CM124, 143, 161, or 174A, with at least one of the two courses from 143, 161, or 174A; 12 units of science and technology courses (not used to satisfy other requirements) that may include 12 units of upper division computer science courses or 12 units of courses selected from an approved list available in the Office of Academic and Student Affairs; and 12 units of technical breadth courses selected from an approved list available in the Office of Academic and Student Affairs.

Students must take at least one course from Computer Science 130 or 132. Computer Science 130 or 152B may be applied as an elective only if it is not taken as the capstone course. Credit is not allowed for both Computer Science 170A and Electrical Engineering 133A unless at least one of them is applied as part of the science and technology requirement or as part of the technical breadth area. Four units of either Computer Science 194 or 199 may be applied as an elective by petition.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Bioinformatics Minor

The Bioinformatics minor introduces undergraduate students to the emerging interdisciplinary field of bioinformatics, an active area of research at UCLA combining elements of the computational sciences with the biological sciences. The minor organizes the many course offerings in different UCLA departments into a coherent course plan providing students with significant training in bioinformatics in addition to the training they obtain from their major. Students who complete the minor will be strong candidates for admission to PhD programs in bioinformatics as well as have the relevant training to obtain jobs in the biotechnology industry.

Students complete a core curriculum and an elective course and are strongly encouraged to participate in undergraduate research as early as possible in one of the many groups offering research opportunities in bioinformatics.

To enter the minor, students must be (1) in good academic standing (2.0 grade point average or better), (2) have completed at least two of the lower division requirements with minimum grades of C, and (3) file a petition in the Office of Academic and Student Affairs of the Henry Samueli School of Engineering and Applied Science, 6426 Boelter Hall.

Required Lower Division Courses (14 units minimum): Computer Science 32 or Program in Computing 10C, Life Sciences 3, 23L, Mathematics 33A.

Required Upper Division Courses (18 units minimum): Computer Science 180 (or Mathematics 182), M184, and three courses selected

from Civil and Environmental Engineering 110, Computer Science CM121, CM122, CM124, 170A, CM186, CM187, Ecology and Evolutionary Biology 135, Electrical Engineering 102, 131A, 141, Human Genetics C144, Mathematics 170A, Molecular, Cell, and Developmental Biology 144, 172, Physiological Science 125, Statistics 100A, 100B. At least two of the courses must be selected from Computer Science CM121, CM122, and CM124. Eight units of either Bioinformatics 199 or Computer Science 194 or 199 may be applied as an elective by petition.

Students are strongly encouraged to take Computer Science M184 as early as possible to obtain an overview of computational biology.

If students apply any of Civil and Environmental Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A toward major requirements or another minor, then no other course from that set may be applied toward the minor requirements.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

All minor courses must be taken for a letter grade (unless not offered on that grading basis), and students must have a minimum grade of C- in each and an overall C (2.0) grade-point average in all courses taken for the minor. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Computer Science offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Computer Science. A concurrent degree program (Computer Science MS/Management MBA) is also offered.

Bioinformatics

Upper Division Course

199. Directed Research in Bioinformatics. (2 to 4) Tutorial, six to 12 hours. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. Letter grading.

Computer Science

Lower Division Courses

1. Freshman Computer Science Seminar. (1) Seminar, one hour; discussion, one hour. Introduction to department resources and principal topics and key

ideas in computer science and computer engineering. Assignments given to bolster independent study and writing skills. Letter grading.

2. Great Ideas in Computer Science. (4) Lecture, four hours; outside study, eight hours. Broad coverage for liberal arts and social sciences students of computer science theory, technology, and implications, including artificial and neural machine intelligence, computability limits, virtual reality, cellular automata, artificial life, programming languages survey, and philosophical and societal implications. P/NP or letter grading.

31. Introduction to Computer Science I. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Introduction to computer science via theory, applications, and programming. Basic data types, operators and control structures. Input/output. Procedural and data abstraction. Introduction to object-oriented software development. Functions, recursion. Arrays, strings, pointers. Abstract data types, object-oriented programming. Examples and exercises from computer science theory and applications. Letter grading.

32. Introduction to Computer Science II. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 31. Object-oriented software development. Abstract data type definition and use. Overloading, inheritance, polymorphism. Object-oriented view of data structures: stacks, queues, lists. Algorithm analysis. Trees, graphs, and associated algorithms. Searching and sorting. Case studies and exercises from computer science applications. Letter grading.

33. Introduction to Computer Organization. (5) Lecture, four hours; discussion, two hours; outside study, nine hours. Enforced requisite: course 32. Introductory course on computer architecture, assembly language, and operating systems fundamentals. Number systems, machine language, and assembly language. Procedure calls, stacks, interrupts, and traps. Assemblers, linkers, and loaders. Operating systems concepts: processes and process management, input/output (I/O) programming, memory management, file systems. Letter grading.

35L. Software Construction Laboratory. (2) Laboratory, four hours; outside study, two hours. Enforced requisite: course 31. Fundamentals of commonly used software tools and environments, particularly open-source tools to be used in upper division computer science courses. Letter grading.

M51A. Logic Design of Digital Systems. (4) (Same as Electrical Engineering M16.) Lecture, four hours; discussion, two hours; outside study, six hours. Introduction to digital systems. Specification and implementation of combinational and sequential systems. Standard logic modules and programmable logic arrays. Specification and implementation of algorithmic systems: data and control sections. Number systems and arithmetic algorithms. Error control codes for digital information. Letter grading.

97. Variable Topics in Computer Science. (1 to 4) Lecture, one to four hours; discussion, zero to two hours. Designed for freshmen/sophomores. Variable topics in computer science not covered in regular computer science courses. May be repeated once for credit with topic or instructor change. Letter grading.

Upper Division Courses

111. Operating Systems Principles. (5) Lecture, four hours; laboratory, two hours; outside study, nine hours. Enforced requisites: courses 32, 33, 35L. Introduction to operating systems design and evaluation. Computer software systems performance, robustness, and functionality. Kernel structure, bootstrapping, input/output (I/O) devices and interrupts. Processes and threads; address spaces, memory management, and virtual memory. Scheduling, synchronization. File systems: layout, performance, robustness. Distributed systems: networking, remote procedure call (RPC), asynchronous RPC, distributed file systems, transactions. Protection and security. Exercises involving applications using, and internals of, real-world operating systems. Letter grading.

112. Modeling Uncertainty in Information Systems. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: course 111 and one course from Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Designed for juniors/seniors. Probability and stochastic process models as applied in computer science. Basic methodological tools include random variables, conditional probability, expectation and higher moments, Bayes theorem, Markov chains. Applications include probabilistic algorithms, evidential reasoning, analysis of algorithms and data structures, reliability, communication protocol and queueing models. Letter grading.

114. Peer-to-Peer Systems. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 118. Optional: course 218. Fundamental concepts on peer-to-peer networks, such as distributed hash-tables, routing, searching, and related network management protocols (Join, Leave, death management, routing, table repair). Video streaming and Internet Protocol Television (IPTV) applications, with emphasis on thin clients such as PDAs and smart phones. Introduction to mesh-based and tree-based topologies for live streaming, with emphasis on key aspects of peer selection metrics and illustration of common optimization techniques (peer capacity, network delay). Hands-on approach to guide students to development and testing of actual experimental system on PlanetLab. Letter grading.

M117. Computer Networks: Physical Layer. (4) (Same as Electrical Engineering M117.) Lecture, two hours; discussion, two hours; laboratory, two hours; outside study, six hours. Not open to students with credit for course M171L. Introduction to fundamental computer communication concepts underlying and supporting modern networks, with focus on wireless communications and media access layers of network protocol stack. Systems include wireless LANs (IEEE802.11) and ad hoc wireless and personal area networks (e.g., Bluetooth, ZigBee). Experimental project based on mobile radio-equipped devices (smart phones, tablets, etc.) as sensor platforms for personal applications such as wireless health, positioning, and environment awareness, and experimental laboratory sessions included. Letter grading.

118. Computer Network Fundamentals. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 111. Designed for juniors/seniors. Introduction to design and performance evaluation of computer networks, including such topics as what protocols are, layered network architecture, Internet protocol architecture, network applications, transport protocols, routing algorithms and protocols, internetworking, congestion control, and link layer protocols including Ethernet and wireless channels. Letter grading.

CM121. Introduction to Bioinformatics. (4) (Same as Chemistry CM160A.) Lecture, four hours; discussion, two hours. Enforced requisites: course 32 or Program in Computing 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Prior knowledge of biology not required. Designed for engineering students as well as students from biological sciences and medical school. Introduction to bioinformatics and methodologies, with emphasis on concepts and inventing new computational and statistical techniques to analyze biological data. Focus on sequence analysis and alignment algorithms. Concurrently scheduled with course CM221. P/NP or letter grading.

CM122. Algorithms in Bioinformatics and Systems Biology. (4) (Same as Chemistry CM160B.) Lecture, four hours; discussion, two hours. Enforced requisites: course 32 or Program in Computing 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Course CM121 is not requisite to CM122. Designed for engineering students as well as students from biological sciences and medical school. Devel-

opment and application of computational approaches to biological questions, with focus on formulating interdisciplinary problems as computational problems and then solving these problems using algorithmic techniques. Computational techniques include those from statistics and computer science. Concurrently scheduled with course CM222. Letter grading.

CM124. Computational Genetics. (4) (Same as Human Genetics CM124.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: course 32 or Program in Computing 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Designed for engineering students as well as students from biological sciences and medical school. Introduction to computational analysis of genetic variation and computational interdisciplinary research in genetics. Topics include introduction to genetics, identification of genes involved in disease, inferring human population history, technologies for obtaining genetic information, and genetic sequencing. Focus on formulating interdisciplinary problems as computational problems and then solving those problems using computational techniques from statistics and computer science. Concurrently scheduled with course CM224. Letter grading.

130. Software Engineering. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Enforced requisite: course 111. Recommended: Engineering 183EW or 185EW. Structured programming, program specification, program proving, modularity, abstract data types, composite design, software tools, software control systems, program testing, team programming. Letter grading.

131. Programming Languages. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Enforced requisites: courses 33, 35L. Basic concepts in design and use of programming languages, including abstraction, modularity, control mechanisms, types, declarations, syntax, and semantics. Study of several different language paradigms, including functional, object-oriented, and logic programming. Letter grading.

132. Compiler Construction. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 131, 181. Compiler structure; lexical and syntactic analysis; semantic analysis and code generation; theory of parsing. Letter grading.

133. Parallel and Distributed Computing. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 111 (may be taken concurrently), 131. Distributed memory and shared memory parallel architectures; asynchronous parallel languages: MPI, Maisie; primitives for parallel computation: specification of parallelism, interprocess communication and synchronization; design of parallel programs for scientific computation and distributed systems. Letter grading.

136. Introduction to Computer Security. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 118. Introduction to basic concepts of information security necessary for students to understand risks and mitigations associated with protection of systems and data. Topics include security models and architectures, security threats and risk analysis, access control and authentication/authorization, cryptography, network security, secure application design, and ethics and law. Letter grading.

C137A. Prototyping Programming Languages. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 131. How different programming language paradigms provide dramatically different ways of thinking about computation and offer trade-offs on many dimensions, such as modularity, extensibility, expressiveness, and safety. Concrete exploration of three major programming paradigms—functional, object-oriented, and logic programming—by prototyping implementations of languages in each. Analysis of prototypes to shed light on design and structural properties of each lan-

guage and paradigm and to allow easy comparison against one another. Hands-on experience implementing new abstractions, both as stand-alone languages and as libraries in existing languages. Concurrently scheduled with course C237A. Letter grading.

C137B. Programming Language Design. (4) Seminar, four hours; outside study, eight hours. Enforced requisite: course C137A. Study of various programming language designs, from computing history and research literature, that attempt to address problems of software systems that are bloated, buggy, and difficult to maintain and extend despite trend in computing toward ever higher levels of abstraction for programming. Hands-on experience designing, prototyping, and evaluating new languages, language abstractions, and/or programming environments. Concurrently scheduled with course C237B. Letter grading.

143. Database Systems. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Enforced requisite: course 111. Information systems and database systems in enterprises. File organization and secondary storage structures. Relational model and relational database systems. Network, hierarchical, and other models. Query languages. Database design principles. Transactions, concurrency, and recovery. Integrity and authorization. Letter grading.

144. Web Applications. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 143. Important concepts and theory for building effective and safe Web applications and first-hand experience with basic tools. Topics include basic Web architecture and protocol, XML and XML query language, mapping between XML and relational models, information retrieval model and theory, security and user model, Web services and distributed transactions. Letter grading.

145. Introduction to Data Mining. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 180. Introductory survey of data mining (process of automatic discovery of patterns, changes, associations, and anomalies in massive databases), knowledge engineering, and wide spectrum of data mining application areas such as bioinformatics, e-commerce, environmental studies, financial markets, multimedia data processing, network monitoring, and social service analysis. Letter grading.

M151B. Computer Systems Architecture. (4) (Same as Electrical Engineering M116C.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 33, and M51A or Electrical Engineering M16. Recommended: courses 111, and M152A or Electrical Engineering M116L. Computer system organization and design, implementation of CPU datapath and control, instruction set design, memory hierarchy (caches, main memory, virtual memory) organization and management, input/output subsystems (bus structures, interrupts, DMA), performance evaluation, pipelined processors. Letter grading.

151C. Design of Digital Systems. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses M151B, M152A. Design of complex digital systems using hierarchical approaches and regular structures. Combinational, sequential, and algorithmic systems. Microprogramming and firmware engineering. Cost/performance measures and technology constraints. Use of design tools. Design project. Letter grading.

M152A. Introductory Digital Design Laboratory. (2) (Same as Electrical Engineering M116L.) Laboratory, four hours; outside study, two hours. Enforced requisite: course M51A or Electrical Engineering M16. Hands-on design, implementation, and debugging of digital logic circuits, use of computer-aided design tools for schematic capture and simulation, implementation of complex circuits using programmed array logic, design projects. Letter grading.

152B. Digital Design Project Laboratory. (4) Laboratory, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course M151B or

Electrical Engineering M116C. Recommended: Engineering 183EW or 185EW. Limited to seniors. Design and implementation of complex digital subsystems using field-programmable gate arrays (e.g., processors, special-purpose processors, device controllers, and input/output interfaces). Students work in teams to develop and implement designs and to document and give oral presentations of their work. Letter grading.

161. Fundamentals of Artificial Intelligence. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Enforced requisite: course 180. Introduction to fundamental problem solving and knowledge representation paradigms of artificial intelligence. Introduction to Lisp with regular programming assignments. State-space and problem reduction methods, brute-force and heuristic search, planning techniques, two-player games. Knowledge structures including predicate logic, production systems, semantic nets and primitives, frames, scripts. Special topics in natural language processing, expert systems, vision, and parallel architectures. Letter grading.

170A. Mathematical Modeling and Methods for Computer Science. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Enforced requisites: course 180, Mathematics 33B. Introduction to methods for modeling and simulation using interactive computing environments. Extensive coverage of methods for numeric and symbolic computation, matrix algebra, statistics, floating point, optimization, and spectral analysis. Emphasis on applications in simulation of physical systems. Letter grading.

M171L. Data Communication Systems Laboratory. (2 to 4) (Same as Electrical Engineering M171L.) Laboratory, four to eight hours; outside study, two to four hours. Recommended preparation: course M152A. Limited to seniors. Not open to students with credit for course M117. Interpretation of analog-signaling aspects of digital systems and data communications through experience in using contemporary test instruments to generate and display signals in relevant laboratory setups. Use of oscilloscopes, pulse and function generators, baseband spectrum analyzers, desktop computers, terminals, modems, PCs, and workstations in experiments on pulse transmission impairments, waveforms and their spectra, modem and terminal characteristics, and interfaces. Letter grading.

172. Real-Time Three-Dimensional Animation. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 32. Introduction to handling of geometry, appearance, and motion specifically for real-time virtual environments, both on theoretical and practical levels. Completion of one quality real-time three-dimensional animation by following through from preproduction to postproduction. End products expected to be game demonstrations, storytelling games, or machinima (use of real-time graphics engines to create cinematic productions). Focus on achieving highest quality productions to qualify and submit products to Student Academy Awards competition. Use of Unity Game Engine to make technical decisions to adapt stories to games. Introduction to interaction concepts, enabling students to create low-fidelity real-time three-dimensional animation and to concepts in artificial intelligence, enabling them to refine their interactions to create high-fidelity real-time three-dimensional animation. Letter grading.

174A. Introduction to Computer Graphics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 32. Basic principles behind modern two- and three-dimensional computer graphics systems, including complete set of steps that modern graphics pipelines use to create realistic images in real time. How to position and manipulate objects in scene using geometric and camera transformations. How to create final image using perspective and orthographic transformations. Basics of modeling primitives such as polygonal models and

implicit and parametric surfaces. Basic ideas behind color spaces, illumination models, shading, and texture mapping. Letter grading.

174B. Introduction to Computer Graphics: Three-Dimensional Photography and Rendering. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 174A. State of art in three-dimensional photography and image-based rendering. How to use cameras and light to capture shape and appearance of real objects and scenes. Process provides simple way to acquire three-dimensional models of unparalleled detail and realism. Applications of techniques from entertainment (reverse engineering and postprocessing of movies, generation of realistic synthetic objects and characters) to medicine (modeling of biological structures from imaging data), mixed reality (augmentation of video), and security (visual surveillance). Fundamental analytical tools for modeling and inferring geometric (shape) and photometric (reflectance, illumination) properties of objects and scenes, and for rendering and manipulating novel views. Letter grading.

C174C. Computer Animation. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 174A. Designed for juniors/seniors. Introduction to computer animation, including basic principles of character modeling, forward and inverse kinematics, forward and inverse dynamics, motion capture animation techniques, physics-based animation of particles and systems, and motor control. Concurrently scheduled with course C274C. Letter grading.

180. Introduction to Algorithms and Complexity. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: course 32, Mathematics 61. Designed for junior/senior Computer Science majors. Introduction to design and analysis of algorithms. Design techniques: divide-and-conquer, greedy method, dynamic programming; selection of prototypical algorithms; choice of data structures and representations; complexity measures: time, space, upper, lower bounds, asymptotic complexity; NP-completeness. Letter grading.

181. Introduction to Formal Languages and Automata Theory. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 180. Designed for junior/senior Computer Science majors. Grammars, automata, and languages. Finite-state languages and finite-state automata. Context-free languages and pushdown store automata. Unrestricted rewriting systems, recursively enumerable and recursive languages, and Turing machines. Closure properties, pumping lemmas, and decision algorithms. Introduction to computability. Letter grading.

183. Introduction to Cryptography. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Preparation: knowledge of basic probability theory. Enforced requisite: course 180. Introduction to cryptography, computer security, and basic concepts and techniques. Topics include notions of hardness, one-way functions, hard-core bits, pseudorandom generators, pseudorandom functions and pseudorandom permutations, semantic security, public-key and private-key encryption, key-agreement, homomorphic encryption, private information retrieval and voting protocols, message authentication, digital signatures, interactive proofs, zero-knowledge proofs, collision-resistant hash functions, commitment protocols, and two-party secure computation with static security. Letter grading.

M184. Introduction to Computational and Systems Biology. (2) (Same as Bioengineering M184 and Computational and Systems Biology M184.) Lecture, two hours; outside study, four hours. Enforced requisites: one course from 31, Civil Engineering M20, Mechanical and Aerospace Engineering M20, or Program in Computing 10A, and Mathematics 3B or 31B. Survey course designed to introduce students to computational and systems modeling and computation in biology and medicine, providing motivation, flavor, culture, and cutting-edge contributions in computational biosciences and aiming for more informed basis for focused studies by students with computa-

tional and systems biology interests. Presentations by individual UCLA researchers discussing their active computational and systems biology research. P/NP grading.

M185. Research Opportunities in Computational and Systems Biology. (4) (Same as Computational and Systems Biology M185.) Lecture, two hours; discussion, two hours. Requisites: course M184, Mathematics 32B, 33A, 33B, Life Sciences 4. Introduction to interdisciplinary laboratory research methods and research opportunities in computational and systems biology to prepare and initiate students for active engagement in research. Presentation of potential projects by faculty members and student visits to individual laboratories and participation in ongoing projects. P/NP or letter grading.

CM186. Computational Systems Biology: Modeling and Simulation of Biological Systems. (5) (Same as Bioengineering CM186 and Computational and Systems Biology M186.) Lecture, four hours; laboratory, three hours; outside study, eight hours. Corequisite: Electrical Engineering 102. Dynamic biosystems modeling and computer simulation methods for studying biological/biomedical processes and systems at multiple levels of organization. Control system, multicompartmental, predator-prey, pharmacokinetic (PK), pharmacodynamic (PD), and other structural modeling methods applied to life sciences problems at molecular, cellular (biochemical pathways/networks), organ, and organismic levels. Both theory- and data-driven modeling, with focus on translating biomodeling goals and data into mathematics models and implementing them for simulation and analysis. Basics of numerical simulation algorithms, with modeling software exercises in class and PC laboratory assignments. Concurrently scheduled with course CM286. Letter grading.

CM187. Research Communication in Computational and Systems Biology. (2 to 4) (Same as Bioengineering CM187 and Computational and Systems Biology M187.) Lecture, four hours; outside study, eight hours. Requisite: course CM186. Closely directed, interactive, and real research experience in active quantitative systems biology research laboratory. Direction on how to focus on topics of current interest in scientific community, appropriate to student interests and capabilities. Critiques of oral presentations and written progress reports explain how to proceed with search for research results. Major emphasis on effective research reporting, both oral and written. Concurrently scheduled with course CM287. Letter grading.

188. Special Courses in Computer Science. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Special topics in computer science for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated for credit with topic or instructor change. Letter grading.

194. Research Group Seminars: Computer Science. (4) Seminar, four hours; outside study, eight hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. Letter grading.

199. Directed Research in Computer Science. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

Graduate Courses

201. Computer Science Seminar. (2) Seminar, four hours; outside study, two hours. Designed for graduate computer science students. Seminars on current research topics in computer science. May be repeated for credit. S/U grading.

202. Advanced Computer Science Seminar. (4) Seminar, four hours; outside study, eight hours. Preparation: completion of major field examination in computer science. Current computer science research into theory of, analysis and synthesis of, and applications of information processing systems. Each member completes one tutorial and one or more original pieces of work in one specialized area. May be repeated for credit. Letter grading.

205. Health Analytics. (4) Lecture, four hours; outside study, eight hours. Enforced requisites: courses 31, 180. Recommended: statistics and probability, numerical methods, knowledge in programming languages. Applied data analytics course, with focus on healthcare applications. How to properly generate and analyze health data. Project-based course to learn about best practices in health data collection and validation. Exploration of various machine learning and data analytic tools to learn underlying structure of datasets to solve healthcare problems. Different machine learning concepts and algorithms, statistical models, and building of data-driven models. Big data analytics and tools for handling structured, unstructured, and semistructured datasets. Letter grading.

211. Network Protocol and Systems Software Design for Wireless and Mobile Internet. (4) Lecture, four hours; outside study, eight hours. Requisite: course 118. Designed for graduate students. In-depth study of network protocol and systems software design in area of wireless and mobile Internet. Topics include (1) networking fundamentals: design philosophy of TCP/IP, end-to-end arguments, and protocol design principles, (2) networking protocols: 802.11 MAC standard, packet scheduling, mobile IP, ad hoc routing, and wireless TCP, (3) mobile computing systems software: middleware, file system, services, and applications, and (4) topical studies: energy-efficient design, security, location management, and quality of service. Letter grading.

212A. Queueing Systems Theory. (4) Lecture, four hours; outside study, eight hours. Requisites: course 112, Electrical Engineering 131A. Resource sharing issues and theory of queueing (waiting-line) systems. Review of Markov chains and basic queueing theory. Method of stages. $M/E_r/1$. $E_r/M/1$. Bulk arrival and bulk service systems. Series-parallel stages. Fundamentals of open and closed queueing networks. Intermediate queueing theory: $M/G/1$; $G/M/m$. Collective marks. Advanced queueing theory: $G/G/1$; Lindley integral equation; spectral solution. Inequalities, bounds, approximations. Letter grading.

M213A. Embedded Systems. (4) (Same as Electrical Engineering M202A.) Lecture, four hours; outside study, eight hours. Requisite: course 111. Designed for graduate computer science and electrical engineering students. Methodologies and technologies for design of embedded systems. Topics include hardware and software platforms for embedded systems, techniques for modeling and specification of system behavior, software organization, real-time operating system scheduling, real-time communication and packet scheduling, low-power battery and energy-aware system design, timing synchronization, fault tolerance and debugging, and techniques for hardware and software architecture optimization. Theoretical foundations as well as practical design methods. Letter grading.

M213B. Energy-Aware Computing and Cyber-Physical Systems. (4) (Same as Electrical Engineering M202B.) Lecture, four hours; outside study, eight hours. Requisite: course M51A or Electrical Engineering M16. Recommended: courses 111, and M151B or Electrical Engineering M116C. System-level management and cross-layer methods for power and energy consumption in computing and communication at various scales ranging across embedded, mobile, personal, enterprise, and data-center scale. Computing, networking, sensing, and control technologies and algorithms for improving energy sustainability in human-cyber-physical systems. Topics include modeling of energy consumption, energy sources, and energy storage; dynamic power management; power-performance scaling and energy

proportionality; duty-cycling; power-aware scheduling; low-power protocols; battery modeling and management; thermal management; sensing of power consumption. Letter grading.

217A. Internet Architecture and Protocols. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 118. Focus on mastering existing core set of Internet protocols, including IP, core transport protocols, routing protocols, DNS, NTP, and security protocols such as DNSSEC, to understand principles behind design of these protocols, appreciate their design tradeoffs, and learn lessons from their operations. Letter grading.

217B. Advanced Topics in Internet Research. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 217A. Designed for graduate students. Overview of Internet development history and fundamental principles underlying TCP/IP protocol design. Discussion of current Internet research topics, including latest research results in routing protocols, transport protocols, network measurements, network security protocols, and clean-slate approach to network architecture design. Fundamental issues in network protocol design and implementations. Letter grading.

218. Advanced Computer Networks. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 112, 118. Review of seven-layer ISO-OSI model. High-speed networks: LANs, MANs, ATM. Flow and congestion control; bandwidth allocation. Internetworking. Letter grading.

219. Current Topics in Computer System Modeling Analysis. (4) Lecture, eight hours; outside study, four hours. Review of current literature in area of computer system modeling analysis in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. May be repeated for credit with consent of instructor. Letter grading.

CM221. Introduction to Bioinformatics. (4) (Same as Bioinformatics M260A, Chemistry CM260A, and Human Genetics M260A.) Lecture, four hours; discussion, two hours. Enforced requisites: course 32 or Program in Computing 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Prior knowledge of biology not required. Designed for engineering students as well as students from biological sciences and medical school. Introduction to bioinformatics and methodologies, with emphasis on concepts and inventing new computational and statistical techniques to analyze biological data. Focus on sequence analysis and alignment algorithms. Concurrently scheduled with course CM121. S/U or letter grading.

CM222. Algorithms in Bioinformatics and Systems Biology. (4) (Same as Bioinformatics M260B and Chemistry CM260B.) Lecture, four hours; discussion, two hours. Enforced requisites: course 32 or Program in Computing 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Course CM221 is not requisite to CM222. Designed for engineering students as well as students from biological sciences and medical school. Development and application of computational approaches to biological questions, with focus on formulating interdisciplinary problems as computational problems and then solving these problems using algorithmic techniques. Computational techniques include those from statistics and computer science. Concurrently scheduled with course CM122. Letter grading.

CM224. Computational Genetics. (4) (Same as Bioinformatics M224 and Human Genetics CM224.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: course 32 or Program in Computing 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Designed for engineering students as well as students from biological sciences and medical school. Introduction to computa-

tional analysis of genetic variation and computational interdisciplinary research in genetics. Topics include introduction to genetics, identification of genes involved in disease, inferring human population history, technologies for obtaining genetic information, and genetic sequencing. Focus on formulating interdisciplinary problems as computational problems and then solving those problems using computational techniques from statistics and computer science. Concurrently scheduled with course CM124. Letter grading.

M225. Computational Methods in Genomics. (4) (Same as Bioinformatics M265 and Human Genetics M265.) Lecture, two and one half hours; discussion, two and one half hours; outside study, seven hours. Limited to bioinformatics, computer science, human genetics, and molecular biology graduate students. Introduction to computational approaches in bioinformatics, genomics, and computational genetics and preparation for computational interdisciplinary research in genetics and genomics. Topics include genome analysis, regulatory genomics, association analysis, association study design, isolated and admixed populations, population substructure, human structural variation, model organisms, and genomic technologies. Computational techniques and methods include those from statistics and computer science. Letter grading.

M229S. Seminar: Current Topics in Bioinformatics. (4) (Same as Biological Chemistry M229S and Human Genetics M229S.) Seminar, four hours; outside study, eight hours. Designed for graduate engineering students, as well as students from biological sciences and medical school. Introduction to current topics in bioinformatics, genomics, and computational genetics and preparation for computational interdisciplinary research in genetics and genomics. Topics include genome analysis, regulatory genomics, association analysis, association study design, isolated and admixed populations, population substructure, human structural variation, model organisms, and genomic technologies. Computational techniques include those from statistics and computer science. May be repeated for credit with topic change. Letter grading.

230. Software Engineering. (4) Lecture, four hours; discussion, two hours. Recommended preparation for undergraduate students: prior software engineering course. Required preparation for graduate students: undergraduate-level knowledge of data structures and object-oriented program languages. As software systems become increasingly large and complex, automated software engineering analysis and development tools play important role in various software engineering tasks, such as design, construction, evolution, and testing and debugging of software systems. Introduction to foundations, techniques, tools, and applications of automated software engineering technology. Development, extension, and evaluation of mini automated software engineering analysis tool and assessment of how tool fits into software development process. Introduction to current research topics in automated software engineering. S/U or letter grading.

231. Types and Programming Languages. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131. Introduction to static type systems and their usage in programming language design and software reliability. Operational semantics, simply-typed lambda calculus, type soundness proofs, types for mutable references, types for exceptions. Parametric polymorphism, let-bound polymorphism, polymorphic type inference. Types for objects, subtyping, combining parametric polymorphism and subtyping. Types for modules, parameterized modules. Formal specification and implementation of variety of type systems, as well as readings from recent research literature on modern applications of type systems. Letter grading.

232. Static Program Analysis. (4) Lecture, four hours; outside study, eight hours. Requisite: course 132. Introduction to static analysis of object-oriented programs and its usage for optimization and bug finding. Class hierarchy analysis, rapid type analysis, equality-

based analysis, subset-based analysis, flow-insensitive and flow-sensitive analysis, context-insensitive and context-sensitive analysis. Soundness proofs for static analyses. Efficient data structures for static analysis information such as directed graphs and binary decision diagrams. Flow-directed method inlining, type-safe method inlining, synchronization optimization, deadlock detection, security vulnerability detection. Formal specification and implementation of variety of static analyses, as well as readings from recent research literature on modern applications of static analysis. Letter grading.

233A. Parallel Programming. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 111, 131. Mutual exclusion and resource allocation in distributed systems; primitives for parallel computation: specification of parallelism, interprocess communication and synchronization, atomic actions, binary and multiway rendezvous; synchronous and asynchronous languages: CSP, Ada, Linda, Maisie, UC, and others; introduction to parallel program verification. Letter grading.

233B. Verification of Concurrent Programs. (4) Lecture, four hours; outside study, eight hours. Requisite: course 233A. Formal techniques for verification of concurrent programs. Topics include safety, liveness, program and state assertion-based techniques, weakest precondition semantics, Hoare logic, temporal logic, UNITY, and axiomatic semantics for selected parallel languages. Letter grading.

234. Computer-Aided Verification. (4) Lecture, four hours; outside study, eight hours. Requisite: course 181. Introduction to theory and practice of formal methods for design and analysis of concurrent and embedded systems, with focus on algorithmic techniques for checking logical properties of hardware and software systems. Topics include semantics of reactive systems, invariant verification, temporal logic model checking, theory of omega automata, state-space reduction techniques, compositional and hierarchical reasoning. Letter grading.

235. Advanced Operating Systems. (4) Lecture, four hours. Preparation: C or C++ programming experience. Requisite: course 111. In-depth investigation of operating systems issues through guided construction of research operating system for PC machines and consideration of recent literature. Memory management and protection, interrupts and traps, processes, interprocess communication, preemptive multitasking, file systems. Virtualization, networking, profiling, research operating systems. Series of laboratory projects, including extra challenge work. Letter grading.

236. Computer Security. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 111, 118. Basic and research material on computer security. Topics include basic principles and goals of computer security, common security tools, use of cryptographic protocols for security, security tools (firewalls, virtual private networks, honeypots), virus and worm protection, security assurance and testing, design of secure programs, privacy, applying security principles to realistic problems, and new and emerging threats and security tools. Letter grading.

C237A. Prototyping Programming Languages. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 131. How different programming language paradigms provide dramatically different ways of thinking about computation and offer trade-offs on many dimensions, such as modularity, extensibility, expressiveness, and safety. Concrete exploration of three major programming paradigms—functional, object-oriented, and logic programming—by prototyping implementations of languages in each. Analysis of prototypes to shed light on design and structural properties of each language and paradigm and to allow easy comparison against one another. Hands-on experience implementing new abstractions, both as stand-alone languages and as libraries in existing languages. Concurrently scheduled with course C137A. Letter grading.

C237B. Programming Language Design. (4) Seminar, four hours; outside study, eight hours. Enforced requisite: course C237A. Study of various programming language designs, from computing history and research literature, that attempt to address problems of software systems that are bloated, buggy, and difficult to maintain and extend despite trend in computing toward ever higher levels of abstraction for programming. Hands-on experience designing, prototyping, and evaluating new languages, language abstractions, and/or programming environments. Concurrently scheduled with course C137B. Letter grading.

239. Current Topics in Computer Science: Programming Languages and Systems. (2 to 12) Lecture, four hours; outside study, eight hours. Review of current literature in area of computer science programming languages and systems in which instructor has developed special proficiency as consequence of research interests. May be repeated for credit with topic change. Letter grading.

240A. Databases and Knowledge Bases. (4) Lecture, four hours; outside study, eight hours. Requisite: course 143. Theoretical and technological foundation of Intelligent Database Systems, that merge database technology, knowledge-based systems, and advanced programming environments. Rule-based knowledge representation, spatio-temporal reasoning, and logic-based declarative querying/programming are salient features of this technology. Other topics include object-relational systems and data mining techniques. Letter grading.

240B. Advanced Data and Knowledge Bases. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 143, 240A. Logical models for data and knowledge representations. Rule-based languages and nonmonotonic reasoning. Temporal queries, spatial queries, and uncertainty in deductive databases and object relational databases (ORDBs). Abstract data types and user-defined column functions in ORDBs. Data mining algorithms. Semistructured information. Letter grading.

241B. Pictorial and Multimedia Database Management. (4) Lecture, three and one half hours; discussion, 30 minutes; laboratory, one hour; outside study, seven hours. Requisite: course 143. Multimedia data: alphanumeric, long text, images/pictures, video, and voice. Multimedia information systems requirements. Data models. Searching and accessing databases and across Internet by alphanumeric, image, video, and audio content. Querying, visual languages, and communication. Database design and organization, logical and physical. Indexing methods. Internet multimedia streaming. Other topics at discretion of instructor. Letter grading.

244A. Distributed Database Systems. (4) Lecture, four hours; outside study, eight hours. File allocation, intelligent directory design, transaction management, deadlock, strong and weak concurrency control, commit protocols, semantic query answering, multi-database systems, fault recovery techniques, network partitioning, examples, trade-offs, and design experiences. Letter grading.

246. Web Information Management. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 112, 143, 180, 181. Designed for graduate students. Scale of Web data requires novel algorithms and principles for their management and retrieval. Study of Web characteristics and new management techniques needed to build computer systems suitable for Web environment. Topics include Web measuring techniques, large-scale data mining algorithms, efficient page refresh techniques, Web-search ranking algorithms, and query processing techniques on independent data sources. Letter grading.

249. Current Topics in Data Structures. (2 to 12) Lecture, four hours; outside study, eight hours. Review of current literature in area of data structures in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. May be repeated for credit with consent of instructor. Letter grading.

251A. Advanced Computer Architecture. (4) Lecture, four hours; outside study, eight hours. Requisite: course M151B. Recommended: course 111. Design and implementation of high-performance systems, advanced memory hierarchy techniques, static and dynamic pipelining, superscalar and VLIW processors, branch prediction, speculative execution, software support for instruction-level parallelism, simulation-based performance analysis and evaluation, state-of-art design examples, introduction to parallel architectures. Letter grading.

251B. Parallel Computer Architectures. (4) Lecture, four hours; outside study, eight hours. Requisite: course M151B. Recommended: course 251A. SIMD and MIMD systems, symmetric multiprocessors, distributed-shared-memory systems, messages-passing systems, multicore chips, clusters, interconnection networks, host-network interfaces, switching element design, communication primitives, cache coherency, memory consistency models, synchronization primitives, state-of-art design examples. Letter grading.

252A. Arithmetic Algorithms and Processors. (4) Lecture, four hours; outside study, eight hours. Requisite: course 251A. Number systems: conventional, redundant, signed-digit, and residue. Types of algorithms and implementations. Complexity measures. Fast algorithms and implementations for two-operand addition, multioperand addition, multiplication, division, and square root. Online arithmetic. Evaluation of transcendental functions. Floating-point arithmetic and numerical error control. Arithmetic error codes. Residue arithmetic. Examples of contemporary arithmetic ICs and processors. Letter grading.

256A. Advanced Scalable Architectures. (4) Lecture, four hours; outside study, eight hours. Requisite: course M151B. Recommended: course 251A. State-of-art scalable multiprocessors. Interdependency among implementation technology, chip microarchitecture, and system architecture. High-performance building blocks, such as chip multiprocessors (CMPS). On-chip and off-chip communication. Mechanisms for exploiting parallelism at multiple levels. Current research areas. Examples of chips and systems. Letter grading.

M258A. Design of VLSI Circuits and Systems. (4) (Same as Electrical Engineering M216A.) Lecture, four hours; discussion, two hours; laboratory, four hours; outside study, two hours. Requisites: course M51A or Electrical Engineering M16, and Electrical Engineering 115A. Recommended: Electrical Engineering 115C. LSI/VLSI design and application in computer systems. Fundamental design techniques that can be used to implement complex integrated systems on chips. Letter grading.

M258C. LSI in Computer System Design. (4) (Same as Electrical Engineering M216C.) Lecture, four hours; laboratory, four hours; outside study, four hours. Requisite: course M258A. LSI/VLSI design and application in computer systems. In-depth studies of VLSI architectures and VLSI design tools. Letter grading.

258F. Physical Design Automation of VLSI Systems. (4) Lecture, four hours; outside study, eight hours. Detailed study of various physical design automation problems of VLSI circuits, including logic partitioning, floorplanning, placement, global routing, channel and switchbox routing, planar routing and via minimization, compaction and performance-driven layout. Discussion of applications of number of important optimization techniques, such as network flows, Steiner trees, simulated annealing, and generic algorithms. Letter grading.

258G. Logic Synthesis of Digital Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses M51A, 180. Detailed study of various problems in logic-level synthesis of VLSI digital systems, including two-level Boolean network optimization; multilevel Boolean network optimization; technology mapping for standard cell designs and field-programmable gate-array (FPGA) designs; retiming for sequential circuits; and applications of binary decision diagrams (BDDs). Letter grading.

258H. Analysis and Design of High-Speed VLSI Interconnects. (4) Lecture, four hours; outside study, eight hours. Requisites: courses M258A, 258F. Detailed study of various problems in analysis and design of high-speed VLSI interconnects at both integrated circuit (IC) and packing levels, including interconnect capacitance and resistance, lossless and lossy transmission lines, cross-talk and power distribution noise, delay models and power dissipation models, interconnect topology and geometry optimization, and clocking for high-speed systems. Letter grading.

259. Current Topics in Computer Science: System Design/Architecture. (2 to 12) Lecture, four hours; outside study, eight hours. Review of current literature in area of computer science system design in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. May be repeated for credit with topic change. Letter grading.

260. Machine Learning Algorithms. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisite: course 180. Problems of identifying patterns in data. Machine learning allows computers to learn potentially complex patterns from data and to make decisions based on these patterns. Introduction to fundamentals of this discipline to provide both conceptual grounding and practical experience with several learning algorithms. Techniques and examples used in areas such as healthcare, financial systems, commerce, and social networking. Letter grading.

261A. Problem Solving and Search. (4) Lecture, four hours; outside study, eight hours. Requisite: course 180. In-depth treatment of systematic problem-solving search algorithms in artificial intelligence, including problem spaces, brute-force search, heuristic search, linear-space algorithms, real-time search, heuristic evaluation functions, two-player games, and constraint-satisfaction problems. Letter grading.

262A. Learning and Reasoning with Bayesian Networks. (4) Lecture, four hours; outside study, eight hours. Requisite: course 112 or Electrical Engineering 131A. Review of several formalisms for representing and managing uncertainty in reasoning systems; presentation of comprehensive description of Bayesian inference using belief networks representation. Letter grading.

M262C. Current Topics in Causal Modeling, Inference, and Reasoning. (4) (Same as Statistics M241.) Lecture, four hours; outside study, eight hours. Requisite: one graduate probability or statistics course such as course 262A, Statistics 200B, or 202B. Review of Bayesian networks, causal Bayesian networks, and structural equations. Learning causal structures from data. Identifying causal effects. Covariate selection and instrumental variables in linear and nonparametric models. Simpson paradox and confounding control. Logic and algorithmization of counterfactuals. Probabilities of counterfactuals. Direct and indirect effects. Probabilities of causation. Identifying causes of events. Letter grading.

262Z. Current Topics in Cognitive Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 262A. Additional requisites for each offering announced in advance by department. Theory and implementation of systems that emulate or support human reasoning. Current literature and individual studies in artificial intelligence, knowledge-based systems, decision support systems, computational psychology, and heuristic programming theory. May be repeated for credit with topic change. Letter grading.

263A. Language and Thought. (4) Lecture, four hours; outside study, eight hours. Requisite: course 130 or 131 or 161. Introduction to natural language processing (NLP), with emphasis on semantics. Presentation of process models for variety of tasks, including question answering, paraphrasing, machine translation, word-sense disambiguation, narrative and edito-

rial comprehension. Examination of both symbolic and statistical approaches to language processing and acquisition. Letter grading.

263C. Animats-Based Modeling. (4) Lecture, four hours; outside study, eight hours. Requisite: course 130 or 131 or 161. Animats are mobile/sensing animal-like software agents embedded in simulated dynamic environments. Emphasis on modeling: goal-oriented behavior via neurocontrollers, adaptation via reinforcement learning, evolutionary programming. Animat-based tasks include foraging, mate finding, predation, navigation, predator avoidance, cooperative nest construction, communication, and parenting. Letter grading.

264A. Automated Reasoning: Theory and Applications. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Requisite: course 161. Introduction to theory and practice of automated reasoning using propositional and first-order logic. Topics include syntax and semantics of formal logic; algorithms for logical reasoning, including satisfiability and entailment; syntactic and semantic restrictions on knowledge bases; effect of these restrictions on expressiveness, compactness, and computational tractability; applications of automated reasoning to diagnosis, planning, design, formal verification, and reliability analysis. Letter grading.

265A. Machine Learning. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 263A, 264A. Introduction to machine learning. Learning by analogy, inductive learning, modeling creativity, learning by experience, role of episodic memory organization in learning. Examination of BACON, AM, Eurusko, HACKER, teachable production systems. Failure-driven learning. Letter grading.

M266A. Statistical Modeling and Learning in Vision and Science. (4) (Same as Statistics M232A.) Lecture, three hours. Preparation: basic statistics, linear algebra (matrix analysis), computer vision. Computer vision and pattern recognition. Study of four types of statistical models for modeling visual patterns: descriptive, causal Markov, generative (hidden Markov), and discriminative. Comparison of principles and algorithms for these models; presentation of unifying picture. Introduction of minimax entropy and EM-type and stochastic algorithms for learning. S/U or letter grading.

M266B. Statistical Computing and Inference in Vision and Image Science. (4) (Same as Statistics M232B.) Lecture, three hours. Preparation: basic statistics, linear algebra (matrix analysis), computer vision. Introduction to broad range of algorithms for statistical inference and learning that could be used in vision, pattern recognition, speech, bioinformatics, data mining. Topics include Markov chain Monte Carlo computing, sequential Monte Carlo methods, belief propagation, partial differential equations. S/U or letter grading.

M268. Machine Perception. (4) (Formerly numbered 268.) (Same as Electrical Engineering M206.) Lecture, four hours; discussion, two hours; outside study, six hours. Designed for graduate students. Computational aspects of processing visual and other sensory information. Unified treatment of early vision in man and machine. Integration of symbolic and iconic representations in process of image segmentation. Computing multimodal sensory information by neural-net architectures. Letter grading.

268S. Seminar: Computational Neuroscience. (2) Seminar, two hours; outside study, four hours. Designed for students undertaking thesis research. Discussion of advanced topics and current research in computational neuroscience. Neural networks and connectionism as paradigm for parallel and concurrent computation in application to problems of perception, vision, multimodal sensory integration, and robotics. May be repeated for credit. S/U grading.

269. Seminar: Current Topics in Artificial Intelligence. (4) Seminar, to be arranged. Review of current literature and research practicum in area of artificial intelligence in which instructor has developed special

proficiency as consequence of research interests. Students report on selected topics. May be repeated for credit with topic change. Letter grading.

C274C. Computer Animation. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 174A. Introduction to computer animation, including basic principles of character modeling, forward and inverse kinematics, forward and inverse dynamics, motion capture animation techniques, physics-based animation of particles and systems, and motor control. Concurrently scheduled with course C174C. Letter grading.

275. Artificial Life for Computer Graphics and Vision. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 174A. Recommended: course 161. Investigation of important role that concepts from artificial life, emerging discipline that spans computational and biological sciences, can play in construction of advanced computer graphics and vision models for virtual reality, animation, interactive games, active vision, visual sensor networks, medical image analysis, etc. Focus on comprehensive models that can realistically emulate variety of living things (plants and animals) from lower animals to humans. Exposure to effective computational modeling of natural phenomena of life and their incorporation into sophisticated, self-animating graphical entities. Specific topics include modeling plants using L-systems, biomechanical simulation and control, behavioral animation, reinforcement and neural-network learning of locomotion, cognitive modeling, artificial animals and humans, human facial animation, and artificial evolution. Letter grading.

M276A. Pattern Recognition and Machine Learning. (4) (Same as Statistics M231.) Lecture, three hours. Designed for graduate students. Fundamental concepts, theories, and algorithms for pattern recognition and machine learning that are used in computer vision, image processing, speech recognition, data mining, statistics, and computational biology. Topics include Bayesian decision theory, parametric and nonparametric learning, clustering, complexity (VC-dimension, MDL, AIC), PCA/ICA/TCA, MDS, SVM, boosting. S/U or letter grading.

280A-280ZZ. Algorithms. (4 each) Lecture, four hours; outside study, eight hours. Requisite: course 180. Additional requisites for each offering announced in advance by department. Selections from design, analysis, optimization, and implementation of algorithms; computational complexity and general theory of algorithms; algorithms for particular application areas. Subtitles of some current sections: Principles of Design and Analysis (280A); Distributed Algorithms (280D); Graphs and Networks (280G). May be repeated for credit with consent of instructor and topic change. Letter grading:

280AP. Approximation Algorithms. (4) Lecture, four hours; outside study, eight hours. Requisite: course 180. Background in discrete mathematics helpful. Theoretically sound techniques for dealing with NP-Hard problems. Inability to solve these problems efficiently means algorithmic techniques are based on approximation—finding solution that is near to best possible in efficient running time. Coverage of approximation techniques for number of different problems, with algorithm design techniques that include primal-dual method, linear program rounding, greedy algorithms, and local search. Letter grading.

281A. Computability and Complexity. (4) Lecture, four hours; outside study, eight hours. Requisite: course 181 or compatible background. Concepts fundamental to study of discrete information systems and theory of computing, with emphasis on regular sets of strings, Turing-recognizable (recursively enumerable) sets, closure properties, machine characterizations, nondeterminisms, decidability, unsolvable problems, “easy” and “hard” problems, PTIME/NP-TIME. Letter grading.

M282A. Cryptography. (4) (Same as Mathematics M209A.) Lecture, four hours; outside study, eight hours. Introduction to theory of cryptography, stressing rigorous definitions and proofs of security. Topics include notions of hardness, one-way func-

tions, hard-core bits, pseudorandom generators, pseudorandom functions and pseudorandom permutations, semantic security, public-key and private-key encryption, secret-sharing, message authentication, digital signatures, interactive proofs, zero-knowledge proofs, collision-resistant hash functions, commitment protocols, key-agreement, contract signing, and two-party secure computation with static security. Letter grading.

M282B. Cryptographic Protocols. (4) (Same as Mathematics M209B.) Lecture, four hours; outside study, eight hours. Requisite: course M282A. Consideration of advanced cryptographic protocol design and analysis. Topics include noninteractive zero-knowledge proofs; zero-knowledge arguments; concurrent and non-black-box zero-knowledge; IP=PSPACE proof, stronger notions of security for public-key encryption, including chosen-ciphertext security; secure multiparty computation; dealing with dynamic adversary; nonmalleability and compositability of secure protocols; software protection; threshold cryptography; identity-based cryptography; private information retrieval; protection against man-in-middle attacks; voting protocols; identification protocols; digital cash schemes; lower bounds on use of cryptographic primitives, software obfuscation. May be repeated for credit with topic change. Letter grading.

M283A-M283B. Topics in Applied Number Theory. (4-4) (Same as Mathematics M208A-M208B.) Lecture, three hours. Basic number theory, including congruences and prime numbers. Cryptography: public-key and discrete log cryptosystems. Attacks on cryptosystems. Primality testing and factorization methods. Elliptic curve methods. Topics from coding theory: Hamming codes, cyclic codes, Gilbert/Varnamov bounds, Shannon theorem. S/U or letter grading.

284A-284ZZ. Topics in Automata and Languages. (4 each) Lecture, four hours; outside study, eight hours. Requisite: course 181. Additional requisites for each offering announced in advance by department. Selections from families of formal languages, grammars, machines, operators; pushdown automata, context-free languages and their generalizations, parsing; multidimensional grammars, developmental systems; machine-based complexity. Subtitles of some current and planned sections: Context-Free Languages (284A), Parsing Algorithms (284P). May be repeated for credit with consent of instructor and topic change. Letter grading.

CM286. Computational Systems Biology: Modeling and Simulation of Biological Systems. (5) (Formerly numbered CM286B.) (Same as Bioengineering CM286.) Lecture, four hours; laboratory, three hours; outside study, eight hours. Corequisite: Electrical Engineering 102. Dynamic biosystems modeling and computer simulation methods for studying biological/biomedical processes and systems at multiple levels of organization. Control system, multicompartmental, predator-prey, pharmacokinetic (PK), pharmacodynamic (PD), and other structural modeling methods applied to life sciences problems at molecular, cellular (biochemical pathways/networks), organ, and organismic levels. Both theory- and data-driven modeling, with focus on translating biomodeling goals and data into mathematics models and implementing them for simulation and analysis. Basics of numerical simulation algorithms, with modeling software exercises in class and PC laboratory assignments. Concurrently scheduled with course CM186. Letter grading.

CM287. Research Communication in Computational and Systems Biology. (2 to 4) (Same as Bioengineering CM287.) Lecture, four hours; outside study, eight hours. Requisite: course CM286. Closely directed, interactive, and real research experience in active quantitative systems biology research laboratory. Direction on how to focus on topics of current interest in scientific community, appropriate to student interests and capabilities. Critiques of oral presentations and written progress reports explain how to proceed with search for research results. Major emphasis

on effective research reporting, both oral and written. Concurrently scheduled with course CM187. Letter grading.

288S. Seminar: Theoretical Computer Science. (2) Seminar, two hours; outside study, six hours. Requisites: courses 280A, 281A. Intended for students undertaking thesis research. Discussion of advanced topics and current research in such areas as algorithms and complexity models for parallel and concurrent computation, and formal language and automata theory. May be repeated for credit. S/U grading.

289A-289ZZ. Current Topics in Computer Theory. (2 to 12 each) Lecture, four hours; outside study, eight hours. Review of current literature in area of computer theory in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. Letter grading:

289CO. Complexity Theory. (4) Lecture, four hours; outside study, eight hours. Diagonalization, polynomial-time hierarchy, PCP theorem, randomness and de-randomization, circuit complexity, attempts and limitations to proving P does not equal NP, average-case complexity, one-way functions, hardness amplification. Problem sets and presentation of previous and original research related to course topics. Letter grading.

289OA. Online Algorithms. (4) Lecture, four hours; outside study, eight hours. Requisite: course 180. Introduction to decision making under uncertainty and competitive analysis. Review of current research in online algorithms for problems arising in many areas, such as data and memory management, searching and navigating in unknown terrains, and server systems. Letter grading.

289RA. Randomized Algorithms. (4) Lecture, four hours; outside study, eight hours. Basic concepts and design techniques for randomized algorithms, such as probability theory, Markov chains, random walks, and probabilistic method. Applications to randomized algorithms in data structures, graph theory, computational geometry, number theory, and parallel and distributed systems. Letter grading.

M296A. Advanced Modeling Methodology for Dynamic Biomedical Systems. (4) (Same as Bioengineering M296A and Medicine M270C.) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering 141 or 142 or Mathematics 115A or Mechanical and Aerospace Engineering 171A. Development of dynamic systems modeling methodology for physiological, biomedical, pharmacological, chemical, and related systems. Control system, multicompartmental, noncompartmental, and input/output models, linear and nonlinear. Emphasis on model applications, limitations, and relevance in biomedical sciences and other limited data environments. Problem solving in PC laboratory. Letter grading.

M296B. Optimal Parameter Estimation and Experiment Design for Biomedical Systems. (4) (Same as Bioengineering M296B, Biomathematics M270, and Medicine M270D.) Lecture, four hours; outside study, eight hours. Requisite: course CM286 or M296A or Biomathematics 220. Estimation methodology and model parameter estimation algorithms for fitting dynamic system models to biomedical data. Model discrimination methods. Theory and algorithms for designing optimal experiments for developing and quantifying models, with special focus on optimal sampling schedule design for kinetic models. Exploration of PC software for model building and optimal experiment design via applications in physiology and pharmacology. Letter grading.

M296C. Advanced Topics and Research in Biomedical Systems Modeling and Computing. (4) (Same as Bioengineering M296C and Medicine M270E.) Lecture, four hours; outside study, eight hours. Requisite: course M296B. Research techniques and experience on special topics involving models, modeling methods, and model/computing in biological and medical sciences. Review and critique of literature. Research problem searching and formulation. Approaches to solutions. Individual MS- and PhD-level project training. Letter grading.

M296D. Introduction to Computational Cardiology. (4) (Same as Bioengineering M296D.) Lecture, four hours; outside study, eight hours. Requisite: course CM186. Introduction to mathematical modeling and computer simulation of cardiac electrophysiological process. Ionic models of action potential (AP). Theory of AP propagation in one-dimensional and two-dimensional cardiac tissue. Simulation on sequential and parallel supercomputers, choice of numerical algorithms, to optimize accuracy and to provide computational stability. Letter grading.

298. Research Seminar: Computer Science. (2 to 4) Seminar, two to four hours; outside study, four to eight hours. Designed for graduate computer science students. Discussion of advanced topics and current research in algorithmic processes that describe and transform information: theory, analysis, design, efficiency, implementation, and application. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Assistant Training Seminar. (2) Seminar, two hours; outside study, six hours. Limited to graduate Computer Science Department students. Seminar on communication of computer science materials in classroom: preparation, organization of material, presentation, use of visual aids, grading, advising, and rapport with students. S/U grading.

495B. Teaching with Technology. (2) Seminar, two hours; outside study, four hours. Limited to graduate Computer Science Department teaching assistants. Seminar for teaching assistants covering how technology can be used to aid instruction in and out of classroom. S/U grading.

497D-497E. Field Projects in Computer Science. (4-4) Fieldwork, to be arranged. Students are divided into teams led by instructor; each team is assigned one external company or organization that they investigate as candidate for possible computerization, submitting team report of their findings and recommendations. In Progress (497D) and S/U or letter (497E) grading.

596. Directed Individual or Tutorial Studies. (1 to 8) Tutorial, to be arranged. Limited to graduate computer science students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

597A. Preparation for MS Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate computer science students. Reading and preparation for MS comprehensive examination. S/U grading.

597B. Preparation for PhD Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate computer science students. Preparation for PhD preliminary examinations. S/U grading.

597C. Preparation for PhD Oral Qualifying Examination. (2 to 16) Tutorial, to be arranged. Limited to graduate computer science students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

598. Research for and Preparation of MS Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate computer science students. Supervised independent research for MS candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of PhD Dissertation. (2 to 16) Tutorial, to be arranged. Limited to graduate computer science students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. S/U grading.

COMPUTING, PROGRAM IN

See Mathematics

CONSERVATION OF ARCHAEOLOGICAL AND ETHNOGRAPHIC MATERIALS

*Interdepartmental Program
College of Letters and Science*

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Ioanna Kakoulli, DPhil, Chair

Faculty Committee

Robin L. Garrell, PhD (*Bioengineering, Chemistry and Biochemistry*)
Mark S. Goorsky, PhD (*Materials Science and Engineering*)
Mark T. Harrison, PhD (*Earth, Planetary, and Space Sciences*)
Ioanna Kakoulli, DPhil (*Materials Science and Engineering*)
John K. Papadopoulos, PhD (*Classics*)
Ellen J. Pearlstein, MA (*Information Studies*)
David A. Scott, PhD (*Art History*)
Lothar von Falkenhausen, PhD (*Art History*)
Willeke Z. Wendrich, PhD (*Near Eastern Languages and Cultures*)

Scope and Objectives

Students study for an MA degree in Conservation of Archaeological and Ethnographic Materials, with emphasis on the multiple values and meanings that archaeological and ethnographic artifacts may hold for society, and how they impact decisions on the conservation and use of those materials. In the conservation philosophy that underpins the program, there is a strong interdisciplinary component, essential to effective working practices in the future. The three-year graduate program is a collaborative venture with the Getty Trust and is based in specifically designed facilities at the Getty Villa site in Malibu.

The aim of the program is to provide students with a solid educational base and practical training in the conservation of both archaeological and ethnographic materials, as well as an appreciation of the often complex issues related to significance, access, and use of these materials that can be very different from the criteria for conservation of fine art or historical materials. The special focus of the program and its interdisciplinary curriculum serves the archaeological, scientific, native, and cultural minority communities alike and offers a nexus

at the boundaries of conservation, archaeology, ethnography, the natural sciences, and engineering.

The partnership between UCLA and the Getty in creating the program ensures that both a major research university and an institution with a major mandate for conservation of the artistic heritage of the world are working to create a rich and vibrant conservation training opportunity. The program helps students develop working relationships with a wide array of colleagues in the Getty Conservation Institute, the J. Paul Getty Museum, other local museums and cultural organizations, and different departments and programs at UCLA, including but not limited to the Departments of Anthropology, Art History, Chemistry and Biochemistry, Earth, Planetary, and Space Sciences, and Materials Science and Engineering, and the Interdepartmental Program in Archaeology.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Conservation of Archaeological and Ethnographic Materials Program offers a Master of Arts (MA) degree in Conservation of Archaeological and Ethnographic Materials.

Conservation of Archaeological and Ethnographic Materials

Upper Division Courses

C120. Field Methods in Archaeological Conservation: Readiness, Response, and Recovery. (4) Laboratory, four hours. Overview of risks (direct and indirect) and materials vulnerability of in situ cultural heritage and movable archaeological materials in emergency situations (rescue excavations, disasters, conflicts), with emphasis on readiness, first aid response, and recovery. Readiness focuses on preparedness and preventive measures, including reburials, shelters, rescue excavations, and documentation as well as developing inventories and awareness campaigns. First aid response covers development of on-site emergency risk assessments to evaluate damage and putting triage theory into practice, salvage rescue operations, emergency temporary in situ stabilization and protection (using locally available materials), and training. Recovery is based on documentation, lifting methods, handling, transportation, and storage. Emphasis on finding practical solutions to prevent and mitigate damage and to recover and safeguard archaeological artifacts. Concurrently scheduled with course C220. Letter grading.

C142. Managing Collections for Museums, Libraries, and Archives. (4) Lecture, two hours; activity, two hours. How conservators work together with curators, collections managers, mount makers, designers, and registrars to permit collections to be both accessed and preserved. Concurrently scheduled with course C242. Letter grading.

Graduate Courses

M210. Cultural Materials Science II: Characterization Methods in Conservation of Materials. (4) (Same as Materials Science CM212.) Lecture, four hours. Preparation: general chemistry, inorganic and organic chemistry, materials science. Principles and methods of materials characterization in conservation: optical and electron microscopy, X-ray and electron spectroscopy, X-ray diffraction, infrared spectroscopy, reflectance spectroscopy and multispectral imaging spectroscopy, chromatography, design of archaeological and ethnographic materials characterization procedures. Letter grading.

M210L. Cultural Materials Science Laboratory: Technical Study. (4) (Formerly numbered 210L.) (Same as Materials Science M213L.) Laboratory, four hours. Enforced requisites: course 215 (or M216) and one course from 260 through 264. Enforced corequisite: course M210 (or Materials Science CM212 or C112). Research-based laboratory through object-based problem-solving approach in conservation materials science. Experimental techniques, characterization, and analysis of archaeological and ethnographic materials (using materials science principles and reverse engineering processes) to determine technological features, defects, and products of alteration. Hands-on experience with noninvasive imaging and spectroscopic techniques, sampling and sample preparation methods, analysis of microsamples. Letter grading.

211. Science Fundamentals in Conservation of Materials. (4) Lecture three, hours. Introduction to important scientific parameters in conservation of materials that are of great importance for both fundamental science and practical applications. Students gain better understanding of intrinsic properties of materials, mechanisms of deterioration, and conservation treatments. General chemistry, physics, and physical chemistry (atomic structure bonding, etc.), fluid transfer in porous materials, diffusion, interfaces, surface tension, wetting, adsorption, adhesion, dissolution and crystallization, mechanical properties (properties/charactization), phase transformations (glass, metals, polymers). Letter grading.

215. Cultural Materials Science I: Analytical Imaging and Documentation in Conservation of Materials. (4) (Formerly numbered M215.) Lecture, two hours; laboratory, two hours. Basic and advanced techniques on digital photography, computer-aided recording tools, and scientific imaging to determine and document condition (defects) and technological features of archaeological and ethnographic materials. Development of basic theoretical knowledge on imaging and photonics technology and practical skills on conservation photo-documentation, analytical (forensic) photography, and advanced new imaging technologies. Letter grading.

M216. Science of Conservation Materials and Methods I. (4) (Same as Materials Science M216) Lecture, two hours; laboratory, two hours. Recommended requisite: laboratory safety fundamental concepts course by Office of Environment, Health, and Safety. Introduction to physical, chemical, and mechanical properties of conservation materials (employed for preservation of archaeological and cultural materials) and their aging characteristics. Science and application methods of traditional organic and inorganic systems and introduction of novel technology based on biomineralization processes and nanostructured materials. Letter grading.

C220. Field Methods in Archaeological Conservation: Readiness, Response, and Recovery. (4) Laboratory, four hours. Overview of risks (direct and indirect) and materials vulnerability of in situ cultural heritage and movable archaeological materials in emergency situations (rescue excavations, disasters, conflicts), with emphasis on readiness, first aid response, and recovery. Readiness focuses on preparedness and preventive measures, including reburials, shelters, rescue excavations, and documentation as well as developing inventories and awareness campaigns. First aid response covers development of on-site emergency risk assessments to

evaluate damage and putting triage theory into practice, salvage rescue operations, emergency temporary in situ stabilization and protection (using locally available materials), and training. Recovery is based on documentation, lifting methods, handling, transportation, and storage. Emphasis on finding practical solutions to prevent and mitigate damage and to recover and safeguard archaeological artifacts. Concurrently scheduled with course C120. Letter grading.

221. Principles, Practice, and Ethics in Conservation. (4) Lecture, three hours; activity, one hour. Introduction to preservation of cultural heritage materials, including what should be preserved and why, as well as who should be involved in decision-making process. Use of several examples of issues and problems involved in preservation of works of art, from L.A. Murals to Sistine Chapel, from ancient wall paintings to Statue of Liberty. Discussion of issues of preservation and restoration of these cultural heritage materials both in museum and outdoor environment contexts. Materials and techniques used to make cultural heritage materials, in relation to preservation efforts needed to prevent decay and loss. Introduction to examples of conservation issues related to sites, buildings, monuments, and collections. Ethical and contextual aspects with reference to changing values in conservation of cultural materials, illustrating how cultural materials may have been treated differently according to those values. Letter grading.

222. Conservation and Ethnography. (4) Laboratory, four hours. Designed for graduate conservation students. Introduction to work as conservators with indigenous repositories housing cultural collections. Students learn different models for tribal museums and cultural centers, and importance of material selection and properties in baskets they are treating. Letter grading.

224. Issues in Preservation and Management of Archaeological and Cultural Sites. (4) Seminar, three hours. Designed to offer practical model of preservation and management planning for heritage sites that reflects real case-study scenarios. Adaptive management planning following iterative processes for sustainable heritage preservation addressing threats and challenges such as climate change and global warming, conflicts, and neglect. Consideration of significance and value of heritage sites and role of stakeholders. Investigation of methods of evaluation of physical condition and development of risk assessments to address physical risks in milieu of site preservation management, including visitors' organization, urban development, socioeconomic growth, and tourist development. Letter grading.

230. Conservation Laboratory: Ceramics, Glass, Glazes. (4) Laboratory, four hours. Enforced requisite: course 260. Recommended: course 215. Hands-on study in deterioration and conservation of ceramics and glass. Evaluation of use of conservation materials in joining, gap-filling, and restoration of ceramics and experience in their use provided. Letter grading.

231. Conservation Laboratory: Stone and Adobe. (4) Laboratory, four hours. Enforced requisite: course 261. Research-based laboratory on conservation of stone and adobe. Conservation issues on cleaning, consolidation, protection, and structural instability. Characterization, diagnostic assessment, and development of conservation treatment proposals. Testing of materials. Letter grading.

232. Conservation Laboratory: Organic Materials I. (4) Laboratory, four hours. Enforced requisite: course 262. Designed for graduate conservation students. How to recognize characteristic deterioration problems found in organic materials from archaeological and ethnographic contexts and introduction to typical treatments used historically and currently for these materials. Materials focus on wood, bark and bark-cloth, paper, and plastics and rubber. Letter grading.

234. Conservation Laboratory: Metals I. (4) Laboratory, four hours. Enforced requisite: course 263. Recommended: course 215. Recommended corequisite: course M210. Designed for graduate conservation students. Hands-on work to study deterioration and conservation of metallic artifacts and composite ob-

jects containing metals (copper and copper alloys, and silver). Corrosion of ancient metals and their deterioration processes, conservation, problems in stability, issues with composite objects, their deterioration and stabilization, cleaning, joining, and gap-filling. Letter grading.

238. Conservation Laboratory: Organic Materials II. (4) Laboratory, four hours. Enforced requisite: course 262. Designed for graduate conservation students. Typical treatments used historically and currently for deterioration problems found in organic materials from archaeological and ethnographic contexts. Materials include plant and animal fibers, feathers, and quills. Letter grading.

239. Conservation Laboratory: Metals II. (4) Laboratory, four hours; outside study, eight hours. Enforced requisites: courses 234, 263. Recommended: courses M210, 215. Treatment of conservation problems of metallic artifacts made of iron, steel, cast iron, gold, zinc, and aluminum that have some importance in ethnographic objects. Practical work on metallic artifacts. Letter grading.

M240. Environmental Protection of Collections for Museums, Libraries, and Archives. (4) (Same as Information Studies M238.) Lecture, two hours; laboratory, two hours. Requisite: Information Studies 432. Required of graduate conservation students. Review of environmental and biological agents of deterioration, including light, temperature, relative humidity, pollution, insects, and fungi. Emphasis on monitoring to identify agents and understanding of materials sensitivities, along with protective measures for collections. Letter grading.

241. Conservation Laboratory: Organic Materials III. (4) Laboratory, four hours. Enforced requisites: courses 232, 238, 262. Designed for graduate conservation students. Treatment of organic materials from archaeological and ethnographic contexts and introduction to typical treatments used historically and currently for these materials. Materials include wood, gourd, paper, bark, and barkcloth. Letter grading.

C242. Managing Collections for Museums, Libraries, and Archives. (4) (Formerly numbered 242.) Lecture, two hours; activity, two hours. Designed for graduate conservation students. How conservators work together with curators, collections managers, mount makers, designers, and registrars to permit collections to be both accessed and preserved. Currently scheduled with course C142. Letter grading.

M250. Conservation Laboratory: Rock Art, Wall Paintings, and Mosaics. (4) (Same as Materials Science M215.) Laboratory, four hours. Enforced requisites: courses M210 (or Materials Science M216 or C112), 210L, 264. Recommended: course 215. Research-based laboratory on conservation of rock art, wall paintings (archaeological and modern composites on cements), mosaics, and decorated architectural surfaces. Experimental techniques and analysis of materials (using materials science and reverse engineering processes) for characterization of technology, constituent materials, and alteration products; development of conservation treatment proposals; testing of conservation products, and methods and conservation treatment. Letter grading.

251 Contemporary Development in Conservation. (4) Seminar, two hours. Designed for graduate conservation students. Seminar series of invited international experts in archaeological and ethnographic conservation, who address contemporary issues in conservation of cultural materials. Letter grading.

260. Structure, Properties, and Deterioration of Materials: Ceramics, Glass, Glazes. (2) Lecture, three hours. General introduction to different types of ancient ceramic and glass materials. Relationship between composition (chemistry), structure (crystals, molecular arrangement, and microstructure), and properties of ceramics, glass, glazes. Nature of frit and faience deterioration explained using basic concepts from physics and chemistry. Chemical, optical, and structural properties. Deterioration phenomena, defects, and products of alteration of ceramics and vitreous artifacts. Hands-on examination of variety of samples and artifacts. Letter grading.

261. Structure, Properties, and Deterioration of Materials: Stone and Adobe. (2) Lecture, three hours. Introduction to igneous, sedimentary, and metamorphic rocks (geological context, mineralogical composition, macrostructure, and microstructure). Clay minerals: composition, structure, and properties. Rocks and stone: geographical distribution and occurrence, and usage by ancient cultures. Adobe: clay-based manmade materials. Mechanical and petrophysical properties of stone and adobe. Relationships between composition/structure and properties. Intrinsic and structural stability, resistance to weathering. Deterioration mechanisms and factors (physical, chemical, and biochemical). Letter grading.

262. Structure, Properties, and Deterioration of Materials: Organics I. (2) Lecture, one hour; laboratory, one hour. General introduction to different types of animal-derived organic materials used to produce ethnographic and archaeological cultural heritage: skin and leather, hair and wool, quills and feathers, bone and ivory. Relationship between material composition, processing, and properties of natural and manufactured materials using basic concepts from biology and chemistry. Structural stability and deterioration phenomena of these materials as found in cultural collections. Letter grading.

263. Structure, Properties, and Deterioration of Materials: Metals. (2) Lecture, three hours. General introduction to different types of ancient and ethnographic metals. Relationship between composition (chemistry), structure (crystals, molecular arrangement, and microstructure), and properties of metals explained using basic concepts from physics and chemistry. Chemical, optical, and structural properties. Deterioration phenomena, defects, and products of alteration of metallic artifacts. Hands-on examination of variety of samples and artifacts. Letter grading.

M264. Structure, Properties, and Deterioration of Materials: Rock Art, Wall Paintings, Mosaics. (2) (Formerly numbered 264.) (Same as Materials Science M214.) Lecture, three hours. Recommended preparation: basic knowledge of general chemistry and materials science. Introduction to materials and techniques of rock art, wall paintings (including painted surfaces on cement and composite decorative architectural surfaces), and mosaics. Archaeological and ethnographic context, techniques, and materials. Pigments, colorants, and binding media. Chemical, optical, and structural properties. Relationship between composition (chemistry), structure (crystals, molecular arrangement, and microstructure), and properties explained using basic concepts from physics and chemistry. Intrinsic attributes and resistance to weathering. Causes, sources, and mechanisms of deterioration (physical, chemical, and biochemical). Letter grading.

265. Structure, Properties, and Deterioration of Materials: Organics II. (2) Lecture, one hour; laboratory, one hour. General introduction to plant-based organic materials used to produce ethnographic and archaeological cultural heritage: wood, bark, paper, bast fibers, grasses. Relationship between materials, processing, and properties of natural materials using basic concepts from biology and chemistry. Structural stability and deterioration phenomena of these materials as found in cultural collections. Letter grading.

298. Special Topics in Conservation. (2 or 4) Lecture, three hours; laboratory, one hour. Special topics on theoretical and practical subjects in conservation such as focused materials studies, new conservation approaches, advanced scientific applications, or current special work by core program faculty or visiting scholars. If appropriate, field trips may be arranged. May be repeated for credit with topic or instructor change. Letter grading.

498. Conservation Program Internship. (6 or 12) Fieldwork, 20 or 40 hours. Open only to Conservation MA program graduate students who have completed first year of conservation program coursework. Supervised conservation-related professional and research-based training in field through participation in field projects (i.e., archaeological excavation, site management, indigenous site preservation and consultation), as well as in museum, library, archive, and collections conservation and science departments,

regional and national laboratories, or at other similar venues. All intern placements must be preapproved by program and developed in collaboration between student, faculty members, and host institution/agency. S/U grading.

596. Directed Individual Studies. (2 to 6) Tutorial, seven hours. Limited to graduate conservation students. Individual guided studies that may include conservation research and/or surveys or treatment projects carried out at Villa laboratories or at local collection or analytical facility. To be arranged with program faculty members, and supervision may be shared between faculty members and outside specialists. Letter grading.

598. MA Thesis Preparation. (2 to 12) Tutorial, two hours; laboratory, one hour. Development of research paper on conservation topic or treatment-based investigation that can be theoretical in scope or practically oriented. Letter grading.

DANCE

See World Arts and Cultures/Dance

DENTISTRY

School of Dentistry

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Paul H. Krebsbach, DDS, PhD, *Dean*

Scope and Objectives

The UCLA School of Dentistry offers the following courses for general campus students. Dentistry 199 and 199H are individual special studies courses for UCLA undergraduates with definitive research interests and abilities applicable to dentistry. The subject areas include oral biology, clinical research, and dental health policy. Interested students should contact the associate dean of research at 310-825-6401 to obtain the names and areas of interest of participating School of Dentistry faculty members.

Dentistry

Upper Division Courses

199. Individual Special Studies. (2 to 8) Tutorial, to be arranged. Studies in dentistry and related subject areas appropriate for training of particular students, with required reading assignments or laboratory work leading to final oral or written examination. May be repeated for maximum of 16 units. P/NP or letter grading.

199H. Individual Special Studies (Honors). (2 to 8) Tutorial, to be arranged. Studies in dentistry and related subject areas appropriate for training of particular students, with required paper submitted at end of course in addition to final examination (paper to be of publication quality as judged by course mentor). May be taken for maximum of 8 units. P/NP or letter grading.

Graduate Courses

M300A-M300B-M300C. Child Abuse and Neglect (2-2-1). (Same as Community Health Sciences M245A-M245B-M245C, Education M217G-M217H-M217I, Law M281A-M281B, Medicine M290A-M290B, Nursing M290A-M290B-M290C, and Social Welfare M203F-M203G-M203H.) Lecture, two hours. Course M300A is requisite to M300B, which is requisite to M300C. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of Schools of Dentistry, Law, Medicine, Nursing, and Public Health and Departments of Education and Psychology, as well as by relevant public agencies. Letter grading.

441C. Introduction to Healthcare. (2) Lecture, two hours. Description and analysis of American dental care system from historical, ethical, and legal perspectives. Assessment of how dentistry fits within general provision of healthcare services in America, with comparisons to dental care provisions in other countries. S/U grading.

DESIGN | MEDIA ARTS

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Rebecca Allen, MS, Chair

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Professors Emeriti

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William C. Brown, MA
Mitsuru Kataoka, MA
J. Bernard Kester, MA
Lionel J. March, ScD
Vasa V. Mihich

Associate Professor

Ramesh Srinivasan, PhD

Scope and Objectives

The Department of Design | Media Arts offers the Bachelor of Arts and Master of Fine Arts degrees. The BA degree focuses on visual communication design, with emphasis on digital media. The MFA degree focuses on media arts. These uniquely challenging programs invite students to balance aesthetic sensibility with logical reasoning, formal theories with practical application, and contemporary thought with historical perspective.

The undergraduate program begins with the study of basic design elements and processes: form, color, drawing, letterforms and typogra-

phy, motion, and interactivity. Historical perspectives and social issues are also introduced. At the upper division level, studio courses explore current uses of interactive media and new directions in visual communication design, including the study of time and motion, as well as virtual form and space in computer-generated environments. Through a balance of courses in theory, criticism, and practice, students develop an understanding of design principles. Most courses are taught as studios of no more than 20 students, which encourages individual growth and fosters a sense of community within the department.

The two-year Master of Fine Arts (MFA) program fosters mature, professional-quality work utilizing the most current technologies in the field of media arts. The program focuses on developing an individual thesis project that incorporates in-depth research and theoretical exploration of a topic, culminating in a final exhibition of work.

Facilities and equipment in the department enable students to create work in two, three, and four dimensions. They expand opportunities for students to develop interactive media applications in a networked environment and advanced computer graphics. The department's equipment includes computer laboratories with high-end PC and Macintosh computers and relevant software for the creation of works for print, Web, video, and other media, a fabrication laboratory with equipment ranging from table saws to three-dimensional printers to a CNC machine to create physical objects combined with electronics, and a print laboratory with high-quality printers.

The Department of Design | Media Arts reserves the right to hold for exhibition purposes examples of any work done in classes and to retain for the permanent collection of its galleries such examples as may be selected.

Undergraduate Study

The Design | Media Arts major is a designated capstone major. Students are required to complete an advanced project of their own that entails full engagement with the design process. Through their capstone work, students demonstrate their capacities for research, ideation/concept development, creative and design direction, communication strategy, design, production/fabrication, and critical analysis. Capstone courses focus on career choice, and final projects are showcased at the spring Senior Show.

Design | Media Arts BA Capstone Major

Preparation for the Major

Required: Design | Media Arts 8, 10, 21, 22, 24, 25, 28.

The Major

Required: Twelve upper division courses, including the following core courses: Design | Media Arts 101, 104, 153, 154, 156, 157, 161,

163; three courses selected from 160, 171, 172, 173; and one capstone course selected from 159A, 159B, or 159C.

It is recommended that students have each term's program approved by the departmental adviser.

Note: Consult the Schedule of Classes for courses limited to majors only.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Design | Media Arts offers the Master of Fine Arts (MFA) degree in Design | Media Arts.

Design | Media Arts

Lower Division Courses

1. Graphic Design. (2) Studio, 30 hours. Limited to high school students. Basic and advanced photography skills using digital cameras. Alteration/manipulation of photos using techniques from latest version of Adobe Photoshop. Uploading of images on Web or in print. Production of digital and print portfolio of student work. Field trips to surrounding West Los Angeles locales to shoot photos. May be repeated for credit without limitation. Offered only as part of Summer Institute. P/NP grading.

2. Web Design. (2) Studio, 30 hours. Limited to high school students. How Web design works: basic hand coding and creation of personalized homepages with Macromedia Director and Flash software. Photograph scanning and manipulation of images in Adobe Photoshop to incorporate student Web designs. Critique of various Web pages to analyze successful use of Web design and understand enormous potential of Internet. May be repeated for credit without limitation. Offered only as part of Summer Institute. P/NP grading.

3. Game Design. (4) Studio, 30 hours. Limited to high school students. Development of fundamental skills to create games and game art that express personal and subjective approach to game making. Artistic vision combined with technological expertise to teach students fundamentals of designing games, building game worlds, creating game characters, and making playable games for mobile platforms. Use of current software and technology, including Maya and Unity3D. Creation of game projects that students exhibit and can use for college applications. Offered only as part of UCLA Game Lab Summer Institute. P/NP grading.

4. Audio Video Design. (2) Studio, 30 hours. Limited to high school students. Creation of storyboard for short documentary, commercial, or music video. Students shoot and edit their own work by learning fundamentals of preproduction and postproduction using latest digital software, Adobe Premiere and After Effects, to create their work. Burning of DVD of finished production. Visits from professional video producer to help guide students in creating their own videos. May be repeated for credit without limitation. Offered only as part of Summer Institute. P/NP grading.

5. Introduction to Design | Media Arts. (4) Studio, 40 hours. Limited to high school students. Two-week summer course designed to meet needs of high

school students interested in exploring their creative potential within fields of design media arts, with focus on concepts of narrative and storytelling. Introduction to and exploration of variety of media such as graphic, web, game, and video design with goal of combining and integrating these media to express and realize their narrative projects. Students work with most current software and technology in each discipline area, developing diverse skill sets while cultivating conceptual capabilities around storytelling project, and with experienced instructors and professionals in field to develop projects utilizing this comprehensive and integrative approach. Culminates in portfolios that may be used for college applications. Possible field trips. May be repeated for credit without limitation. Offered only as part of Summer Institute. P/NP grading.

6. Art/Science and Technology Studio/Laboratory. (4) Studio/laboratory, 40 hours. Limited to high school students. Two-week summer course, including lectures, required screenings, laboratory visits, field trips, and outside study. Exploration of creative aspects of scientific research and innovation to gain broad understanding of impact of science on contemporary art and popular culture, with focus on new sciences of biotechnology and nanotechnology. Development of proposals and ideas that could serve as prototypes for either art projects or scientific research study. P/NP grading.

8. Media Histories. (5) Lecture, three hours; outside study, 12 hours. Synthetic overview of optical media and aesthetic movements covering past two centuries: photography and industrialization/Romanticism (1850 to 1900), cinema and modernism (1900 to 1950), television and postmodernism (1950 to 2000), and digital media and unimodernism (2000 to 2050). How such movements can inform generative work and how understanding these media becomes essential in emerging era of digital humanities. P/NP or letter grading.

9. Art, Science, and Technology. (5) Lecture, three hours; discussion, one hour; outside study, 11 hours. Exploration and survey of cultural impact of scientific and cultural innovations, technology-driven art inspired by science, and art/science collaborative projects. Introduction to vast array of cutting-edge research taking place on campus; scientific guest lecturers. Emphasis on art projects that use technology and respond to new scientific concepts. P/NP or letter grading.

10. Design Culture. (5) Lecture, three hours; outside study, 12 hours. Open to nonmajors. Understanding design process, with emphasis on development of visual language; study of historic, scientific, technological, economic, and cultural factors influencing design in physical environment. P/NP or letter grading.

21. Drawing and Color. (4) Studio, six hours; outside study, six hours. For drawing, exploration of relationship between concept and image creation while fostering development of sound drawing and observation skills. For color, exploration of development of fundamental skills in mixing and applying pigments with brush on watercolor paper, as well as use of computer as tool for working with colors. Combination of painting and software to be predominant way of exploring and presenting ideas regarding color. P/NP or letter grading.

22. Form. (4) Studio, six hours; outside study, six hours. Interrelation of two-dimensional surfaces and three-dimensional forms with traditional and experimental materials as foundation for creativity; origination and solution of problems. P/NP or letter grading.

24. Motion. (4) Studio, six hours; outside study, six hours. Introduction and integration of traditional design tools, camera, and digital technologies for application to visual thinking and fundamentals of design. P/NP or letter grading.

25. Typography. (4) Studio, six hours; outside study, six hours. Focus on three typographic basics: letter, text, and grid. Introduction to fundamentals of typography. Assignments designed to develop understanding of form, scale, and shape of letters as single elements and as texture in layout. Emphasis on grid

(structure and layout) and information hierarchy to create successful typographic messages. P/NP or letter grading.

28. Interactivity. (4) Studio, six hours; outside study, six hours. Introduction to concept of interactivity and field of media art that follows history of computer as media for artistic exploration in relation to print, animation, and interactivity. Discussion of potential and ideas related to interactivity, with focus on required skills for creating interactive work. Development of programming skills in service of creating examples of media art. Concepts and skills taught enhance student ability to excel in future courses about Internet, animation, interactive media, and game design. Discussion and readings on four themes—form/programming, motion, interactivity/programming, and interface. P/NP or letter grading.

Upper Division Courses

101. Media Arts: Introduction. (5) Lecture, three hours; outside study, 12 hours. Limited to and required of Design | Media Arts majors. Survey of media arts, their history, aesthetics, and cultural roles from late-19th century to present. Investigation of media arts within broad historical and cultural framework. Discussion of parallels and links with other cultural forms, including history of technology and various art and design practices. P/NP or letter grading.

102. Introduction to Digital Image Creation and Manipulation. (5) Lecture, three hours; outside study, 12 hours. Overview of digital imaging technology and its application in design, media arts, and entertainment from both technical and content-based points of view. P/NP or letter grading.

104. Design Futures. (5) Lecture, three hours; outside study, 12 hours. Preparation: completion of preparation for major courses. Open to nonmajors with consent of instructor. Critical examination of design practice and theory of 20th and 21st centuries, incorporating historical as well as speculative methodologies. Consideration of how various design practices and techniques related to each other across cultures and media, with strong emphasis on communication design. P/NP or letter grading.

153. Video. (5) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Use of video technology (video systems, cameras, displays, editing, and storage) to integrate image, sound, time, and motion. Emphasis on expression, continuity, and sequential patterns for video communication. P/NP or letter grading.

154. Word + Image. (5) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Enforced requisite: course 101 or 104. Focus on relationship of type to content, image, and materials. Acquisition of knowledge of and sensitivity to typography in context of complex communication problems in print and digital media. Research, concept and content development, and articulation of methodology for visualization. P/NP or letter grading.

156. Three-Dimensional Modeling and Motion. (5) Studio, six hours; outside study, nine hours. Introduction to theories of three-dimensional form, spatial design, and lighting, using three-dimensional visualization and video tools. Tools originally designed for motion to be used to construct form. Use of aspects of time, such as speed and duration, to contemplate form and interaction. Exploration of virtual versus real form. Letter grading.

157. Game Design. (5) (Formerly numbered 157A.) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Enforced requisites: courses 22, 28, and 101 or 104. Introduction to game design, with focus on developing conceptual and practical skills that form basis for both digital and nondigital game development. Development of four playable game projects that explore various aspects of game design: rule design, game balance, multiplayer strategy, complexity, randomness, polemics, narrative, physical interaction, and aesthetic and pragmatic aspects of physical game design. P/NP or letter grading.

159A-159B-159C. Capstone Senior Project. (5-5-5) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Enforced requisite: course 160, 171, 172, or 173. Limited to seniors. Focus on creating final project that can be showcased at Senior Show. Students can take two different courses in different terms or the same course twice in different terms. Total units for courses 159A, 159B, and 159C may not exceed 10 units, with maximum of 5 units per term. Letter grading. **159A.** Interactivity and Games. Interactive media, including game design, interactive installations, dynamic websites, creative coding, and electronics. **159B.** Video and Animation. Linear media, including storyboarding, video, animation, modeling, editing, postproduction, and lighting. **159C.** Visual Communication and Image. Visual communication, editorial design, photography, typography, branding, and narrative environments.

160. Special Topics in Design | Media Arts. (5) Studio, six hours; outside study, nine hours. Completion of preparation for major and upper division core courses required. Selected topics in design and media arts explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for maximum of 15 units. Fifteen units may be applied toward area studies. Letter grading.

161. Network Media. (5) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Enforced requisite: course 28. Emphasis on gaining deeper understanding of technical concepts in networking while learning history of Internet and becoming familiar with state-of-art tools of moment. Storyboard and project development integrated into all aspects of class. Letter grading.

163. Narrative. (5) Lecture, three hours; outside study, 12 hours. Preparation: completion of preparation for major courses. Provides wider understanding of arts that parallels world of 20th-century visual languages. Study of threads that allow viewer to connect story of one art form to another in richer context. Letter grading.

171. Topics in Interactivity and Games. (5) Studio, six hours; outside study, nine hours. Completion of preparation for major and upper division core courses required. Selected topics in interactive media and games explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for maximum of 15 units. Letter grading.

172. Topics in Video and Animation. (5) Studio, six hours; outside study, nine hours. Completion of preparation for major and upper division core courses required. Selected topics in video and animation explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for maximum of 15 units. Letter grading.

173. Topics in Visual Communication and Image. (5) Studio, six hours; outside study, nine hours. Completion of preparation for major and upper division core courses required. Selected topics in visual communication and image explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for maximum of 15 units. Letter grading.

195A-195B. Community or Corporate Internships in Design | Media Arts. (2-4) Tutorial, six and 12 hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business related to design. Students meet on regular basis with instructor and provide periodic reports of their experience. Courses 195A and 195B may be repeated for combined maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

198. Honors Research in Design | Media Arts. (4) Tutorial, two hours. Preparation: 3.0 grade-point average overall. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated once for credit. Individual contract required. Letter grading.

199. Directed Research in Design | Media Arts. (2 to 5) Tutorial, four hours. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Design | Media Arts Faculty Seminar. (2) Seminar, two hours. Limited to graduate design | media arts students. Designed to familiarize new graduate students with departmental faculty members and their creative work and research to help students select their faculty advisers. S/U or letter grading.

207. Mathematical Techniques in Design and Media Arts I. (4) Lecture, three hours. Designed for graduate students. Survey of mathematical techniques used in design and computation theory. Sets, relations, posets, lattices, Boolean and Heyting algebras, formal languages and production systems. May be repeated for credit with consent of adviser. S/U or letter grading.

208. Mathematical Techniques in Design and Media Arts II. (4) Lecture, three hours. Designed for graduate students. Survey of mathematical techniques used in design and computation theory. Theory of descriptive geometry, spatial transformations, matrix representations, symmetry and groups, graphs, maps and triangulations. May be repeated for credit with consent of adviser. S/U or letter grading.

M241. Programming Computer Applications in Architecture and Urban Design. (4) (Same as Architecture and Urban Design M227A.) Lecture, three hours; outside study, nine hours. Introductory course in logic of computing through experiments in computer graphics programming. Investigation of both procedural and object-oriented approaches to programming. May be repeated for credit with consent of adviser. S/U or letter grading.

M242. Introduction to Geometric Modeling. (4) (Same as Architecture and Urban Design M227B.) Lecture, three hours; outside study, nine hours. Requisite: course M241. Survey of geometric and three-dimensional modeling, with emphasis on implementation of three-dimensional solids constructions and editing operations. Basic representations and operations on shapes and solids. May be repeated for credit with consent of adviser. S/U or letter grading.

M243. User Interaction Techniques in Design. (4) (Same as Architecture and Urban Design M227C.) Lecture, three hours; outside study, nine hours. Requisite: course M241 or knowledge of C++ programming language. Programming techniques for implementing modern computer-user interfaces, specifically looking at issues relevant to building software tools for computer-aided problem solving in architecture and design. May be repeated for credit with consent of adviser. S/U or letter grading.

249. Advanced Seminar: Computer Applications. (4) Seminar, three hours. Requisite: course M241 or Architecture and Urban Design M227A. Survey of various roles computers may play in design; development of new applications. Topics include representation, search, evaluation functions, and communication. May be repeated for credit with consent of adviser. S/U or letter grading.

252A. Programming Media 1. (3) Studio, three hours; outside study, six hours. Limited to majors. Introduction to computer programming within context of art and design. Exploration of conceptual space enabled by electronic media through exercises, presentations, discussions, and critiques. Weekly exercises balance concept and technique to reveal potential of computer as medium and tool. Experience with

programming basics includes procedural and object-oriented programming, two- and three-dimensional graphics, file I/O, color models, and image processing. Letter grading.

252B. Programming Media 2. (3) Studio, three hours; outside study, six hours. Enforced requisite: course 252A. Limited to majors. Exploration of use of electro-mechanical actuators and sensors, custom interface design, microcontroller programming, and building kinetic and interactive physical artworks. Practical electronics theory, programming for embedded systems, two-dimensional and three-dimensional CAD, basic milling, laser cutting, mold making, circuit building, and other sculptural electronics fabrication techniques. Letter grading.

256. Interactive Environments. (4) Lecture/studio, six hours. Designed for graduate design | media arts majors. Emphasis on comprehension of fundamental principles of interactivity and networked environments. May be repeated for credit with consent of adviser. Letter grading.

258. Current State of Technology. (4) Lecture/studio, six hours. Designed for graduate design | media arts majors. Introduction to state-of-art software programs and techniques necessary for design of interactive and multimedia applications. May be repeated for credit with consent of adviser. Letter grading.

269. Graduate Seminar. (4) Seminar, four hours. Designed for graduate design | media arts majors. Survey of critical theories in media art and design. Critical examination of student work by peers, faculty members, and expert guests. Must be taken twice for MFA degree. May be repeated for credit with consent of adviser. Letter grading.

270. Media Arts Theory. (5) Lecture, three hours. Media arts is rapidly emerging phenomenon within wider field of contemporary art, yet has been theorized fairly little. While there are numerous books chronicling its past and present forms, there is much less writing about its theoretical and aesthetic underpinnings. Uncertainties begin with concept itself: what is actually meant by media arts? Letter grading.

271. Media Archaeology. (5) Lecture, three hours. Media archaeology is emerging approach within media studies, aiming to excavate little known or misrepresented media cultural phenomena of past, shedding light on apparatus that have been overlooked and/or suppressed by hegemonic versions of media history. Letter grading.

272. Introduction to Art | Science. (5) Seminar, three hours. For past 50 years artists have increasingly moved from being inspired by scientific innovation and discovery to actually collaborating with scientists and even residing and working in science laboratories. History of science in relation to artists' interpretation of scientific work to current works that are created in response to recent developments in biotechnology and nanotechnology. Letter grading.

287. Form and Structure. (2 to 8) Studio or studio/seminar, to be arranged. Exploration of form, with emphasis on expressive experimentation in materials and processes. May be repeated for credit with consent of adviser. Letter grading.

289. Special Topics in Design. (2 to 8) Seminar, to be arranged. Examination of specific problems relevant to design theory and performance. Topics announced in advance. May be taken for maximum of 8 units. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

403. Graduate Critique. (2) Seminar, three hours; outside study, three hours. Limited to first- and second-year departmental graduate students. Students meet with instructor in small classroom setting to exchange ideas through presentation of current

projects and research, discussion, research papers, and reports. Instructors may invite visiting critics to contribute. May be repeated for credit. S/U grading.

404. Graduate Tutorial. (3) Tutorial, three hours; outside study, six hours. Limited to first- and second-year departmental graduate students. Development of body of work while working toward MFA degree, with one-to-one interaction between students and faculty members. May be repeated for credit. Letter grading.

495. Teaching Assistant Training Practicum. (2) Seminar, three hours; outside study, three hours. Forum for first-year teaching assistants for discussion and exploration of teaching pedagogy and classroom mechanics. Problems and practices of teaching design at college level, as well as role of teaching assistants within department. Designed to help new teaching assistants develop teaching skills and to orient them to department and University policies and resources. May not be applied toward degree requirements. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U or letter grading.

597. Preparation for MFA Comprehensive Examination. (4 to 8) Tutorial, to be arranged. Designed for second-year MFA students to prepare for comprehensive examination. May be repeated for credit with consent of adviser. S/U grading.

598. MA Research and Thesis Preparation. (4 to 12) Tutorial, to be arranged. Designed for second-year MA students. May not be applied toward minimum graduate course or unit requirements for MA degree. May be repeated for credit. S/U grading.

DIGITAL HUMANITIES

*Interdisciplinary Minor
College of Letters and Science*

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undergraduate-minor/](http://www.cdh.ucla.edu/curriculum/undergraduate-minor/)

Todd S. Presner, PhD, Chair

Faculty Committee

Jon A. Christensen, PhD (*Institute of the Environment and Sustainability*)
Maria (Maite) T. de Zubiaurre, PhD (*Germanic Languages, Spanish and Portuguese*)
Johanna R. Drucker, PhD (*Design/Media Arts, Information Studies*)
Diane G. Favro, PhD (*Architecture and Urban Design*)
Christopher Johanson, PhD (*Classics*)
Christopher M. Kelty, PhD (*Institute for Society and Genetics*)
Stephen D. Mamber, PhD (*Film, Television, and Digital Media*)
Todd S. Presner, PhD (*Comparative Literature, Germanic Languages*)
Janice L. Reiff, PhD (*History, Statistics*)
Francis F. Steen, PhD (*Communication Studies*)
Willeke Z. Wendrich, PhD (*Near Eastern Languages and Cultures*)

Scope and Objectives

The Digital Humanities minor is an interdisciplinary minor that studies the foundations and futures of the digital world. Digital humanities interprets the cultural and social impact of the new information age as well as creates and ap-

plies new technologies to answer cultural, social, and historical questions, both those traditionally conceived and those enabled by new technologies. The interdisciplinary curriculum draws on faculty members from more than 15 departments, five schools, and three research centers at UCLA. It places project-based learning at the heart of the curriculum, with students working in collaborative teams to realize digital research projects with real-world applications. Students use tools and methodologies such as three-dimensional visualization, data-mining, network analysis, and digital mapping to conceptualize and advance research projects. Students have the opportunity to make significant contributions to scholarship in fields ranging from archaeology and architecture to history and literature. By preparing students to be active participants in the design and production of new knowledge, the minor emphasizes the critical thinking skills, creativity, and collaborative methodologies necessary for success in the digital information age.

Undergraduate Study

Digital Humanities Minor

The Digital Humanities minor is intended to provide students with literacy in creating, interpreting, and applying the technologies of the digital world. It examines the cultural and social impact of new technologies and enables students to harness these technologies to develop their own research projects in a wide range of fields.

To apply for the minor, students must (1) have an overall grade-point average of 2.7 or better and (2) submit an application essay supporting their interest in pursuing the minor and enumerating any digital projects that they have already undertaken. On acceptance to the minor, students are expected to identify an academic area of digital humanities in which they intend to concentrate. Information about the minor is available at <http://www.cdh.ucla.edu/curriculum/undergraduate-minor/>. To submit an application for the minor, see the website.

Required Lower Division Course (4 to 6 units): One elective course selected from Ancient Near East 10W, Architecture and Urban Design 10A, Classics 10, 20, 42, General Education Clusters 66A, German 61A, Information Studies 20, 30, or Program in Computing 3.

Required Upper Division Courses (25 to 28 units): Digital Humanities 101, 150, 198 or 199, and three elective courses selected from Ancient Near East M101C (or Art History M110C), 125A, M125B (or Architecture and Urban Design M125B), M125C (or Architecture and Urban Design M125C), 162, C165, CM169 (or Anthropology CM110Q), Anthropology M116S (or Chinese M183), Architecture and Urban Design 132, Armenian C153, Art History C145A, C145B, Classics 164, 166B, Design | Media Arts 104, Digital Humanities 195 or 196, English 118A, History 188, Korean 183, 187, Russian 121, 129, Scandinavian C133A, C171, Society and Genetics 131, 175, Spanish 130, 150, 170, Urban Planning 129, 141. Variable topics courses may be taken as topics apply.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade. Successful completion of the minor is indicated on the transcript and diploma.

Digital Humanities

Upper Division Courses

101. Introduction to Digital Humanities. (5) Lecture, four hours; discussion, one hour. Foundation course for students in Digital Humanities minor, providing theoretical and conceptual framework for understanding genesis of digital world. Use of contemporary cultural-historical methodology to focus on rise of new media and information technologies in 19th, 20th, and 21st centuries, such as photography, film, radio, television, Internet, and World Wide Web and their impact on how individuals, groups, and cultures experienced their worlds. Letter grading.

150. Advanced Topics in Digital Humanities. (4) Seminar, three hours. Requisite: course 101. Introduction to advanced research methods or thematic issues in digital humanities such as database and visualization technologies, social media technologies, application programming interfaces, and digital mapping to acquire familiarity with particular set of technologies by learning practical research methods and theoretical issues to carry out advanced research in this area. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. Letter grading.

194. Research Group Seminars: Digital Humanities. (2) Seminar, two hours. Requisites: course 101, completion of two other minor courses. May be taken concurrently with course 195 or 196. Designed for undergraduate students who are part of research group. Discussion of research methods, tools, and current literature in field or of research of faculty members and students. May be repeated for credit. P/NP or letter grading.

195. Community or Corporate Internships in Digital Humanities. (4) Tutorial, two hours; fieldwork, eight hours. Limited to juniors/seniors. May be taken concurrently with course 194. Internship in supervised setting in community agency or business. Placements to be arranged by instructor. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. Letter grading.

196. Research Apprenticeship in Digital Humanities. (4) Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP grading.

198. Honors Research in Digital Humanities. (4) Tutorial, one hour. Requisite: course 194. Limited to juniors/seniors. Development and completion of significant research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research in Digital Humanities. (4) Tutorial, one hour. Requisite: course 194. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

Graduate Courses

201. Introduction to Digital Humanities. (5) Seminar, three hours; laboratory, one hour. Introduction to field of digital humanities. Historical overview of field from its beginning in post-World War II era to present, highlighting major intellectual problems, disciplinary

paradigms, and institutional challenges that are posed by digital humanities. Examination of major epistemological, methodological, technological, and institutional challenges posed by digital humanities through number of specific projects that address fundamental problems in creating, interpreting, preserving, and transmitting human cultural record. How digital technologies and tools, ranging from map visualizations and modeling environments to database structures and interface design, are arguments that make certain assumptions about, and even transform, objects of study. Letter grading.

250. Special Topics in Digital Humanities. (4) Seminar, three hours. Enforced requisite: course 201. Introduction to advanced research method or thematic issue in digital humanities, such as digital textual analysis, digital mapping database and visualization technologies, or social media technologies. Acquisition of familiarity with particular set of technologies by learning practical research methods and theoretical issues to carry out advanced research in this area. Examination of critiques of theoretical underpinnings of such technologies and issues that they raise. May be repeated for credit with topic change. Letter grading.

299. Special Projects in Digital Humanities. (2 to 4) Tutorial, one hour. Enforced requisite: course 201. Limited to and required of graduate students in Digital Humanities Graduate Certificate Program. Supervised research and investigation under guidance of faculty mentor. Culminating project required. May be repeated for maximum of 12 units. Letter grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, three hours. To be arranged with faculty member who directs study or research. S/U or letter grading.

DISABILITY STUDIES

*Interdisciplinary Minor
College of Letters and Science*

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Victoria E. Marks, BA, Chair

Faculty Committee

Bruce L. Baker, PhD (*Psychology*)
Anurima Banerji, PhD (*World Arts and Cultures/Dance*)
Helen Deutsch, PhD (*English*)
Victoria E. Marks, BA (*World Arts and Cultures/Dance*)
Mary J. O'Connor, PhD (*Psychiatry and Biobehavioral Sciences*)

Scope and Objectives

The Disability Studies minor introduces undergraduate students to the emerging interdisciplinary field of disability studies, offering a new lens for thinking about the body, society, and culture. The field reorients a marginalized phenomenon at the center of our experience, transforming what is often misconceived as an abnormality of daily life into one of its most basic realities. Faculty members from applied fields in the professional schools (e.g., education, law, medicine, nursing, public health, public policy, and urban planning) collaborate with faculty from academic disciplines across the College of Letters and Science and the School of the Arts and Architecture (e.g., an-

thropology, English, history, linguistics, psychology, and world arts and cultures) to provide a critical framework for questioning and connecting topics related to disability in these established disciplines.

Through a core course, carefully selected electives, a required two-term internship or research apprenticeship, and a senior capstone project, students in the minor obtain both breadth and depth in their understanding of the concept and practical implications of disability.

Undergraduate Study

Disability Studies Minor

To enter the Disability Studies minor, students must (1) have an overall grade-point average of 2.7 or better and (2) submit an application essay supporting their interest in pursuing the minor. To help plan the internship and course schedule, students are expected to work closely with the minor's academic adviser. Applications are available at <http://www.uei.ucla.edu/dsminor.htm> and must be filed with College Academic Counseling, A316 Murphy Hall. For information and questions, e-mail palpomo@college.ucla.edu or call 310-206-1667.

Required Upper Division Courses (13 to 15 units): Disability Studies 101 or 101W and three courses selected from 102 through M164A, American Sign Language M120, 121, Anthropology 147, Arts Education 101, Asian American Studies M117, Community Health Sciences 100, 132, Education 132, Gerontology M119O, History 179A, Linguistics C135, Psychiatry and Biobehavioral Sciences M180, Psychology M107, M119O, 127A or 127B or 127C, 129C, 132A, 133I, M140, M180, Social Welfare M140, 162, Sociology M148, Spanish M165SL. Students may petition to apply a third term of Disability Studies 195CE toward the elective requirement.

Required Upper Division Internship/Apprenticeship Courses (8 units): Two consecutive terms of internship or research apprenticeship (Disability Studies 195CE or 196) in a community-based agency that provides services or support for persons with disabilities or in an institution or agency at the local, state, or federal level responsible for policy on disability issues or collaboration on a research project focused on an area of disability studies scholarship. Internship credit for students participating in the UC Center Sacramento (UCCS) program or the Center for American Politics and Public Policy (CAPPP) program may be substituted by petition and is subject to approval by the faculty committee.

Required Upper Division Capstone Courses (5 to 6 units): Disability Studies 191 or 198A and 198B or 199A and 199B. Prior to enrolling in any capstone option, students must complete Disability Studies 101 or 101W, two upper division electives, and at least one term of an internship or apprenticeship.

The capstone experience for the minor requires an integrative final paper or project that incorporates the required curriculum and elec-

tive courses. Students complete the capstone experience by enrolling in a senior research seminar (Disability Studies 191) or by enrolling in two-term independent study courses (198A and 198B or 199A and 199B) under the guidance of a faculty sponsor. The faculty sponsor approves the proposed readings as well as the length and scope of the final paper or project based on guidelines developed by the faculty committee for the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 3.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Disability Studies

Upper Division Courses

101. Perspectives on Disability Studies. (5) Lecture, one hour; discussion, two hours. Not open for credit to students with credit for course 101W. Creation of critical framework for understanding concept of disability from sampling of disciplinary perspectives. Organized around productive and central tension in disability studies—between disability as lived subjective experience that is both individual and communal, and disability as objective, medical, legal, and sometimes stigmatized category. Students encouraged to make connections between units and to create their own perspectives on disability in field that defines itself by how it changes. Letter grading.

101W. Perspectives on Disability Studies. (5) Lecture, one hour; discussion, two hours. Enforced requisite: English Composition 3 or English as a Second Language 36. Not open for credit to students with credit for course 101. Creation of critical framework for understanding concept of disability from sampling of disciplinary perspectives. Organized around productive and central tension in disability studies—between disability as lived subjective experience that is both individual and communal, and disability as objective, medical, legal, and sometimes stigmatized category. Students encouraged to make connections between units and to create their own perspectives on disability in field that defines itself by how it changes. Satisfies Writing II requirement. Letter grading.

102. Disability and Violence. (4) Seminar, three hours. Relationship between disability and violence from three angles: (1) review of disproportionate incidence of violence committed against people with disabilities, whether specifically as form of hate crime or based on dependency and/or vulnerability that accompany some types of disability, (2) study of role of disability and particularly mental illness in representations of criminality and violence, and (3) disablement or emergent disability (injuries, illnesses, and impairments created by social inequity) as consequence of intersecting forms of racial, gender, sexual, and class subordination, or as result of state or interpersonal violence. Consideration of possible coalition-based strategies for challenging systemic subordination and prospects for improving disability-consciousness across social movement efforts and campaigns. P/NP or letter grading.

M103. Studies in Disability Literatures. (5) (Same as English M103.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of modes of disability in literature, with specific emphasis on thematic concerns. Topics may include introduction to dis-

ability studies; race, gender, and disability; disability narratives; etc. May be repeated for credit with topic or instructor change. P/NP or letter grading.

110. Disability and Popular Culture. (4) Lecture, four hours. Drawing from disability studies, media studies, and theories of representation, examination of increasing visibility of people with disabilities in popular culture. How disability is represented and who gets to represent it. Analysis and critique of representations of people with disabilities in late 20th and early 21st century cinema and television to understand functioning of representation in popular culture. Development of critical media literacy skills. P/NP or letter grading.

111. Disability as Spectacle: Performing Nonnormative Bodies. (4) Lecture, two hours; studio, two hours. Examination through eyes of disability activists and artists interrogating how aspects of body get deemed nonnormative. Investigation of what it means to push against pressure to fit in, as well as how to contest invisibility of some disabilities that happen when normal bodies get defined visually. Use of this lens on disability to research and explore role that bodies play in political battles over who gets socially valued and who does not. P/NP or letter grading.

M114. Variable Topics in Performance and Disability Studies. (4) (Same as Theater M114.) Seminar, four hours. Analysis and critique of depiction of disability in theater. Topics may include introduction to disability studies; race, gender, and disability; representation of disability in theater; and more. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M115. Enforcing Normalcy: Deaf and Disability Studies. (4) (Same as American Sign Language M115.) Lecture, three hours. Exploration of historical, medical, social, political, philosophical, and cultural influences that have constructed categories of normalcy, disability, and deafness. Building on writing of Michel Foucault and critical work in field of disability studies, inquiry into institutions that have enforced standards of normalcy throughout 19th and 20th centuries to present. Primary attention to rise of medical authority in West, history of eugenics, and contemporary bioethics issues confronting disability and deaf communities. P/NP or letter grading.

M121. Topics in Gender and Disabilities. (4) (Same as Gender Studies M121.) Lecture, three and one half hours. Limited to juniors/seniors. Ways in which issues of disability are affected by gender, with particular attention to various roles, positions, and concerns of women with disabilities. Approach is intersectional, exploring how social categories of class, race, ethnicity, religion, age, sexuality, nationality, and citizenship affect and are affected by gender and disability. Topics may include law (civil rights, nondiscrimination), representation (arts, literature), education, public policy, health. May be repeated for credit with topic and instructor change. P/NP or letter grading.

M122. Bodies in Antiquity. (4) (Same as Classics M149.) Lecture, three hours. Investigation of individuals and groups that compose ancient Greek and Roman societies and relationship they have with larger social body, with particular focus on marginalized or minority groups such as women, noncitizens (resident aliens and provincials), slaves, children, elderly, and disabled. Examination of ways these groups contribute to or detract from our understanding of ancient society as whole. May be repeated for credit with topic change. P/NP or letter grading.

M125. Exploring Intersections of Ability and Sexuality. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M125.) Lecture, three hours. Exploration of identity as means of understanding cultural formations, dominant/nondominant power dynamics, and systems of visual representation. Intersectional approach to explore how ability and sexuality intersect, overlap, and change notions of identity. Use of scholarly texts from disability studies, lesbian, gay, bisexual, and transgender studies, popular culture, performance, and film to investigate factors that shape

ability and sexuality as basis for identity. May be repeated for credit with topic or instructor change. P/NP or letter grading.

129. Theory, Policy, and Practice of Special Education: Implications for Educators and Advocates.

(4) Lecture, three hours. Examination of issues of disability in K-12 schooling and social and historical contexts of special education policy, as well as its implementation. Focus on equity-related legal and policy issues in education, specifically those associated with disability, race, language, and gender and how these intersect. Consideration of landmark court decisions such as Brown versus Board of Education (1954) and Board of Education versus Rowley (1982), as well as key legislation such as Americans with Disabilities Act (ADA) and Individuals with Disabilities Education Act (IDEA). P/NP or letter grading.

M130. Disability Policy and Services in Contemporary America. **(4)** (Same as Gerontology M165 and Social Welfare M165.) Lecture, three hours. Limited to juniors/seniors. Growing numbers of people of all ages with disabilities are leading active and productive lives in American communities. Many others are struggling to lead such lives. Who are people with disabilities in contemporary America? How has U.S. responded over time to various needs and aspirations of people with disabilities, young and old? What demands have been made over time by disability advocates? How has government addressed demands of advocates for various disability populations? What do we know about extent to which public policies and programs are responsive to people in need? How do demographics, economics, and politics continue to influence evolving public policy responses? P/NP or letter grading.

131. Alternative Approaches to Language Acquisition. **(4)** (Formerly numbered M131.) Seminar, four hours. Examination of everyday experience of language delay, disorder, difference, and difficulty from disability studies perspective. Presentation of key concepts and terminology of culture, disability, and language use. Discussions and assignments critically evaluate findings on language acquisition by asking questions from disability studies about inclusion, individual- and socially constructed experience, and power. P/NP or letter grading.

138SL. Applied Autism Intervention: Multidisciplinary Perspective. **(4)** Seminar, 90 minutes; field-work, six hours. Service-learning course for undergraduate students in Early Childhood Partial Hospitalization Program (ECPHP). Introduction to history, theory, and practice of autism interventions and social and cultural factors that determine how society and medical profession understand autism as diagnostic category. Study of processes involved in identifying autism as represented in fields of psychology, neuroscience, and disability studies. Review of social versus medical model of disability and analysis of dominant as well as counter discourse on autism. Overview of broader educational issues for children living with disabilities as well as parent perceptions. P/NP or letter grading.

M139. Perspectives on Autism and Neurodiversity. **(4)** (Same as Psychology M139.) Seminar, three and one half hours. Genealogy of autism as diagnostic category and cultural phenomenon from its historical roots as new, rare, and obscure condition in early 1940s to its current contested status as minority identity and/or global epidemic. Examination of material sourced from various fields and disciplines invested in autism, including psychology, neuroscience, arts and humanities, popular media, anthropology, activism, and critical autism studies. Students encounter and analyze multiple perspectives on autism and put them in conversation with one another. Attention paid to way people on spectrum define, explain, and represent their own experiences of autism and discussion of what ramifications of these multiple framings are in context of autism intervention strategy and disability policy today. Letter grading.

145. Mental Disability Law. **(4)** Lecture, three hours. Examination of definitions and some characteristics of those conditions that legal systems recognize as mental disabilities. Review of evolution of these defi-

nitions through U.S. and Western histories, with focus on role conceptions of mental illness has played in various racial, gendered, and economic regimes. Exploration of primary approaches U.S. legal system takes to address needs, vulnerabilities, and rights of people with disabilities and of people with mental disabilities. Discussion of some key challenges and controversies affecting policy and practice in this area and varying strategies for engaging those challenges. P/NP or letter grading.

M148. Sociology of Mental Illness. **(4)** (Same as Sociology M148.) Lecture, three hours; discussion, one hour. Analysis of major sociological and social psychological models of madness. Study of social processes involved in production, recognition, labeling, and treatment of mental illness. P/NP or letter grading.

M149. Disability Rights Law. **(4)** (Same as Sociology M120.) Lecture, four hours. Examination of disability-related issues impacting people of all ages across wide spectrum of settings in both public and private sectors—from preschool to higher education, from military to workplace, and from intensely urban environments to online and virtual worlds. Topics range from persistent and recurring disputes to novel controversies fueled by new technologies and changing times. P/NP or letter grading.

150. Human Rights, International Development, and Disability. **(4)** Lecture, three hours. Basic introduction to theories of human rights, sociology of development, and contemporary rights-based development theory and practice. International disability rights movement to serve as case study, following passage of U.N. Convention on Rights of Persons with Disabilities in 2006 to changes on ground in developing countries that are occurring today. Offered in summer only. P/NP or letter grading.

M157. Rechoreographing Disability. **(4)** (Same as Dance M157.) Seminar, four hours. Through study of range of performance by, featuring, or about people who identify as disabled, reading and discussion of range of writing about experiences of disability and process of making work about disability by key artists and thinkers. Introduction to concept of choreography as political/cultural idea broadly defined as scored movement and organization and behavior of bodies, as well as choreography as poetic form for expression of ideas, creative tool, or product. Viewing and discussion of work, and embodying ideas through movement and dance-making. P/NP or letter grading.

M161. Sports, Normativity, and Body. **(4)** (Same as Gender Studies M161.) Lecture, four hours. Since creation of International Olympic Committee in 1894, athletes with disabilities have had, and been denied, formal opportunities to compete with able-bodied athletes. Overview of some major topics of discussion concerning intersections of athletic competition and disability, addressing variety of perspectives and themes on disability and sport, such as passing, sports integration, competition versus charity, and masculinity. Sources include readings, film, television, and biographical writings that address sports, body and disability generally, and Special Olympics specifically. P/NP or letter grading.

M164A. Documentary Production for Social Change: Mobility in Los Angeles. **(5)** (Same as Urban Planning M164A.) Seminar, three hours; field-work, two hours. Exploration of documentary filmmaking as catalyst for social change, using daily commute in Los Angeles as case study. Introduction to issues of race, ethnicity, gender, disability, and class on experiences of commuting, access to public transportation, and car-based versus alternative (bike and pedestrian) forms of commuting. Exposure to observational, interview-based, and participatory documentary shooting and editing techniques, as well as social marketing strategies that are vital to documentary production and distribution. Letter grading.

164B. Documenting Dis/Ability on Film. **(4)** Lecture, four hours. Nonfiction digital media is used as contemporary form of investigation or research or is attached to research projects, built into websites, used in campaigns for social and political activism, and ex-

hibited at film festivals. Social-issue documentaries appear more frequently on cable, public television, and Internet. Examination of how powerful documentaries still rely on well-told stories by passionate filmmakers. P/NP or letter grading.

M171. Philanthropy: Confronting Challenges of Serving Disabled. **(5)** (Formerly numbered 171.) (Same as Honors Collegium M170.) Lecture, three hours. Enforced requisite: course 101 or 101W. Study of history, philosophy, and practice of philanthropy using lens of disability studies theory in conversation with important themes of charity, paternalism, and systems of dependency. Analysis of multiple perspectives of philanthropy to gain practical experience setting priorities and making philanthropic investments in Los Angeles-based nonprofit organizations serving people with disabilities. Letter grading.

187. Special Topics in Disability Studies. **(4)** Lecture, three hours. Variable topics in one area within disability studies. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

191. Variable Topics Senior Research Seminars: Disability Studies. **(5)** Seminar, three hours. Enforced requisite: course 101 or 101W. Designed for advanced junior/senior Disability Studies minors. In-depth study of major themes in disability studies research. Themes vary by instructor and term. Students pursue independent research related to course theme, with guidance from instructor, then share and critique other student works in progress. May be repeated for credit with topic change. Letter grading.

194. Capstone Research Seminar. **(2)** Seminar, two hours. Enforced requisite: course 195CE. Required of students pursuing Disability Studies minor. Integration of off-campus work with academic theories and concepts within field of disability studies. Students report on their internship experiences and analyze relationship between their internship and issues of policy, ethics, systemic responses to community needs, or personal and intellectual transformations. Students identify one faculty mentor and develop proposal for required capstone research project. Letter grading.

195CE. Community and Corporate Internships in Disability Studies. **(4)** Tutorial, to be arranged; field-work, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. May be repeated for credit with consent of Center for Community Learning. Individual contract with supervising faculty member required. Letter grading.

196. Research Apprenticeship in Disability Studies. **(4)** Tutorial, one hour. Limited to junior/senior Disability Studies minors. Entry-level research apprenticeship under guidance of faculty mentors affiliated with Disability Studies minor. Collaboration with faculty mentors on their research in area related to disability studies. May be repeated for credit. Individual contract required. Letter grading.

198A-198B. Honors Research in Disability Studies. **(2-4)** Tutorial, one hour. Enforced requisite: course 101 or 101W. Course 198A is enforced requisite to 198B. Limited to juniors/seniors. Required capstone course to Disability Studies minor for students pursuing College Honors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. In Progress (198A) and letter (198B) grading.

198C. Honors Research in Disability Studies. **(2 to 8)** (Formerly numbered 198.) Tutorial, one hour. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199A-199B. Directed Research in Disability Studies. (2-4) Tutorial, one hour. Enforced requisite: course 101 or 101W. Course 199A is enforced requisite to 199B. Limited to juniors/seniors. Required capstone course to Disability Studies minor. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. In Progress (199A) and letter (199B) grading.

199C. Senior Project in Disability Studies. (2 to 8) (Formerly numbered 199.) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

EARTH, PLANETARY, AND SPACE SCIENCES

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Scope and Objectives

The disciplines of geology, geochemistry, geophysics, paleobiology, and space physics are concerned with the structure and evolution of the solar system, Earth, and life: essentially, the physical environment and its interaction with biota. These studies entail the application of fundamental physics and chemistry to a broad subject area stretching from astronomy at one extreme to biology at the other. Areas that are emphasized in the Department of Earth, Planetary, and Space Sciences include isotope and trace element analyses, petrology and mineralogy, sedimentology, paleobiology and organic geochemistry, structural geology and tectonophysics, seismology, the Earth's interior, planetary physics, and space plasmas.

The variety of techniques applied lead to several concentrations within the three main disciplines. Students completing their studies with a BS or MS degree usually are employed by industry. Many are employed in environment-related activities; others are involved in mineral or oil exploration or in construction. Students attaining the PhD degree are usually employed by universities or governmental and industrial research groups.

The Bachelor of Arts program in Earth and Environmental Science is intended to provide a broad background in Earth sciences that is especially appropriate for students intending to become K through 12 teachers in Earth, physical, or life sciences. It may also be of interest to students who plan careers in business, dentistry, environmental sciences, government, journalism, law, medicine, or public health. Those who intend to become professional geologists, geochemists, or geophysicists and/or to continue into graduate studies in Earth or space sciences are urged to pursue one of the BS degrees.

Undergraduate Study

All of the majors offered in the Earth, Planetary, and Space Sciences Department are designated capstone majors. While the specific nature of the capstone experience varies by major, students are required to use skill and knowledge sets from previous coursework to complete a field-based research project from conception to written report. Projects must be placed into context within the current state of understanding, and results are presented at a research symposium or published as a brief report.

Earth and Environmental Science BA

Capstone Major

Preparation for the Major

Required: Earth, Planetary, and Space Sciences 1, 5 or 8 or 13 or 15 or 16 or 17 or 20, 51, 61; Chemistry and Biochemistry 14A, 14B, and 14BL, or 20A, 20B, and 20L; Life Sciences 1 or another introductory organic biology course; Mathematics 3A and 3B, or 31A and 31B; Physics 1A or 6A or 6AH. Each course must be passed with a minimum grade of C-.

Transfer Students

Transfer applicants to the Earth and Environmental Science major with 90 or more quarter units (60 semester units) must have completed one introductory Earth sciences course, two general chemistry courses with laboratory for majors, and one calculus course. One introductory biology course with laboratory and one calculus-based physics course with laboratory are recommended.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Three courses from Earth, Planetary, and Space Sciences 103A, 103B, 111, 112, 116, 119; one capstone 199 research course in the senior year; three additional upper division courses from Earth, Planetary, and Space Sciences other than 100; two courses from Geography 100, 101, 104, 105 and 105A, M107, M109, 110, 124, 125, M127, M131.

Engineering Geology BS

Capstone Major

Preparation for the Major

Required: Earth, Planetary, and Space Sciences 1, 51, 61; Chemistry and Biochemistry 20A, 20B, 20L; Civil and Environmental Engineering M20; Mathematics 31A, 31B, 32A, 33A; Physics 1A, 1B, 1C, 4AL, 4BL. *Recommended:* Mathematics 32B. Each course must be passed with a minimum grade of C-.

Transfer Students

Transfer applicants to the Engineering Geology major with 90 or more quarter units (60 semester units) must have completed one introductory Earth sciences course, two general chemistry courses with laboratory for majors, and one year of calculus. A second year of calculus is recommended.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Earth, Planetary, and Space Sciences 103A, 103B, 111, 112, 136A, 139; Civil and Environmental Engineering 108, 120, 121, 150; two capstone field research courses (Earth, Planetary, and Space Sciences 121, 121F).

Geology BS

Capstone Major

Preparation for the Major

Required: Earth, Planetary, and Space Sciences 1, 51, 61, 71; Chemistry and Biochemistry 14A, 14B, and 14BL, or 20A, 20B, and 20L; Life Sciences 1; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 4AL, and 4BL, or 6A and 6B. Each course must be passed with a minimum grade of C-.

Transfer Students

Transfer applicants to the Geology major with 90 or more quarter units (60 semester units) must have completed one introductory Earth sciences course, one year of calculus, and two general chemistry courses with laboratory for majors.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Earth, Planetary, and Space Sciences 103A, 103B, 111, 112, M118 (or 136A); two courses from 103C, 116, and 133; two capstone field research courses (121, 121F); two additional 100-level department courses.

Geophysics BS

Capstone Major

Preparation for the Major

Required: Earth, Planetary, and Space Sciences 51, 61, 71, and one course from 1 (preferred) through 15; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL. Each course must be passed with a minimum grade of C-.

Transfer Students

Transfer applicants to the Geophysics major with 90 or more quarter units (60 semester units) must have completed one introductory Earth sciences course, one general physics course with laboratory for majors, and one year of calculus. A second year of calculus and a second semester of calculus-based physics with laboratory are recommended.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required Core: Earth, Planetary, and Space Sciences 136A, M140, 171, one capstone field research course (136C), one course from 152, 153, 154, 155; Physics 105A, 105B, 110A, 110B, 131. Substitutions of equivalent courses from engineering or other physical sciences departments must be approved by the undergraduate adviser.

At least three courses from one of the following areas are also required: (1) *applied geophysics*—Earth, Planetary, and Space Sciences 111, 112, 122, 136B, 150, 152, (2) *marine geophysics*—courses 119, 122, 136B, 150, 153, (3) *planetary geophysics*—courses 150, 153, 154,

155, (4) *solid earth geophysics*—courses 119, 122, 136B, 150, 152, or (5) *space physics*—Atmospheric and Oceanic Sciences C170, Earth, Planetary, and Space Sciences 136B, 154, 155, Physics M122. Any course used to satisfy an area requirement cannot also be applied toward the core requirements listed above.

Honors in Geology or Geophysics

The honors program in geology or geophysics is intended to provide exceptional students an opportunity for advanced research and study under the tutorial guidance of a faculty member. Requirements for admission to candidacy are the same as those required for admission to the Honors Programs of the College of Letters and Science. Qualified students wishing to enter the program must submit a completed application form to the departmental honors committee near the end of their junior year. Honors in geology or geophysics are awarded at graduation to those students who have a cumulative grade-point average of 3.5, have completed at least 90 graded units at the University of California, and have completed a minimum of two terms (8 units) of Earth, Planetary, and Space Sciences 198 leading to the preparation of a satisfactory honors thesis. Students demonstrating exceptional ability are awarded highest honors.

Earth and Environmental Science Minor

In the Earth and Environmental Science minor students study the interaction of the solid Earth, oceans, and atmosphere with human activities. The minor provides background in Earth sciences that is especially appropriate for students intending to become K through 12 teachers in Earth, physical, or life sciences. It may also be of interest to students who plan careers in business, dentistry, environmental sciences, government, journalism, law, medicine, or public health.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (8 units): Earth, Planetary, and Space Sciences 1, one course from 5, 13, 15, or 61.

Required Upper Division Courses (20 units minimum): Five courses from Earth, Planetary, and Space Sciences 101, 112, C113, 139, 150, 153.

A minimum of 20 upper division units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Geochemistry Minor

Geochemistry emphasizes use of minerals, magmas, elements, and isotopes to date events, determine rates, and track matter

through its cycles in the planets and biosphere. These skills are valuable in environmental and natural-resource work and anthropology, as well as in studying the histories of the planets.

To enter the Geochemistry minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (8 units): Earth, Planetary, and Space Sciences 1, 51.

Required Upper Division Courses (20 to 26 units): Two courses from Earth, Planetary, and Space Sciences C106, C107, C109, and three courses from 103A, 103B, 103C, C106 or C107 or C109 (whichever course was not applied above), 152, 153.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Geology Minor

Geology is the study of the surface of the Earth and the rocks and processes that created it. Field methods, interpretation of rocks, and modern plate-tectonic models are emphasized, with the goals of finding valuable or hazardous materials and inferring geologic history. These skills are valuable in engineering, urban planning, and environmental and resource studies.

To enter the Geology minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (8 to 9 units): Earth, Planetary, and Space Sciences 1, 61.

Required Upper Division Courses (22 units): Earth, Planetary, and Space Sciences 112, 119, and three courses from C107, 116, 125, 133, 139, 150, 171.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Geophysics and Planetary Physics Minor

Classical physics, supported by field data, mathematics, and computing, is used to understand diverse processes from ocean circulation and earthquakes to the formation of planets and the flow of particles and electromagnetic fields in space. These skills are valuable in environmental, engineering, and resource studies and more broadly in any kind of career that requires quantitative analysis.

To enter the Geophysics and Planetary Physics minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (12 units): Earth, Planetary, and Space Sciences 1, 8, 9.

Required Upper Division Courses (20 units): Earth, Planetary, and Space Sciences 136A, 171, and three courses from M140, 152, 153, 154, 155.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Earth, Planetary, and Space Sciences offers Master of Science (MS), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Geochemistry, Master of Science (MS), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Geology, and Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Geophysics and Space Physics.

Earth, Planetary, and Space Sciences

Lower Division Courses

1. Introduction to Earth Science. (5) Lecture, three hours; laboratory, two hours; field days. Not open to students with credit for or currently enrolled in course 100 or former courses 1F and 1H. Elements of Earth science; study of Earth materials; nature and interpretation of geologic evidence; study of geologic processes; historical aspects of geology. Mandatory field trips introduce students to solving of geologic problems in field. P/NP or letter grading.

3. Astrobiology. (5) Lecture, three hours; discussion, one hour; two field days. Origin, evolution, distribution, and future of life on Earth and in universe, paralleling major scientific initiative of NASA. Course material primarily from planetary and Earth science, paleontology and biology, astronomy, chemistry, and physics, with relatively little from mathematics. P/NP or letter grading.

5. Environmental Geology of Los Angeles. (4) Lecture, three hours; discussion, two hours; field trips. Geologic hazards and natural resources of greater Los Angeles region. Topics include Los Angeles geologic hazards such as earthquakes, landslides, and floods; Southern California oil fields; gold and gem mining in region; local beach processes; and Los Angeles water resource problems. Field trips to San Andreas fault, California aqueduct, active landslides, and historic gold mines. P/NP or letter grading.

7. Perils of Space: Introduction to Space Weather. (4) Lecture, four hours. Concepts of plasma physics. Dynamic sun, solar wind, and Earth's magnetosphere and ionosphere. Space storms and substorms and their impacts on astronauts, spacecraft, and surface power and communication grids. P/NP or letter grading.

8. Earthquakes. (5) Lecture, three hours; laboratory, one hour; one field day. Causes and effects of earthquakes. Plate motion, frictional faulting, earthquake instability, wave propagation, earthquake damage, and other social effects. Hazard reduction through earthquake forecasting and earthquake-resistant design. P/NP or letter grading.

9. Solar System and Planets. (4) Lecture, three hours; discussion, one hour. Properties of sun, planets, asteroids, and comets. Astronomical observations relevant to understanding solar system and its origin. Dynamical problems, including examination of fallacious hypotheses. Meteoritic evidence regarding earliest history of solar system. Chemical models of solar nebula. Space exploration and its planning. P/NP or letter grading.

10. Exploring Mars, Red Planet. (4) Lecture, three hours; discussion, one hour. History and future of Mars exploration, origin of planet, surface materials, and atmosphere. History of climate. Questions regarding water and life. Scientific and practical issues in mission design. P/NP or letter grading.

13. Natural Disasters. (5) Lecture, three hours; discussion, one hour; one field day. Global urbanization together with historical demographic population shift to coastal areas, especially around Pacific Ocean's "Ring of Fire," are placing increasingly large parts of this planet's human population at risk due to earthquakes, volcanoes, and tsunamis. Global climate change combines with variety of geologic processes to create enhanced risks from catastrophic mass movements (e.g., landslides), hurricanes, floods, and fires. Exploration of physical processes behind natural disasters and discussion of how these natural events affect quality of human life. P/NP or letter grading.

15. Blue Planet: Introduction to Oceanography. (5) Lecture, three hours; laboratory, two hours. Not open for credit to students with credit for or currently enrolled in Ecology and Evolutionary Biology 25. General introduction to geological, physical, chemical, and biological processes and history of Earth's global ocean system. P/NP or letter grading.

16. Major Events in History of Life. (4) Lecture, three hours; laboratory, two hours. Designed for nonmajors. History of life on Earth as revealed through fossil record. P/NP or letter grading.

17. Dinosaurs and Their Relatives. (5) Lecture, three hours; laboratory, two hours; one optional field trip. Designed for nonmajors. Exploration of biology, evolution, and extinction of dinosaurs and close relatives; in context of history of biosphere. Information from paleontology, biology, and geology. P/NP or letter grading.

20. Natural History of Southern California. (5) Lecture, two hours; laboratory, three hours; five field weekends. Identification, distribution, diversity of native plants and communities; identification and interpretation of rocks, minerals, and geologic features and geologic history of physiographic regions of Southern California. Emphasis on field-based learning. P/NP or letter grading.

51. Mineralogy: Earth and Planetary Materials. (5) Lecture, three hours; laboratory, four hours. Enforced requisite: course 1. Recommended: completion of chemistry requirement. Principles of mineralogy. Mineral structure and bonding and crystal chemistry, with focus on materials of interest for Earth and planetary sciences and major rock-forming minerals. Laboratory study of relationship between mineral structure and properties, including hand sample identification, microscopy (optical and electron), X-ray diffraction, and spectroscopy techniques. P/NP or letter grading.

61. Geologic Maps. (4) Lecture, two hours; laboratory, three hours; five field days. Enforced requisite: course 1. Planning, creation, and interpretation of geologic maps, including both practical and philo-

sophical problems that arise. Topographic and geologic mapping in field. Interpretation of published maps in laboratory. P/NP or letter grading.

71. Introduction to Computing for Geoscientists. (4) Lecture, three hours; laboratory, three hours; outside computing study, three hours. Introduction to writing programs in MATLAB, visualization of geoscience data, and comparison with models. P/NP or letter grading.

Upper Division Courses

100. Principles of Earth Science. (4) Lecture, three hours. Designed for nonmajors. Not open to students with credit for course 1 or former course 1H. Fundamentals of physical geology and Earth history; major problems of geology, such as continental drift and development of large-scale features of Earth; physical and biological evolution. P/NP or letter grading.

101. Earth's Energy: Diminishing Fossil Resources and Prospects for Sustainable Future. (4) Lecture, three hours; laboratory, two hours; two optional field trips. Preparation: one lower division atmospheric sciences, chemistry, Earth sciences, or physics course. Not open for credit to students with credit for former course 101F. Earth's energy resources (fossil fuels and alternatives) from Earth science and sustainability perspective. P/NP or letter grading.

103A. Igneous Petrology. (5) Lecture, two to three hours; laboratory, six hours; field trips. Enforced requisites: course 51, Chemistry 14B and 14BL, or 20B and 20L, Mathematics 3B or 31B. Mineralogy, chemical composition, and field occurrence of igneous rocks with reference to their origin by melting in earth. Introduction to thermodynamics as applied to petrology. Formation of magma, its movement, eruption, crystallization, and chemical evolution. Petrologic structure of crust and mantle and its relation to seismology. Overview of petrological and chemical evolution of Earth, moon, and other planets from their origin to present. P/NP or letter grading.

103B. Sedimentary Petrology. (5) Lecture, two to three hours; laboratory, six hours; field trips. Enforced requisite: course 103A. Recommended: course 61. Study of sedimentary rocks based on characteristics of sedimentary particles and dynamics of depositional processes. Lectures focus on development of depositional facies models, and laboratories emphasize recognition of sedimentary deposits from each major depositional facies. P/NP or letter grading.

103C. Metamorphic Petrology. (5) Lecture, two to three hours; laboratory, six hours; field trips. Enforced requisite: course 103B. Interpretation of metamorphic rocks based on field occurrence, mineralogical composition, texture, and application of physical and chemical principles. P/NP or letter grading.

C106. Physical Geochemistry. (4) Lecture, three hours. Requisite: course 51. Basic principles of physical chemistry for geologic applications. Thermodynamics and kinetics of reactions among minerals, natural waters, and magmas; construction and interpretation of phase diagrams; case studies of important geochemical and environmental issues. Concurrently scheduled with course C206. P/NP or letter grading.

C107. Geochemistry. (4) Lecture, three hours; discussion, one hour. Designed for junior/senior and graduate physical sciences students. Origin and abundance of elements and their isotopes; distribution and chemistry of elements in Earth and its environment. Concurrently scheduled with course C207. P/NP or letter grading.

C109. Isotope Geochemistry. (4) Lecture, three hours; discussion, one hour. Designed for junior/senior and graduate physical and biological sciences students. Theoretical aspects of isotope behavior: stable and radiogenic isotopes. Principles of geochronology. Use of isotopes as tracers in crust and mantle processes. Stable isotopes as indicators of environment and paleoclimate. Concurrently scheduled with course C209. P/NP or letter grading.

111. Stratigraphic and Field Geology. (6) Lecture, two hours; laboratory, three hours; fieldwork, eight hours per week. Enforced requisites: courses 61, 112.

Principles of stratigraphy; geologic mapping of selected area; preparation of geologic report. Letter grading.

111G. Field Geology. (2 to 4) Lecture, two hours; laboratory, three hours; fieldwork, one day per week. Designed for graduate students. Geologic mapping, principles of stratigraphy, structural geology, and map interpretation. S/U or letter grading.

112. Structural Geology. (5) Lecture, three hours; laboratory, six hours. Requisites: courses 1, 61. Recommended: course 51. Planar and linear structures at different scales in sedimentary, metamorphic, and igneous rocks. Faults and folds, their description, classification, and kinematic and dynamic analysis. Deformation, strength, fracture, and rheological properties of rocks. P/NP or letter grading.

C113. Biological and Environmental Geochemistry. (4) Lecture, three hours. Requisites: Chemistry 14A and 14B (or 20A and 20B), Mathematics 3A, 3B, and 3C (or 31A and 31B). Recommended: at least one lower division Earth, planetary, and space sciences course. Intended for junior/senior life and physical sciences students. Study of chemistry of Earth's surface environment and interplay between biology, human activity, and geology. Introduction to origin and composition of Earth, including atmosphere, crust, and hydrosphere. Examination of how these reservoirs are affected by biological cycles and feedbacks to biological evolution and diversity. Local and global-scale movements of biologically important elements like carbon, nitrogen, and phosphorus. Concurrently scheduled with course C213. P/NP or letter grading.

CM114. Aquatic Geomicrobiology. (4) (Formerly numbered C114.) (Same as Atmospheric and Oceanic Sciences CM114.) Lecture, three hours; discussion, one hour. Recommended requisite: course C107 or Atmospheric and Oceanic Sciences M105. Fundamental geomicrobiological metabolisms and biogeochemical reactions occurring in aquatic systems, how they impact their environment, and how they interact in complex ecosystems such as methane seeps, hydrothermal vents, coral reefs, microbial mats, or deep biosphere. Metabolisms include different photoautotrophic, heterotrophic, and chemoautotrophic pathways. Interpretation of geochemical profiles and understanding of how microorganisms govern mineralization and element cycling in aquatic systems. Concurrently scheduled with course CM214. P/NP or letter grading.

116. Paleontology. (4) Lecture, three hours; laboratory, three hours; field trips. Requisite: Life Sciences 1 or 2. Review of major groups of fossil organisms and their significance in geology and biology. P/NP or letter grading.

M118. Advanced Paleontology. (4) (Same as Ecology and Evolutionary Biology M145.) Lecture, three hours. Requisite: course 116 or Ecology and Evolutionary Biology 110 or 117. Consideration of major factors that have influenced history of life, including analytical approaches to analyzing patterns in fossil record, nature of rock record, and contribution of data from stable isotopes, functional morphology, phylogenetics, and developmental biology. P/NP or letter grading.

119. Continental Drift and Plate Tectonics. (4) Lecture, three hours. Requisite: course 1 or 100. Designed for juniors/seniors in physical sciences. Classical concepts of sedimentation and tectonics. Alfred Wegener's theory of continental drift and ensuing controversy. Physiography of continents and oceans. Geophysical evidence regarding nature of ocean floor. Magnetic stratigraphy. Seafloor spreading. Plate tectonic model and its driving mechanisms. Tectonic, igneous, and metamorphic processes at plate boundaries. P/NP or letter grading.

120. Rubey Colloquium: Major Advances in Earth, Planetary, and Space Sciences. (4) Lecture, three hours. Designed for juniors/seniors. Lectures on major advances in Earth science offered by distinguished authorities (including regular faculty members). Supervision of continuity and assessment of student performance by faculty member. Content

varies from year to year. If laboratory work is required, course 199 must be taken concurrently. P/NP or letter grading.

121. Advanced Field Geology. (4) Lecture, two hours. Requisites: courses 61, 103A, 111, 112. Problems in regional geology and field research; preparation of written geologic reports. P/NP or letter grading.

121F. Advanced Field Geology: Fieldwork. (4) Fieldwork, 20 hours. Advanced techniques in field geologic mapping and preparation of geologic maps and cross-sections, including igneous, metamorphic, and sedimentary terrains. P/NP or letter grading.

122. Introduction to Seismology. (4) Lecture, three hours; discussion, two hours. Enforced requisites: Mathematics 31A, 31B, 32A, Physics 1A (or 1AH), 1B (or 1BH). Recommended: course 71, Mathematics 33B. Earth mantle and core. Elasticity, seismic wave equation, ray theory, travel time inversion, surface waves, free oscillations. Earthquakes and source theory. P/NP or letter grading.

123. Geosciences Outreach. (4) Lecture, two hours; discussion, two hours; field days. Recommended requisites: at least three college-level life sciences or physical sciences courses. Introduction to pedagogical approaches and methods used in geosciences community to educate demographically diverse populations, including K-12 through higher-education audiences and general public. Focus on development of motivational and public communication skill sets as practiced at outreach events and demonstrations, including communication of science in multicultural settings. Active participation required in minimum of three scheduled outreach events over course of term, providing perspective and basis for follow-up discussions on critical geosciences literacy at local, state, and national levels. Letter grading.

125. Volcanoes. (4) Lecture, three hours; laboratory, three hours; field trip(s). Requisite: course 1. Recommended: course 103A, Physics 1A or 1AH or 6A. Types of volcanism. Physics of magma chambers, volcanic plumbing, explosive and effusive eruptions as illustrated by historical examples. Practical methods of volcano monitoring, with field trip. P/NP or letter grading.

C126. Advanced Petrology. (4) Lecture, three hours; laboratory, three hours; field trips. Enforced requisite: course 103A. Understanding genesis of igneous rocks based on geochemical, tectonophysical, and other geological evidence and principles. Concurrently scheduled with course C226. P/NP or letter grading.

133. Historical and Regional Geology. (4) Lecture, three hours; discussion, two hours; field trips. Requisite: course 61. Recommended: courses 103B, 111, 112. Principles of historical geology. Physical evolution of Earth, especially North America. One area of Earth to be investigated in detail, with emphasis on its geologic evolution through time. Letter grading.

136A. Applied Geophysics. (4) Lecture, three hours; laboratory, three hours; field trips. Preparation: knowledge of MATLAB. Enforced requisites: course 71, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C. Seismic reflection and refraction, Fourier analysis and deconvolution, vibroseis, synthetic seismograms, marine seismics, seismic interpretation, gravity and magnetic fields, inversion uniqueness and depth rules. P/NP or letter grading.

136B. Applied Geophysics. (4) Lecture, three hours; laboratory/field trips, six hours. Preparation: knowledge of MATLAB. Enforced requisite: course 136A. Principles and techniques of exploration for mineral deposits using natural and artificial electric and magnetic fields. Methods include self potential, resistivity, induced polarization, electromagnetics, magnetotellurics, magnetics. P/NP or letter grading.

136C. Field Geophysics. (6) Lecture, three hours; discussion, one hour; laboratory, two hours; fieldwork, 10 hours. Enforced requisite: course 136A. Application of seismic, gravimetric, magnetic, electrical, and other geophysical methods to geologic and engineering problems. Practical aspects of geophysical

exploration, including planning, data collection, data reduction, and interpretation. Fieldwork on unsolved problems (week-long field trip). P/NP or letter grading.

137. Petroleum Geology. (4) Lecture, three hours. Requisites: courses 61, 111. Geology applied to exploration for and production of natural gas and petroleum; techniques of surface and subsurface geology; problems of petroleum geology. P/NP or letter grading.

139. Engineering and Environmental Geology. (4) Lecture, three hours; discussion, one hour. Requisite: course 1 or 100. Recommended: course 111. Principles and practice of soil mechanics and foundation engineering in light of geologic conditions, recognition, prediction, and control or abatement of subsidence, landslides, earthquakes, and other geologic aspects of urban planning and subsurface disposal of liquids and solid wastes. P/NP or letter grading.

M140. Introduction to Fluid Dynamics. (4) (Same as Atmospheric and Oceanic Sciences M120.) Lecture, three hours; discussion, one hour. Corequisite: Physics 131. Fluid statics and thermodynamics. Kinematics. Conservation laws and equations of fluid motion. Circulation theorems and vorticity dynamics. Rotating frame. Irrotational flow. Letter grading.

C141. Basin Analysis. (4) Lecture, three hours; laboratory, three hours. Requisites: courses 103B, 111. Mechanisms of sedimentary basin development, flexural and thermal subsidence, isostasy, subsidence analysis, quantitative basin modeling, sediment provenance, tectonic settings. Concurrently scheduled with course C241. P/NP or letter grading.

150. Remote Sensing for Earth Sciences. (4) Lecture, three hours. Recommended requisites: courses 1, 61. Designed for juniors/seniors and graduate students. Remote sensing related to development of natural resources. Characteristics of electromagnetic spectrum and review of remote sensing devices. Applicability to land-use classification, soil survey, urban studies, vegetation classification; emphasis on geologic interpretation of imagery. P/NP or letter grading.

152. Physics of Earth. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 33A, Physics 1C (or 1CH). Crust-to-core tour of Earth and physics used to explore it. Isostasy, plate tectonics, mantle convection, and geodynamo as discovered with tools of elasticity, fluid mechanics, and thermodynamics. P/NP or letter grading.

153. Oceans and Atmospheres. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, 32A, Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH). Physics and chemistry of Earth's oceans and atmosphere; origin and evolution of planetary atmospheres; biogeochemical cycles, atmospheric radiation and climate, energetics and dynamics of oceanic and atmospheric circulation systems. P/NP or letter grading.

154. Solar Terrestrial Physics. (4) Lecture, three hours; discussion, one hour. Enforced requisite or corequisite: Physics 110A. Particle and electromagnetic emissions from sun under quiet and under disturbed conditions. Solar wind. Magnetospheres and ionospheres of Earth and other planets. Geomagnetic phenomena and aurora. P/NP or letter grading.

155. Planetary Physics. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, 32A, Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH). Formation of solar nebula; origin of planets and their satellites; comets, asteroids, and meteorites; celestial mechanics and dynamics; physics of planetary interiors, surfaces, and atmospheres. P/NP or letter grading.

156. Introduction to Space Plasma Physics. (4) Lecture, three hours; discussion, one hour. Enforced requisite: Electrical Engineering 101A or Physics 110A. Senior-level introductory course on electrodynamics of ionized gases, with emphasis on fundamental processes relevant to laboratory, space, and astrophysical plasmas. Examples mostly from space, planetary, and astrophysical plasmas, stellar winds, planetary magnetospheres, and radiation belts. Other

applications include materials processing, generation of coherent radiation, particle beams, and fusion energy production. Letter grading.

C160. Field Seminar. (2 to 6) Seminar, three hours; discussion, one hour; fieldwork, five to 20 days. Requisite: course 61. Field-based teaching and discussion forum that varies in focus from general geology through structure and tectonics, sedimentology, igneous and metamorphic petrology, volcanology, or other subdisciplines as prescribed. May be repeated for credit. Concurrently scheduled with course C260. P/NP or letter grading.

C162. Application of Remote Sensing in Field. (4) Fieldwork, five hours; laboratory, two hours. Requisite: course 150. Application of remote-sensing techniques to field situations. Digital analysis and interpretation of near-infrared, thermal-infrared, and microwave data from satellites and aircraft. Field observation of study site in California desert for testing hypotheses during week between winter and spring quarters. Concurrently scheduled with course C262. P/NP or letter grading.

165. Tectonic Geomorphology. (4) Lecture, three hours; laboratory, two hours. Enforced requisite: course 1 or 8. Recommended: courses 61, 119, Mathematics 31A. Interactions between tectonic, climate, and surface processes shape landscapes over days to millions of years. Focus on quantifying how tectonic and surface processes interact to govern landscape evolution. How landscapes can provide insights into physical and chemical surface processes, including bedrock weathering, soil formation, hillslope transport, and river and glacial erosion. How tectonics, climate, and underlying lithology may influence those processes in landscapes. P/NP or letter grading.

171. Advanced Computing in Geosciences. (4) (Formerly numbered 134.) Lecture, three hours; laboratory, three hours. Enforced requisites: course 71, Mathematics 3A, 3B, and 3C (or 31A and 31B). Original programming and application of software to generate and test hypotheses with nonideal or incomplete data sets. Interpolation/extrapolation with graphics to generate hypotheses; forward modeling from fundamental equations to explore implications; probabilistic testing of models against data. Examples and exercises from Earth and space sciences. Introduction to software used in research and industry. P/NP or letter grading.

CM173. Earth Process and Evolutionary History. (4) (Same as Ecology and Evolutionary Biology CM173.) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisites: Chemistry 14A, 14B (or 20A, 20B), Life Sciences 1, 2, 3, 4. Recommended: one course from Atmospheric and Oceanic Sciences M100, 101, 102, 103, M105, Ecology and Evolutionary Biology 109, 116, 120, 121, 122, M131, 135, 142, 152, 154, Geography 100, 101, or 103. Exploration of relationship between physical processes affecting surface of Earth, such as tectonics and climate, and biological evolution. Geologic history of Earth from its formation and history of scientific advancement. Changes through time in Earth/atmosphere/ocean system discussed in terms of their effects on biological process and biodiversity. Climate issues considered in this historical context of global process. Modern anthropogenic climate change placed in context of geologic record of climate change. Concurrently scheduled with course CM273. P/NP or letter grading.

C179. Search for Extraterrestrial Intelligence: Theory and Applications. (4) Lecture, two hours; laboratory, two hours. Enforced requisites: Mathematics 31B, Physics 1B. Recommended: course 71, Computer Science 31, Physics 110B, Program in Computing 10A. Search for extraterrestrial intelligence (SETI) is based on number of astronomical, mathematical, statistical, and computational principles. Coverage of fundamental concepts in these disciplines in context of SETI: abundance and architecture of extrasolar planetary systems; radio astronomy, including wave propagation and dispersion; signal processing, including sampling theory and Fourier transforms; random processes, including Gaussian and

Poisson statistics, and algorithm development. Design of observational program, acquisition of telescopic data, development of algorithms to analyze data, and writing of report on results. Concurrently scheduled with course C279. P/NP or letter grading.

188. Special Topics in Earth, Planetary, and Space Sciences. (4) Lecture/laboratory, to be arranged. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. P/NP or letter grading.

193A-193B-193C. Undergraduate Journal Club Seminars: Earth, Planetary, and Space Sciences. (1-1-1) Seminar, one hour. Limited to undergraduate students. Study of current topics in Earth, planetary, and space sciences, including participation in weekly department colloquium. May be repeated for credit. P/NP grading.

198. Honors Research in Earth, Planetary, and Space Sciences. (4) Tutorial, two hours. Limited to seniors. Individual research designed to broaden and deepen students' knowledge of some phase of Earth, planetary, and space sciences. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty mentor. May be repeated for maximum of 16 units. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Earth, Planetary, and Space Sciences. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Introduction to Geophysics and Space Physics I: Solid Earth and Planets. (4) Lecture, three hours. Requisites: Physics 105A, 110A, 112, 131. Geochemistry, cosmochemistry, and petrology; geotectonics; gravity field; seismology; heat transfer, thermal and mechanical evolution of mantle; core and geomagnetism; lunar and planetary interiors. S/U or letter grading.

200B. Introduction to Geophysics and Space Physics II: Oceans and Atmospheres. (4) Lecture, three hours. Requisites: Physics 105A, 110A, 112, 131. Evolution, chemistry, and heat balance of oceans and atmospheres; molecular spectra, radiative transfer, and planetary observations; dynamics of oceans and atmospheres. S/U or letter grading.

200C. Introduction to Geophysics and Space Physics III: Plasmas—Aeronomy and Interplanetary Medium. (4) Lecture, three hours. Requisites: Physics 105A, 110B, 112, 131. Solar surface features, heating and expansion of corona, solar wind, plasma and magnetic fields, interaction of solar wind with Earth, magnetospheric phenomena. S/U or letter grading.

200D. Planetary Surfaces. (4) Lecture, three hours. Introduction to basic physical processes (both exogenic and endogenic) shaping solid surfaces in solar system and description of their optical and thermo-physical properties, with emphasis on simple physics-based approach. Discussion of current literature. S/U or letter grading.

200E. Planetary Origins and Evolution. (4) Lecture, four hours. Designed for graduate students who are interested in origins of planetary systems and history of solar system. Open to advanced undergraduate students with consent of instructor. Provides background needed to understand and/or participate in research related to formation and evolution of solar system and of other planetary systems. Description of star/planet formation process and subsequent evolution of planetary systems by integrating observations and theory. Fosters interdisciplinary knowledge and communication between Departments of Earth and Space Sciences and Physics and Astronomy graduate students and faculty members. S/U or letter grading.

201. Classical Mechanics. (4) Lecture, three hours. Kinematics, variational principles and Lagrange equations, rotational dynamics. Hamilton equations of motion, linear and nonlinear perturbation theory, applications to solar system. S/U or letter grading.

202. Continuum Mechanics. (4) Lecture, three hours. Kinematics and dynamics of continuous media. Properties of stress, strain, and rate-of-strain tensors. Conservation laws. Elasticity and viscosity. Heat transfer, boundary layers, and dynamical similarity. S/U or letter grading.

203. Numerical Methods for Geosciences. (6) Lecture, four hours. Preparation: knowledge of programming language. Requisite: Mathematics 33B. Computational precision and algorithms, linear algebra, nonlinear equations, functional approximation, integration, ordinary and partial differential equations, spectral and finite element methods, parallel computing. Sample programming exercises from Earth and space sciences. Letter grading.

205. Inverse Theory and Data Interpretation. (4) Lecture, three hours. Requisites: Mathematics 115A, 170A, 170B, 171. Inverse modeling problem—determination of model parameters consistent with experimental data, considering effects of random errors and nonuniqueness. Emphasis on linear and quasi-linear problems; nonlinear problems also discussed. Tools used include matrix theory, quadratic forms, orthogonal rotations, statistics, principal axis transformation for rectangular matrices, Bachus/Gilbert resolving kernels, and Lagrange multipliers. Examples from broad range of physical sciences. S/U or letter grading.

C206. Physical Geochemistry. (4) Lecture, three hours. Requisite: course 51. Basic principles of physical chemistry for geologic applications. Thermodynamics and kinetics of reactions among minerals, natural waters, and magmas; construction and interpretation of phase diagrams; case studies of important geochemical and environmental issues. Concurrently scheduled with course C106. Additional independent research project and oral presentation required of graduate students. S/U or letter grading.

C207. Geochemistry. (4) Lecture, three hours; discussion, one hour. Designed for junior/senior and graduate physical sciences students. Origin and abundance of elements and their isotopes; distribution and chemistry of elements in Earth and its environment. Concurrently scheduled with course C107. Additional homework and class presentation required of graduate students. S/U or letter grading.

C209. Isotope Geochemistry. (4) Lecture, three hours; discussion, one hour. Designed for junior/senior and graduate physical and biological sciences students. Theoretical aspects of isotope behavior: stable and radiogenic isotopes. Principles of geochronology. Use of isotopes as tracers in crust and mantle processes. Stable isotopes as indicators of environment and paleoclimate. Concurrently scheduled with course C109. Additional literature survey, that may result in class presentation, expected of graduate students. S/U or letter grading.

210. Geochemical Kinetics: Thermochronometry. (4) Lecture, three hours; discussion, one hour. Designed for graduate physical and biological sciences students. Theoretical basis and application of thermochronometry: derivation of diffusion equation and methods of solution, relationship between heat and mass diffusion and their simultaneous solution, Boltzmann/Matano analysis, multicomponent diffusion, closure theory; $^{40}\text{Ar}/^{39}\text{Ar}$ systematics and interpretive models, multidiffusion domain theory, petrological applications. Letter grading.

211. Mathematical Methods of Geophysics. (4) Lecture, four hours. Requisites: Physics 105A, 110A, 112, 131. Recommended: Physics 132. Designed to provide mathematical background required for students pursuing PhD in Geophysics and Space Physics, as well as related programs in department. Extensive survey of these methods, with focus on geophysical applications consistent with needs that geophysics students encounter in their research. Letter grading.

C213. Biological and Environmental Geochemistry. (4) Lecture, three hours. Requisites: Chemistry 14A and 14B (or 20A and 20B), Mathematics 3A, 3B, and 3C (or 31A and 31B). Recommended: at least one lower division Earth, planetary, and space sciences course. Intended for graduate life and physical sciences students. Study of chemistry of Earth's surface environment and interplay between biology, human activity, and geology. Introduction to origin and composition of Earth, including atmosphere, crust, and hydrosphere. Examination of how these reservoirs are affected by biological cycles and feedbacks to biological evolution and diversity. Local and global-scale movements of biologically important elements like carbon, nitrogen, and phosphorus. Concurrently scheduled with course C113. S/U or letter grading.

CM214. Aquatic Geomicrobiology. (4) (Formerly numbered C214.) (Same as Atmospheric and Oceanic Sciences CM237.) Lecture, three hours; discussion, one hour. Recommended requisite: course C107 or Atmospheric and Oceanic Sciences M105. Fundamental geomicrobiological metabolisms and biogeochemical reactions occurring in aquatic systems, how they impact their environment, and how they interact in complex ecosystems such as methane seeps, hydrothermal vents, coral reefs, microbial mats, or deep biosphere. Metabolisms include different photoautotrophic, heterotrophic, and chemoaerotrophic pathways. Interpretation of geochemical profiles and understanding of how microorganisms govern mineralization and element cycling in aquatic systems. Concurrently scheduled with course CM114. S/U or letter grading.

M216. Evolutionary Biology. (4) (Same as Ecology and Evolutionary Biology M200A.) Lecture, two hours; discussion, two hours. Current concepts and topics in evolutionary biology, including microevolution, speciation and species concepts, analytical biogeography, adaptive radiation, mass extinction, community evolution, molecular evolution, and development of evolutionary thought. S/U or letter grading.

M217. Molecular Evolution. (4) (Same as Ecology and Evolutionary Biology M231.) Lecture, two hours; discussion, two hours. Series of advanced topics in molecular evolution, with special emphasis on molecular phylogenetics. Topics may include nature of genome, neutral evolution, molecular clocks, concerted evolution, molecular systematics, statistical tests, and phylogenetic algorithms. Themes may vary from year to year. May be repeated for credit. S/U or letter grading.

219. Planetary and Orbital Dynamics. (4) Lecture, four hours. Planetary rotations, satellite orbits, and tidal dissipation; planetary orbital system; resonance effects and chaos; spin-orbit and orbit-orbit coupling; planetary rings. S/U or letter grading.

220. Principles of Paleobiology. (4) Lecture/discussion, three hours. Limited to graduate science students. Open to qualified undergraduate biological and physical sciences students with consent of instructor. Current and classic problems in paleobiology, with emphasis on interdisciplinary problems involving aspects of biology, geology, organic geochemistry, and cosmology. Content varies from year to year. May be repeated for credit. S/U or letter grading.

221. Field Geology. (4) Lecture, one hour; discussion, one hour; fieldwork, 10 days. Enforced requisite: course 121F. Planning, execution, and presentation of geologic mapping projects at professional level. Resolution of problems in Southern California geology from synthesis of new and published research. Field area varies from year to year. May be repeated for credit. S/U or letter grading.

222. Introduction to Seismology. (4) Lecture, three hours. Types of seismic waves; travel-time seismology; epicenter location; amplitude variations; seismograph theory; explosion seismology; seismicity; focal conditions; surface wave analysis; microseisms and tsunamis. S/U or letter grading.

M224A. Elastodynamics. (4) (Same as Mechanical and Aerospace Engineering M257A.) Lecture, four hours. Requisites: Mechanical and Aerospace Engineering M256A, M256B. Equations of linear elasticity,

Cauchy equation of motion, constitutive relations, boundary and initial conditions, principle of energy. Sources and waves in unbounded isotropic, anisotropic, and dissipative solids. Half-space problems. Guided waves in layered media. Applications to dynamic fracture, nondestructive evaluation (NDE), and mechanics of earthquakes. Letter grading.

225. Physics and Chemistry of Planetary Interiors.

(4) (Formerly numbered 225A.) Lecture, four hours. Chemical compositions of Earth and planets; high-pressure and temperature effects, phase transitions, and equations of state; variations of density and temperature with depth; thermal and compositional evolution. S/U or letter grading.

C226. Advanced Petrology. (4) Lecture, three hours; laboratory, three hours; field trips. Requisite: course 103A. Designed for graduate students. Understanding genesis of igneous rocks based on geochemical, tectonophysical, and other geological evidence and principles. Concurrently scheduled with course C126. Graduate students required to read more recommended references, make class presentations on particular topics resulting from that reading, and lead seminar-type discussions on their selected topics. S/U or letter grading.

228. Introduction to Planetary Dynamos. (4) Lecture, three hours; laboratory/discussion, 90 minutes. Requisites: courses 200A, 200B, 200C. Designed for graduate students. Basic principles of planetary dynamo generation. Planetary core dynamics and core convection; mean field dynamo theory; kinematic dynamo theory; survey of modeling techniques and results. S/U or letter grading.

M229. Planetary Atmospheres and Climates. (4)

(Formerly numbered 229.) (Same as Atmospheric and Oceanic Sciences M210.) Lecture, three hours. Enforced requisite: Physics 1C. Planetary atmospheric structure and composition, radiative transfer, and climate dynamics. Topics include origin and evolution of atmospheres, paleoclimate of Earth and Mars, atmospheric thermodynamics, plane-parallel radiative transfer, climate dynamics, climate forcings/feedbacks, bifurcation, and climate hysteresis. S/U or letter grading.

230. X-Ray Crystallography. (4) Lecture, three hours; laboratory, three hours. Requisite: course 51. Point, translation, and space group symmetry, diffraction of X-ray, reciprocal lattice theory, single crystal X-ray methods, diffraction symmetry and elementary crystal structure analysis. S/U or letter grading.

231. Crystal Chemistry and Structure of Minerals.

(4) Lecture, three hours; laboratory, three hours. Requisite: course 51. Bonding, interatomic configurations, polymorphic transformations, isotopy, thermal and positional disorder; survey of structures of common minerals, and relation of physical and chemical properties to crystal structure. S/U or letter grading.

233. Mineral Physics and Equation of State. (4) Lecture, three hours. Interrelationship of physical properties of rock-forming minerals: optical reflectivity, refraction index, sound velocity, elastic constants, specific heat, and thermal expansivity. Determination of pressure, volume, and temperature relationships and planet-forming compounds. Variation of elastic constants with temperature and pressure. Application of shock-wave experiments to equations of state. S/U or letter grading.

234. Petrologic Phase Equilibria. (4) Lecture, three hours; discussion, three hours. Requisites: course 51, Chemistry 110B. Principles governing homogeneous and heterogeneous equilibria, with selected applications to mineral stability relations in igneous and metamorphic rocks (fractional crystallization, partial melting, hydrothermal solutions, element partitioning in coexisting phases). S/U or letter grading.

235A-235B-235C. Current Research in Geochemistry.

(1-1-1) Seminar, one hour. Limited to graduate Earth, planetary, and space sciences students. Seminars presented by staff, outside speakers, and graduate students on current research in geochemistry. May be repeated for credit. S/U or letter grading.

238. Metamorphic Petrology. (4) Lecture, three hours; laboratory, six hours. Preparation: one introductory petrology and petrography course. Interpretation of metamorphic rocks in light of observation, theory, and experiment. Geological relations, petrographic evidence, metamorphic zoning, thermodynamics of phase equilibria, projections, chemographic relationships, use of piezobirefringent haloes, Rayleigh depletion model, isotopic fractionation, environmental factors of metamorphism. Laboratory study of representative metamorphic rocks and suites of rocks selected to illustrate topics discussed in lectures. S/U or letter grading.

240. Space Plasma Physics. (4) Lecture, three hours. Requisite: course 200C or Physics 210A. Physics of plasmas in space, including treatments based on magnetohydrodynamics and kinetic theory. Applications to solar or planetary winds, steady-state magnetospheres, magnetospheric convection, substorm processes, magnetic merging, field-aligned currents and magnetosphere/ionosphere coupling, ring current dynamics, and wave particle instabilities. S/U or letter grading.

C241. Basin Analysis. (4) Lecture, three hours; laboratory, three hours. Requisites: courses 103B, 111. Mechanisms of sedimentary basin development, flexural and thermal subsidence, isostasy, subsidence analysis, quantitative basin modeling, sediment provenance, tectonic settings. Concurrently scheduled with course C141. S/U or letter grading.

242. Sandstone Petrology. (4) Lecture, two hours; laboratory, four hours. Requisite or corequisite: course C141. Petrographic study of sandstones, with emphasis on provenance, petrofacies, and paleotectonic reconstructions. S/U or letter grading.

244. Tectonics of Sedimentary Basins. (4) Lecture, two hours; discussion, two hours; field trips. Requisites: courses 103B, 119. Recommended: course C141. Plate-tectonic settings of sedimentary basins. Basin analysis, stratigraphy, paleoenvironments, sedimentology, and related subjects in context of plate-tectonic controls on basin evolution. S/U or letter grading.

245A-245B-245C. Current Research in Tectonics. (1-1-1) Seminar, one hour. Limited to graduate Earth, planetary, and space sciences students. Seminars presented by staff, outside speakers, and graduate students on current research in tectonics. May be repeated for credit. S/U grading.

248. Advanced Structural Geology. (4) Lecture, three hours; discussion, two hours. Requisite: course 111. Principles governing fracture, folding, and flow of rocks; solutions of structural problems at various scales; regional tectonic problems. S/U or letter grading.

251. Seminar: Mineralogy. (4) Seminar, three hours. Examination of groups of rock-forming minerals (e.g., feldspars), integrating such aspects as crystal structure, crystal chemistry, phase equilibria, and petrogenesis. S/U or letter grading.

252. Seminar: Geochemistry. (4) Seminar, two hours; discussion, two hours. Phase equilibria under crustal conditions, chemistry of ocean waters, recent and ancient sediments, structure and chemistry of upper mantle, geochronology, cosmochronology, and cosmochemistry. S/U or letter grading.

253. Seminar: Petrology. (4) Seminar, three hours. Problems of igneous or metamorphic petrology: methods of evaluating physical conditions of metamorphism; diffusion in mineralogic systems; origin of ultramafic rocks and problems of mantle; element fractionation among coexisting phases; other current subjects in field. S/U or letter grading.

255. Seminar: Structural Geology and Tectonics.

(4) Seminar, three hours. Flow and fracture in Earth's crust from microscopic to continental scale and in experiments. Examples may include metamorphic terranes, glaciers, plutons, volcanoes, and consolidated or unconsolidated sediments. Modern concepts of oceanic basins; processes leading to segregation of continental-type rocks. S/U or letter grading.

257. Seminar: Paleontology. (4) Seminar/discussion, three hours. Advanced topics in paleobiology, biostratigraphy, paleoecology, and paleobiogeography, with emphasis on relations to other disciplines. S/U or letter grading.

259. Seminar: Paleotectonics. (4) Seminar, two hours; discussion, two hours. Requisite: course 244. Basin evolution and paleogeography, with emphasis on Phanerozoic of Western U.S. S/U or letter grading.

C260. Field Seminar. (2 to 6) Seminar, three hours; discussion, one hour; fieldwork, five to 20 days. Requisite: course 61. Field-based teaching and discussion forum that varies in focus from general geology through structure and tectonics, sedimentology, igneous and metamorphic petrology, volcanology, or other subdisciplines as prescribed. May be repeated for credit. Concurrently scheduled with course C160. S/U or letter grading.

261. Topics in Magnetospheric Plasma Physics. (4) Lecture, four hours. Lectures, discussions, and exercises on specific advanced topics in magnetospheric plasma physics. Previous courses examined magnetic storms, magnetospheric substorms, ultralow frequency waves, and adiabatic particle motion in Earth's radiation belts. S/U or letter grading.

C262. Application of Remote Sensing in Field. (4) Fieldwork, five hours; laboratory, two hours. Requisite: course 150. Application of remote-sensing techniques to field situations. Digital analysis and interpretation of near-infrared, thermal-infrared, and microwave data from satellites and aircraft. Field observation of study site in California desert for testing hypotheses during week between winter and spring quarters. Concurrently scheduled with course C162. S/U or letter grading.

264. Order of Magnitude Earth and Planetary Sciences. (4) Seminar, three hours; discussion, three hours. Limited to departmental graduate students. Many graduate students have had little practice in making rough estimates or order of magnitude (OOM) assessments of physical problems, and even less practice at talking through problems with others. One key problem is tendency for rote memorization to take precedence over understanding. Discussion of basic problems from OOM perspective, with focus on problems appropriate to Earth, planetary, and space sciences, to inculcate physically based reasoning and promote effective on-your-feet communication. Attendance at departmental colloquium required each week. S/U or letter grading.

265. Instrumentation, Data Processing, and Data Analysis in Space Physics. (4) Lecture, three hours. Principles, testing, and operations of magnetometers and other instruments. Data processing, display, and archiving. Time-series analysis techniques, including filtering, Fourier series, eigenanalysis, and power spectra. S/U or letter grading.

M270A-M270B-M270C. Seminars: Climate Dynamics. (2 to 4 each) (Same as Atmospheric and Oceanic Sciences M272A-M272B-M272C and Geography M270A-M270B-M270C.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout geological past. Rheology and dynamics of climatic subsystems: atmosphere and oceans, ice sheets and marine ice, lithosphere and mantle. Climate of other planets. Modeling, simulation, and prediction of modern climate on monthly, seasonal, and interannual time scale. May be repeated for credit. S/U or letter grading.

CM273. Earth Process and Evolutionary History. (4) (Same as Ecology and Evolutionary Biology CM228.) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisites: Chemistry 14A, 14B (or 20A, 20B), Life Sciences 1, 2, 3, 4. Recommended: one course from Atmospheric and Oceanic Sciences M100, 101, 102, 103, M105, Ecology and Evolutionary Biology 109, 116, 120, 121, 122, M131, 135, 142, 152, 154, Geography 100, 101, or 103. Exploration of relationship between physical processes affecting surface of Earth, such as tectonics and climate, and biological evolution. Geologic history of Earth from its formation and history of scientific

advancement. Changes through time in Earth/atmosphere/ocean system discussed in terms of their effects on biological process and biodiversity. Climate issues considered in this historical context of global process. Modern anthropogenic climate change placed in context of geologic record of climate change. Concurrently scheduled with course CM173. S/U or letter grading.

C279. Search for Extraterrestrial Intelligence: Theory and Applications. (4) Lecture, two hours; laboratory, two hours. Enforced requisites: Mathematics 31B, Physics 1B. Recommended: course 71, Computer Science 31, Physics 110B, Program in Computing 10A. Search for extraterrestrial intelligence (SETI) is based on number of astronomical, mathematical, statistical, and computational principles. Coverage of fundamental concepts in these disciplines in context of SETI: abundance and architecture of extrasolar planetary systems; radio astronomy, including wave propagation and dispersion; signal processing, including sampling theory and Fourier transforms; random processes, including Gaussian and Poisson statistics, and algorithm development. Design of observational program, acquisition of telescopic data, development of algorithms to analyze data, and writing of report on results. Concurrently scheduled with course C179. S/U or letter grading.

282. Seminar: Geophysics. (4) Seminar, two hours; discussion, two hours. Seismology, geophysical prospecting, electromagnetic prospecting. Selected topics in Earth physics. Content varies from year to year. May be repeated for credit. S/U or letter grading.

M285. Origin and Evolution of Solar System. (4) (Same as Astronomy M285.) Lecture, four hours. Dynamical problems of solar system; chemical evidences from geochemistry, meteorites, and solar atmosphere; nucleosynthesis; solar origin, evolution, and termination; solar nebula, hydromagnetic processes, formation of planets and satellite systems. Content varies from year to year. May be repeated for credit. S/U grading.

286A-286B-286C. Seminars: Planetology. (2-2-2) Seminar, two hours. Problems of current interest concerning moon, planets, and meteorites. May be repeated for credit. S/U grading.

287A-287B-287C. Seminars: Seismology and Earth's Interior. (2-2-2) Seminar, two hours. Problems of current interest in seismology and Earth's interior. May be repeated for credit. S/U grading.

M288A-M288B-M288C. Seminars: Space Physics. (2-2-2) (Same as Atmospheric and Oceanic Sciences M275A-M275B-M275C.) Seminar, one hour. Problems of current interest concerning particles and fields in space. May be repeated for credit. S/U grading.

289. Seminar: Fluid Dynamics. (2) Seminar, one to two hours. Problems of current interest in fluid dynamics, with emphasis on geophysical applications. May be repeated for credit. S/U grading.

293A-293B-293C. Space Physics Journal Club. (1-1-1) Seminar, one hour. Limited to graduate space physics students in Earth, Planetary, and Space Sciences, Atmospheric and Ocean Sciences, and Physics and Astronomy Departments. Review of current space physics literature. May be repeated for credit. S/U grading.

295A-295B-295C. Current Research in Earth, Planetary, and Space Sciences. (1-1-1) Lecture, one hour. Limited to graduate Earth, planetary, and space sciences students. Seminars presented by outside speakers, staff, and/or graduate students describing current research. Written reports required. May be repeated for credit. S/U grading.

297. Advanced Techniques in Geological Research. (2 to 4) Lecture, two to four hours. S/U grading.

298. Advanced Topics in Earth and Space Sciences. (2 to 4) Lecture, two to four hours. S/U or letter grading.

M370A. Integrated Science Instruction Methods. (4) (Same as Chemistry M370A and Physics M370A.) Lecture, two hours; discussion, one hour; laboratory, one hour. Preparation: one introductory lower division year (including laboratory) each of chemistry, life sciences, and physics and at least two Earth science courses, preferably one with field experience. Classroom management, lesson design, assessment, history of science education. S/U or letter grading.

M370B. Integrated Science Instruction Methods. (4) (Same as Chemistry M370B and Physics M370B.) Lecture, two hours; discussion, one hour; laboratory, one hour. Requisite: course M370A or Chemistry M370A or Physics M370A. Application of learning theory to science instruction and classroom management, including use of technology, collaborative learning, laboratory safety, ethical issues, field experiences, and professional development. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Earth, Planetary, and Space Sciences. (2) Seminar, one hour; discussion, two hours. Classroom practice in teaching, with individual and group instruction on related educational methods, materials, and evaluation. Special emphasis on integration of technology in classroom. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study and/or Research. (2 to 12) Tutorial, to be arranged. May be repeated. S/U or letter grading.

597. Preparation for MS Comprehensive Examination or PhD Qualifying Examinations. (2 to 8) Tutorial, to be arranged. S/U grading.

598. MS Research and Thesis Preparation. (2 to 12) Tutorial, to be arranged. May be repeated. S/U grading.

599. PhD Research and Dissertation Preparation. (2 to 12) Tutorial, to be arranged. S/U grading.

EAST ASIAN STUDIES

*Interdepartmental Program
College of Letters and Science*

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William Marotti, PhD, Chair

Faculty Committee

William M. Bodiford, PhD (Asian Languages and Cultures)
Cameron D. Campbell, PhD (Sociology)
Jack W. Chen, PhD (Asian Languages and Cultures)
Torquil Duthie, PhD (Asian Languages and Cultures)
Michael D. Emmerich, PhD (Asian Languages and Cultures)
Andrea S. Goldman, PhD (History)
Christopher P. Hanscom, PhD (Asian Languages and Cultures)

Natasha L. Heller, PhD (*Asian Languages and Cultures*)
 Katsuya Hirano, PhD (*History*)
 Burglind Jungmann, PhD (*Art History*)
 Hui-Shu Lee, PhD (*Art History*)
 Namhee Lee, PhD (*Asian Languages and Cultures*)
 William Marotti, PhD (*History*)
 Kyeyoung Park, PhD (*Anthropology, Asian American Studies*)
 David C. Schaberg, PhD (*Asian Languages and Cultures*)
 Shu-mei Shih, PhD (*Asian American Studies, Asian Languages and Cultures, Comparative Literature*)
 Richard E. Strassberg, PhD (*Asian Languages and Cultures*)
 Mariko Tamanoi, PhD (*Anthropology*)
 Michael F. Thies, PhD (*Political Science*)
 James Tong, PhD (*Political Science*)

Scope and Objectives

The Master of Arts degree in East Asian Studies provides an interdisciplinary and highly flexible program of study. With opportunities to take a range of advanced courses in the social sciences and humanities, students are able to tailor their programs to emphasize particular methodological and disciplinary approaches and to focus in depth on the region as a whole and on its dynamics in particular countries. Coursework and language offerings range from the ancient to the contemporary and allow students to prepare for a broad range of individual needs and career interests with a thorough grounding in the history and culture of the region.

Information on the undergraduate major in Asian Studies can be found in the International and Area Studies section later in this catalog.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The East Asian Studies Program offers the Master of Arts (MA) degree in East Asian Studies.

East Asian Studies

Graduate Courses

291A-291B. Variable Topics in East Asian Studies. (4-4) Seminar, three hours. Selected topics on East Asia. May be repeated for credit with topic change. S/U or letter grading.

ECOLOGY AND EVOLUTIONARY BIOLOGY

College of Letters and Science

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Daniel T. Blumstein, PhD, *Chair*

Professors

Michael E. Alfaro, PhD
 Priyanga A. Amarasekare, PhD
 Paul H. Barber, PhD
 Daniel T. Blumstein, PhD
 Donald G. Buth, PhD
 Peggy M. Fong, PhD
 Malcolm S. Gordon, PhD
 Patricia A. Gowaty, PhD
 Gregory F. Grether, PhD
 Stephen P. Hubbell, PhD
 David K. Jacobs, PhD
 Peter Kareiva, PhD
 Glen M. MacDonald, PhD
 Peter M. Narins, PhD
 Peter N. Nonacs, PhD
 Philip W. Rundel, PhD
 Lawren Sack, PhD
 Barnett A. Schlinger, PhD
 H. Bradley Shaffer, PhD
 Thomas B. Smith, PhD
 Victoria L. Sork, PhD
 Charles E. Taylor, PhD
 Blaire Van Valkenburgh, PhD (*Donald R. Dickey Professor of Vertebrate Biology*)
 Robert K. Wayne, PhD
 Cheryl Ann Zimmer, PhD
 Richard K. Zimmer, PhD

Professors Emeriti

AA Barber, PhD
 Clifford F. Brunk, PhD
 Joseph Cascarano, PhD
 Martin L. Cody, PhD
 Nicholas E. Collias, PhD
 Franz Engelmann, PhD
 Arthur C. Gibson, PhD
 Elma González, PhD
 William M. Hamner, PhD
 Henry A. Hespenheide, PhD
 J. Lee Kavanau, PhD
 Kenneth A. Nagy, PhD
 Park S. Nobel, PhD
 Richard W. Siegel, PhD
 Henry J. Thompson, PhD
 Richard R. Vance, PhD
 Peter P. Vaughn, PhD
 Eduardo Zeiger, PhD

Associate Professors

Nathan J.B. Kraft, PhD
 James O. Lloyd-Smith, PhD
 Van M. Savage, PhD

Assistant Professors

Kirk E. Lohmueller, PhD
 Pamela J. Yeh, PhD

Adjunct Professors

Carlos L. de la Rosa, PhD
 Jon E. Keeley, PhD

Barbara J. Natterson, MD

Adjunct Associate Professors

Seth D. Riley, PhD
 Xiaoming Wang, PhD

Adjunct Assistant Professors

Christy A. Brigham, PhD
 Brenda J. Larison, PhD
 Debra M. Shier, PhD

Scope and Objectives

Organismic biology touches every aspect of modern life, and understanding how living organisms are adapted to their environments is the major challenge of the discipline. To meet this challenge, the Department of Ecology and Evolutionary Biology offers undergraduate and graduate instruction at all levels of biology—from regulatory and physiological processes within organisms through the natural ecology and behavior of living organisms and to the population and community dynamics of multiple species. All of these subject areas address practical problems facing the world today, and all influence human decisions on matters ranging from conservation of the environment to advancement of medical science.

The Bachelor of Science degrees combine essential background studies in mathematics, chemistry, and physics with a general introduction to all of the biological subjects, as well as advanced in-depth exposure to some of them. The Master of Science and PhD degrees provide opportunities for advanced, concentrated study. The Master of Science degree requires, in addition to specified coursework, completion of either a comprehensive examination or the performance of original research culminating in a thesis. The PhD degree requires independent and innovative research that ultimately results in a dissertation.

Undergraduate Study

Students may earn a Bachelor of Science degree in one of three different majors within the department: Biology (general biology); Ecology, Behavior, and Evolution; and Marine Biology. The majors build on similar lower division introductory courses and differ primarily in the upper division requirements. The Biology major is designed for students who desire exposure to a wide range of biological subjects. The remaining two majors—Ecology, Behavior, and Evolution and Marine Biology—provide more specialized instruction and strong preparation for employment or subsequent graduate study in the respective disciplines.

Two of the majors offered in the department are designated capstone majors: Ecology, Behavior, and Evolution and Marine Biology. In both programs students apply theory and technique learned through four years of classroom and laboratory experience to their own independent projects. The main purpose of the capstone is to provide a unique field experience that involves designing and executing a research project. Students are aided in the scientific process of learning about a new ecosystem, developing relevant questions, designing conceptually based projects, troubleshooting and completing the work, and writing

a publication-ready manuscript. They are also expected to exhibit strong teamwork, problem-solving, and communication skills.

Biology BS

The Biology major is designed for students with a broad interest in biology who desire to pursue careers in a wide range of biological and related fields. It provides excellent background preparation for postgraduate training in medicine and other health sciences, in tracks leading to academic and public service careers in biology, in biological industries, and even in nonbiological careers such as business, agriculture, and law. Emphasis is on breadth of training to expose students to all levels of modern biology.

Preparation for the Major

Life Sciences Core Curriculum

Required: Chemistry and Biochemistry 14A, 14B, 14BL, 14C, and 14D, or 20A, 20B, 20L, 30A, 30AL, and 30B; Mathematics 3A, 3B, 3C, and Statistics 13, or Mathematics 31A, 31B, 32A, and Statistics 13, or Life Sciences 30A, 30B, and Statistics 13; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

Students must also complete one of two life sciences sequences—either Life Sciences 1, 2, 3, 4, and 23L OR 7A, 7B, 7C, and 23L. They may not substitute courses in either sequence.

Each core curriculum course must be passed with a grade of C- or better, and all courses must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade below C- in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants to the Biology major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2 OR 7A, 7B, and 7C, one year of calculus, one year of general chemistry with laboratory for majors, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Students must complete the following courses:

1. Chemistry and Biochemistry 153A
2. At least 8 units (two courses) from Ecology and Evolutionary Biology 100, 109, 116, 120 or 185, 121. Students with credit for course 120 cannot also take course 185
3. At least 8 laboratory units (two courses) from Ecology and Evolutionary Biology 100L (if completed fall quarter 2011 and

thereafter), 101, 103, 105, 109/109L (count as one course), 110, 111, 112, 113A, 114A, 115, 117, 128, 136, 152/162L (count as one course), 162/162L (count as one course), 170, C174, 181. Four units from the Field Biology Quarter or Marine Biology Quarter may be applied, and one course from Molecular, Cell, and Developmental Biology C150/150AL or Physiological Science 166 may be included. Students with credit for Ecology and Evolutionary Biology 170 cannot also take Physiological Science 166

4. At least 8 units (two courses) from Ecology and Evolutionary Biology 100, 101, 103, 105, 107, 109, 110, 111, 112, 113A, 114A, 115, 116, 117, C119A, C119B, 120, 121, 122, C126, M127 (or Environment M127 or Geography M127), 128, 129, 130, M131 (or Geography M117), 133, 135, 136, 137, M139 (or Atmospheric and Oceanic Sciences M105), 142, M145 (or Earth, Planetary, and Space Sciences M118), 151A, 152, 153, 154, 155, 160, 162, 170, M171, CM173, C174, 175, 176 (counts as one-half course), C179, 180A (counts as one-half course), 180B, 185, 186, 187, 198A and 198B (must take both), 199 (4 units), Molecular, Cell, and Developmental Biology 138, 165A. Eight units from the Field Biology Quarter or Marine Biology Quarter may be included, and any departmental course not applied under item 2 or 3 above may be applied in this category. Students with credit for Ecology and Evolutionary Biology 120 cannot also take course 185
5. At least 12 units (three courses) from Anthropology 120 and/or one course from 124A, 124P, or 128A, Atmospheric and Oceanic Sciences M105 (or Ecology and Evolutionary Biology M139) or one course from 102, 103, 104, or 130, Biomathematics 110 and/or Biostatistics 100B, chemistry (except Chemistry and Biochemistry 193A through 199; Chemistry and Biochemistry 153L is strongly recommended), Earth, Planetary, and Space Sciences 116, ecology and evolutionary biology (except Ecology and Evolutionary Biology 190 through 196), Geography 112 and/or one course from 108 or 111, Human Genetics C144 or one course from Life Sciences 100HA, 100HB, or 100HC, mathematics (except Mathematics 105A, 105B, 106, 191 through 199), microbiology, immunology, and molecular genetics (except Microbiology, Immunology, and Molecular Genetics 193A through 199), molecular, cell, and developmental biology (except Molecular, Cell, and Developmental Biology 190A through 199D), Neuroscience M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A), M101B (or Molecular, Cell, and Developmental Biology M175B or Physiological Science M180B or Psychology M117B), M101C (or Molecular, Cell, and Developmental Biology M175C or Physiological Science M180C or Psychology M117C),

102, M130 (or Molecular, Cell, and Developmental Biology M181 or Physiological Science M181 or Psychiatry M181 or Psychology M117J), M148, physics (except Physics 190 through 199), physiological science (except Physiological Science 191 through 199), Psychology 115. Any remaining units from the Field Biology Quarter or Marine Biology Quarter not applied in item 3 or 4 may be applied and any course not applied under item 2, 3, or 4 above may be included in this category

A maximum of 8 units of the Ecology and Evolutionary Biology 198 series or 4 units of Ecology and Evolutionary Biology 199 may be applied toward the major. Credit for 199 courses from other departments may not be applied.

With consent of the instructors and department, students may enroll in 200-level courses and apply them toward major requirements.

Each course applied toward requirements for preparation for the major and the major must be taken for a letter grade. Biology majors must earn a C- or better in each course taken as preparation for the major, and at least a 2.0 (C) overall average in all courses applied toward the major.

Ecology, Behavior, and Evolution BS

Capstone Major

The Ecology, Behavior, and Evolution major is appropriate for students preparing for graduate study in ecology, behavior, and evolution or for employment in areas such as environmental biology, animal behavior, conservation, teaching, museum work, and governmental positions dealing with environmental issues of wide importance and impact. A strong field component involving study in terrestrial and marine locales such as coastal, desert, and mountain environments in California and the Southwest and in the Neotropics is required.

Preparation for the Major

Life Sciences Core Curriculum

Required: Chemistry and Biochemistry 14A, 14B, 14BL, 14C, and 14D, or 20A, 20B, 20L, 30A, 30AL, and 30B; Mathematics 3A, 3B, 3C, and Statistics 13, or Mathematics 31A, 31B, 32A, and Statistics 13, or Life Sciences 30A, 30B, and Statistics 13; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

Students must also complete one of two life sciences sequences—either Life Sciences 1, 2, 3, 4, and 23L OR 7A, 7B, 7C, and 23L. They may not substitute courses in either sequence.

Each core curriculum course must be passed with a grade of C- or better, and all courses must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade below C- in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants to the Biology major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2 OR 7A, 7B, and 7C, one year of calculus, one year of general chemistry with laboratory for majors, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Students must complete the following courses:

1. At least 4 morphology and systematics units (one course) from Ecology and Evolutionary Biology 101, 103, 105, 110, 111, 112, 113A, 114A, 115, 117, or 130
2. At least 4 physiology units (one course) from Ecology and Evolutionary Biology 162/162L (must take both), 170, or Physiological Science 166. Students with credit for Ecology and Evolutionary Biology 170 cannot also take Physiological Science 166
3. At least 12 ecology, behavior, and evolution units (three courses) from Anthropology 128A, Ecology and Evolutionary Biology 100, 116, C119A, C119B, 120, 121, 122, C126, 128, 129, 130, 133, 135, 136, 137, 142, 151A, 152, 153, 154, 155, 162, M171 (or Anthropology M125A), CM173, C174, 175, 185, 186. Students with credit for Ecology and Evolutionary Biology 120 cannot also take course 185
4. One capstone field quarter consisting of 12 to 16 units from the Field Biology Quarter (FBQ), Marine Biology Quarter (MBQ), or preapproved equivalent (see undergraduate adviser)
5. At least 8 units (two courses) from Anthropology 128A, chemistry (except Chemistry and Biochemistry 193A through 199; Chemistry and Biochemistry 153A and 153L are strongly recommended), Earth, planetary, and space sciences (geology only; except Earth, Planetary, and Space Sciences 188 through 199), ecology and evolutionary biology (except Ecology and Evolutionary Biology 190 through 196), geography (except Geography 188 through 199), mathematics (except Mathematics 105A, 105B, 106, 191 through 199), microbiology, immunology, and molecular genetics (except Microbiology, Immunology, and Molecular Genetics 193A through 199), Molecular, Cell, and Developmental Biology 172, physics (except Physics 190 through 199); recommended: taxon-oriented courses in ecological, behavioral, and evolutionary processes such as Ecology and Evolutionary Biology 111, 112, 113A, 114A, 115

Credit for 199 courses from other departments may not be applied.

Courses offered as part of the Field Biology Quarter (FBQ) are open to all qualified students, but strict priority is given to students who are Ecology, Behavior, and Evolution majors, are graduating seniors, have taken a broad range of ecology, behavior, and evolution coursework, and have maintained a good grade-point average.

With consent of the instructors and department, students may enroll in 200-level courses and apply them toward major requirements.

Each course applied toward requirements for preparation for the major and the major must be taken for a letter grade. Ecology, Behavior, and Evolution majors must earn a C- or better in each course taken as preparation for the major, and at least a 2.0 (C) overall average in all courses applied toward the major.

As requisites for the Marine Biology Quarter, students must have a 3.0 overall grade-point average and have taken Statistics 13 or equivalent. Preference for the Marine Biology Quarter is given to Ecology, Behavior, and Evolution and Marine Biology majors. It is strongly recommended that students complete Ecology and Evolutionary Biology 109 and 109L prior to applying for the Marine Biology Quarter. Consult the Undergraduate Advising Office for all requirements for the Marine and Field Biology Quarters.

Marine Biology BS

Capstone Major

The Marine Biology major is designed for students who wish to specialize in the area of marine sciences. Completion of this major provides students with both an excellent background in biology and specialization in various disciplines such as oceanography, subtidal and intertidal ecology, and physiology of marine organisms. Graduates are well prepared for postgraduate opportunities in the marine sciences, many other areas of biology, and medicine. The major provides valuable field experience with concomitant individual research opportunities in marine biology.

Preparation for the Major

Life Sciences Core Curriculum

Required: Atmospheric and Oceanic Sciences 1 or Earth, Planetary, and Space Sciences 15; Chemistry and Biochemistry 14A, 14B, 14BL, 14C, and 14D, or 20A, 20B, 20L, 30A, 30AL, and 30B; Mathematics 3A, 3B, 3C, and Statistics 13, or Mathematics 31A, 31B, 32A, and Statistics 13, or Life Sciences 30A, 30B, and Statistics 13; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

Students must also complete one of two life sciences sequences—either Life Sciences 1, 2, 3, 4, and 23L OR 7A, 7B, 7C, and 23L. They may not substitute courses in either sequence.

Each core curriculum course must be passed with a grade of C- or better, and all courses must be completed with an overall grade-point average of 2.0 or better. Students receiving a

grade below C- in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants to the Marine Biology major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2 OR 7A, 7B, and 7C, one year of calculus, one year of general chemistry with laboratory for majors, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Students must complete the following courses:

1. Ecology and Evolutionary Biology 109 and 109L
2. At least 4 laboratory units (one course) from Ecology and Evolutionary Biology 101, 105, 110, 112, 136, 170, or 181
3. At least 4 marine organismic biology or physiology units (one course) from Ecology and Evolutionary Biology 101 (unless taken under item 2), 105 (unless taken under item 2), 107, 112, 128, 142, 170 (unless taken under item 2), C174, or Physiological Science 166. Students with credit for Ecology and Evolutionary Biology 170 cannot also take Physiological Science 166
4. At least 4 ecology and behavior units (one course) from Anthropology 128A, Ecology and Evolutionary Biology 100, 116, C119A, 122, C126, 128, 129, M131 (or Geography M117), 133, 136, 137, 142, 151A, 152, 154, 155, 162, or 170
5. At least 4 evolution units (one course) from Ecology and Evolutionary Biology 116, 120, 121, 130, 133, 135, M171, CM173, C174, 175, 185, or 186. Students with credit for Ecology and Evolutionary Biology 120 cannot also take course 185
6. One capstone field quarter consisting of 12 to 16 units from the Marine Biology Quarter (MBQ) or preapproved equivalent (see undergraduate adviser)
7. One additional physical, chemical, or geological oceanography course from Atmospheric and Ocean Sciences 102, 103, 104, M105 (or Ecology and Evolutionary Biology M139), 130, Chemistry and Biochemistry 103, 153A, Earth, Planetary, and Space Sciences 100, 116, 119, C141, 153, Ecology and Evolutionary Biology M131 (or Geography M117), 153, 198B, 199, Geography 100, 101, M106 (or Atmospheric and Oceanic Sciences M106),

123, 130, 169, Mechanical and Aerospace Engineering 103, or 150A, Molecular, Cell, and Developmental Biology 172

Credit for 199 courses from other departments may not be applied.

With consent of the instructors and department, students may enroll in 200-level courses and apply them toward major requirements.

Each course applied toward requirements for preparation for the major and the major must be taken for a letter grade. Marine Biology majors must earn a C- or better in each course taken as preparation for the major, and at least a 2.0 (C) overall average in all courses applied toward the major.

As requisites for the Marine Biology Quarter, students must have a 3.0 overall grade-point average and have taken Statistics 13 or equivalent. Preference for the Marine Biology Quarter is given to Ecology, Behavior, and Evolution and Marine Biology majors. Students must complete Ecology and Evolutionary Biology 109 and 109L prior to participating in the Marine Biology Quarter. Consult the Undergraduate Advising Office for all requirements for the Marine and Field Biology Quarters.

Field Biology

The department offers two quarter-long programs of advanced courses in field biology: the Field Biology Quarter (FBQ) and the Marine Biology Quarter (MBQ). These programs focus on the biology of organisms living in their natural environments, emphasize independent student research projects, and take place at field sites away from the UCLA campus. The course composition varies somewhat from year to year, but each program always carries 16 units of course credit. The Field Biology Quarter involves some combination of Ecology and Evolutionary Biology 103, 113B, 114B, 115, 118, 124A, 124B, 125, C126, 132, 134B, and 151B. The Marine Biology Quarter includes some combination of Ecology and Evolutionary Biology 102, 106, 123A, 123B, 147, 148, 163, 164, 165, and 182. The Field and Marine Biology Quarters may occur during fall, winter, or spring quarter, depending on location and faculty participation. To participate, students must enroll in all courses in the respective program. Participants in both programs are selected by personal interview. Information and applications are available in the Undergraduate Advising Office.

Honors Program

An overall grade-point average of 3.4 and a 3.4 in the major are required for graduation with honors. Highest honors are awarded to majors who have a GPA of 3.6 overall and a 3.6 in the major at graduation and who have successfully completed Ecology and Evolutionary Biology 198A and 198B.

Computing Specialization

Majors in Biology, Ecology, Behavior, and Evolution, and Marine Biology may select a specialization in Computing by (1) satisfying all the

requirements for a bachelor's degree in the specified major, (2) completing Program in Computing 10A, 10B, 10C, 30, and 60, and (3) completing one course from Computer Science CM186, Psychology 186A, or 186B. A grade of C- or better is required in each course, with a combined grade-point average in the specialization of at least 2.0. Students must petition for admission to the program and are advised to do so after completing Program in Computing 10B (petitions should be filed in the Undergraduate Advising Office). Students graduate with a bachelor's degree in their major and a specialization in Computing.

Conservation Biology Minor

The Conservation Biology minor is designed for students who wish to augment their major program of study with courses addressing issues central to the conservation and sustainability of biodiversity and natural ecosystem processes. The minor seeks to provide students with a greater depth of experience and understanding of the role that science can play in developing conservation policy.

To enter the minor, students must (1) be in good academic standing (2.0 grade-point average or better), (2) have completed Life Sciences 1, Ecology and Evolutionary Biology 100, and 116 (or Environment 121) with minimum grades of C or better, and (3) file a petition in the Undergraduate Advising Office, 101 Hershey Hall. All degree requirements, including the specific requirements for this minor, must be fulfilled within the unit maximum set forth by the College of Letters and Science.

Non-life sciences majors wishing to minor in Conservation Biology should be aware that preparation courses in chemistry, life sciences, mathematics, and physics are requisites to some of the upper division courses accepted for the minor.

Required Lower Division Course (5 units): Life Sciences 1.

Required Upper Division Courses (28 units minimum): Ecology and Evolutionary Biology 100, 116 (or Environment 121), and four to six courses (19 units minimum) from 101, 103, 105, 109, 111, 112, 114A, 114B, 122, 129, M131, 151A, 153, 154, 155, C174, 176, 180A. Courses completed as part of the Field Biology Quarter and Marine Biology Quarter may be applied if not taken to fulfill a field quarter requirement; consult the undergraduate counselors for more information.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor, and at least 16 units applied toward the minor must be taken in residence at UCLA. Transfer credit for any of the above is subject to departmental approval; consult the undergraduate counselors before enrolling in any courses for the minor.

Each minor course must be taken for a letter grade, and students must have a minimum grade of C (2.0) in each and an overall grade-

point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Evolutionary Medicine Minor

The Evolutionary Medicine minor is designed for students who wish to augment their major program of study with courses that combine the disciplines of ecology and evolutionary biology, anthropology, psychology, and zoology with medicine to create new paradigms for investigating and understanding disease. The minor provides students with a greater depth of experience and understanding of the integration of evolutionary biology and medical education.

To enter the minor, students must (1) be in good academic standing (2.0 grade-point average or better), (2) have completed Ecology and Evolutionary Biology 100, and 120 or 185 with minimum grades of C or better, and (3) file a petition in the Undergraduate Advising Office, 101 Hershey Hall. All degree requirements, including the specific requirements for this minor, must be fulfilled within the unit maximum set forth by the College of Letters and Science.

Non-life sciences majors wishing to minor in Evolutionary Medicine should be aware that preparation courses in chemistry, life sciences, mathematics, and physics are requisites to some of the upper division courses accepted for the minor.

Required Upper Division Courses (24 units minimum): Ecology and Evolutionary Biology 100, 120 or 185, and four to five courses from the following (no more than two courses from any area): Anthropology 124A, 124B, 124P, M125A, 126, 128A, 129Q, Community Health Sciences 100, 130, Ecology and Evolutionary Biology 110, 117, C119A, 121, C126, 129, 130, M171, C174, 175, 186, Epidemiology 100, 197, Geography 125, Gerontology M108, 120, Honors Collegium 141, Human Genetics CM136C, C144, Microbiology, Immunology, and Molecular Genetics 106, 107, CM156, 158, 168, 174, Molecular, Cell, and Developmental Biology CM156, 168, 172, M181, Neuroscience M101A, M101B, M101C, 101L, Philosophy 132, 155, Physiological Science 124, 125, 165, Psychology 115, 118, 119C through 119F, 125A, Public Health 150, Social Welfare 164, Sociology 119, 143, 170.

Required Research Project or Internship (4 units minimum): Ecology and Evolutionary Biology 195 or 199 or a suitable research internship from another department.

Participation in the Annual Biology Research Symposium (Poster Session) sponsored by the department in spring quarter is highly recommended.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor, and at least 20 units applied toward the minor must be taken in residence at UCLA. Transfer credit for any of the above is subject

to departmental approval; consult the undergraduate counselors before enrolling in any courses for the minor.

Each minor course must be taken for a letter grade, and students must have a minimum grade of C (2.0) in each and an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Ecology and Evolutionary Biology offers Master of Science (MS), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Biology.

Ecology and Evolutionary Biology

Lower Division Courses

10. Plants and Civilization. (4) Lecture, three hours; demonstration, one hour. Designed for nonmajors. Origin of crop plants; man's role in development, distribution, and modification of food, fiber, medicinal, and other plants in relation to their natural history. P/NP or letter grading.

11. Biomedical Research Issues in Minority Communities. (5) Discussion, four hours. Limited to 30 students. Discussions and student presentations on biomedical research as it affects minority communities, with emphasis on methodology, design, consequences, and ethics of current research. Discussion leaders provide information on preparation and training for research careers. P/NP or letter grading.

12. Biodiversity and Extinction: Crisis and Conservation. (4) Lecture, three hours; discussion, one hour. Examination of ecological and evolutionary principles necessary to understand nature and importance of worldwide environmental crisis. Research by students of specific conservation issues and presentation of results to class. P/NP or letter grading.

13. Evolution of Life. (4) Lecture, three hours; discussion, one hour. Not open to life sciences majors. Limited to 100 students. Introduction to biology within framework of evolutionary theory. Relationships of evolutionary thought to other areas of knowledge and society. Natural selection and origin of variation examined in context of genetics, molecular biology, physiology, phylogeny, population dynamics, behavior, and ecology. Emphasis on critical role of historical processes. P/NP or letter grading.

17. Evolution for Everyone. (5) Lecture, three hours; discussion, two hours. Exploration in detail of Darwinian natural selection, with emphasis on evidence and implications for modern problems people and societies face, including antibiotic resistance, insect resistance to pesticides, and coevolution of pollinators with crop plants. Nature of science in context of questions about ongoing real-time Darwinian processes. Letter grading.

18. Why Ecology Matters: Science Behind Environmental Issues. (5) Lecture, three hours; laboratory, two hours. Basic ecological concepts, scientific method, and ecological basis for local and global environmental issues. Major challenges to be faced in

this century, including need to find interdisciplinary and collaborative solutions to world's worsening environmental problems (e.g., global climate change, biodiversity loss, deforestation, pollution, declining water resources, declining fisheries). Environmental literacy to equip students to become leaders in growing green economy and to help forge solutions to current and future environmental crises that threaten natural resource base. P/NP or letter grading.

21. Field Biology. (4) Lecture, three hours; discussion, two hours, or field trips, three to four hours. Recommended preparation: Life Sciences 15. Not open for credit to students with credit for course 122 or Life Sciences 1. Introduction to natural history of Western North America, especially Southern California. Classification, distribution, and ecology of common plants and animals. P/NP or letter grading.

25. Living Ocean. (5) Lecture, three hours; laboratory, one hour; field trips, three hours. Not open for credit to students with credit for Earth, Planetary, and Space Sciences 15. Physical and chemical processes that take place in oceans, with emphasis on their effects on organisms. P/NP or letter grading.

50. Desert Life. (4) Lecture, three hours; laboratory, two hours. Introduction to fundamental structural, physiological, and behavioral features of desert organisms, with special emphasis on deserts of Western North America. P/NP or letter grading.

95. Lower Division Internship in Biology. (4) Tutorial/fieldwork, three hours per week per unit. Internship course for lower division students to be supervised by Center for Community Learning, fieldwork site, and faculty adviser. Consult Undergraduate Office for more information. May be repeated twice. Individual contract with supervising faculty member required. P/NP grading.

96. Communicating Science: Bringing Complex Concepts to Life. (2) (Formerly numbered 96A.) Seminar, three hours. Limited to Ecology and Evolutionary Biology Department majors. Development of tools for research, integrating and presenting complex scientific concepts concisely and effectively. Basic animation techniques and work in groups to illustrate life sciences concepts. How to engage audiences and convey clear messages. Letter grading.

97. Variable Topics in Ecology and Evolutionary Biology. (1 to 4) Seminar, three to 12 hours. Current issues in research in ecology and evolutionary biology. Consult Schedule of Classes for topics and instructors. May be repeated for credit with consent of instructor. P/NP or letter grading.

97XA. PEERS Freshman Seminar: Succeeding in Science. (1) (Formerly numbered 97X.) Seminar, one hour. Limited to students in Program for Excellence in Education and Research in Sciences (PEERS). Series of lectures, workshops, and discussions to enhance student success in sciences by developing critical academic survival skills, acquainting students with practice of science, and highlighting opportunities available to participate in research as undergraduate students. P/NP grading.

97XB. PEERS Sophomore Seminar: Pathways in Science. (1) Seminar, one hour. Limited to students in Program for Excellence in Education and Research in Sciences (PEERS). Series of lectures and workshops to enhance student success in sciences by acquainting students with practice of science, opportunities available to participate in research as undergraduate students, and careers available to students with science degrees. P/NP grading.

Upper Division Courses

100. Introduction to Ecology and Behavior. (4) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 1. Not open for credit to students with credit for course 118, C119A, C119B, 122 through C126, 129, 132 through 134B, 136, or 151B. Introduction to methods and topics in ecology and behavior. Growth and regulation of populations, organization of communities and ecosystems, biogeography, and behaviors animals use to find food, choose mates, and interact in social groups. Letter grading.

100L. Introduction to Ecology and Behavior Laboratory. (4) Laboratory, four hours. Enforced requisites: course 100 (may be taken concurrently), Life Sciences 1. Introduction to research methods in ecology and behavior, resulting in independent research proposals and to gain understanding of scientific method, critical evaluation of research papers, and development of scientific writing skills. Involves work outside and off-campus meetings. Letter grading.

101. Marine Botany. (6) Lecture, four hours; laboratory, six hours; three to four field trips. Requisite: Life Sciences 1. Introduction to biology and ecology of marine plants, including algae, sea grasses, and mangroves, with focus on form and function of marine plants and their ecological role in different marine habitats and ecosystems. Letter grading.

102. Biology of Marine Invertebrates. (4) Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisite: Life Sciences 1. Morphology, systematics, life histories and natural history, ecology, behavior, and physiology of marine invertebrates. Given off campus at marine science center. P/NP or letter grading.

103. Plant Evolution and Systematics. (5) Lecture, three hours; laboratory, three hours; field trip. Requisites: Life Sciences 1, 4. Evolution, systematics, morphology, principles of taxonomy, phytogeography, phylogenetic analysis, speciation, and natural history of plants. Letter grading.

105. Biology of Invertebrates. (6) Lecture, three hours; laboratory/field trips, six hours. Requisite: Life Sciences 1. Introduction to systematics, evolution, natural history, morphology, and physiology of invertebrates. P/NP or letter grading.

106. Experimental Marine Invertebrate Biology. (4 or 6) Lecture, two hours; laboratory, 12 hours. Requisites: course 105, Physiological Science 166 (may be taken concurrently). Offered either as 6-unit quarter-long course or as 4-unit Marine Biology Quarter course. Advanced course of natural history, physiology, biochemistry of invertebrates, with emphasis on independent laboratory and field investigations. P/NP or letter grading.

107. Evolution, Development, and Function of Invertebrate Animals. (6) Lecture, three hours; laboratory, three hours; three weekend field trips. Requisite: course 105 or completion of *Marine Biology Quarter*. Advanced invertebrate biology course exploring evolutionary relationship of animal groups and evolution of marine species, comparative development and developmental genetics of invertebrate form, and form and function as they relate to marine invertebrates. Letter grading.

109. Introduction to Marine Science. (4) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 1. Strongly recommended for prospective *Marine Biology Quarter* students. Introduction to physical and biological world of 70 percent of planet: oceans. Designed to be integrative, with focus on geological evolution of seas, physical and chemical properties of water, and how these abiotic processes shape ecology and evolution of marine organisms and environments. Letter grading.

109L. Introduction to Marine Science Laboratory. (2) Laboratory, three hours. Enforced requisites: course 109 (may be taken concurrently), Life Sciences 1. Introduction to marine environments and methods used to study them. Exploration of variety of concepts in marine science, ranging from oceanography to behavior, primary productivity, and marine biodiversity, with emphasis on experimental design and scientific writing. Letter grading.

110. Vertebrate Morphology. (6) Lecture, three hours; laboratory, five hours. Requisites: Life Sciences 1, 2, 3, 4, 23L. Study of vertebrate morphology, function, and evolution from viewpoint of comparative anatomy of adult forms, biomechanics, development, and paleontology. Laboratory study of selected vertebrates. Letter grading.

111. Biology of Vertebrates. (5) Lecture, three hours; laboratory, three hours; four one- to two-day field trips. Requisite: Life Sciences 1. Adaptations, behavior, and ecology of vertebrates. Letter grading.

112. Ichthyology. (6) Lecture, three hours; laboratory, six hours; field trips. Requisite: Life Sciences 1. Highly recommended: courses 110, 111. Biology of freshwater and marine fishes, with emphasis on their evolution, systematics, morphology, zoogeography, and ecology. Field trips to examine fishes of Southern California shoreline, tidepools, and coastal streams. Letter grading.

113A. Herpetology. (5) Lecture, three hours; laboratory, three hours; field trips, three and one half days per term. Requisite: Life Sciences 1. Recommended: course 100. Vertebrate zoology course restricted to biology of reptiles and amphibians of world, covering current systematics, ecology, behavior, morphology, and physiology of these animals. Letter grading.

113B. Field Herpetology. (8) Requisite: Life Sciences 1. Recommended: courses 100, 111. Two weeks of off-campus research projects followed by two-week lecture course and offered only as part of *Field Biology Quarter*. Biology, particularly ecology and behavior, of reptiles and amphibians in their natural habitat. Students carry out supervised research projects, then write up and orally present their results in seminar fashion. Letter grading.

114A. Ornithology. (5) Lecture, three hours; laboratory/field trips, three hours. Requisite: Life Sciences 1. Recommended: course 100. Systematics, distribution, physiology, behavior, and ecology of birds. Letter grading.

114B. Field Ornithology. (8) Requisite: Life Sciences 1. Recommended: course 100. Two to three weeks of off-campus research projects followed by lecture course and offered only as part of *Field Biology Quarter*. Biology, particularly ecology and behavior, of birds in their natural habitat. Letter grading.

115. Mammalogy. (5) Lecture, three hours; laboratory, three hours. Requisite: Life Sciences 1. Topics in mammalian biology, including evolution, ecology, behavior, functional morphology, systematics, physiology, and biogeography. Letter grading.

116. Conservation Biology. (4) Lecture, three hours; discussion, two hours. Requisite: Life Sciences 1. Recommended: course 100. Not open for credit to students with credit for Environment 121. Study of ecological and evolutionary principles as they apply to preservation of genetic, species, and ecosystem diversity. Discussion sections focus on interactions of science, policy, and economics in conserving biodiversity. Oral and written student presentation on specific conservation issues. Letter grading.

117. Evolution of Vertebrates. (5) Lecture, three hours; laboratory, three hours. Requisite: course 110. Recommended: one general geology course. Fossil record of evolution of vertebrates, with emphasis on paleobiology and morphology of tetrapods. P/NP or letter grading.

118. Plant Adaptations. (8) Lecture, one hour; field trip, 10 hours. Requisite: course 100. *Five-week course offered only as part of Field Biology Quarter*. Field-oriented introduction to mechanisms by which vascular plants adapt themselves to their abiotic and biotic environments using community, population, and ecophysiological levels of integration. Letter grading.

C119A. Mathematical and Computational Modeling in Ecology. (4) (Formerly numbered C119.) Lecture, three hours; discussion, one hour. Enforced requisite: Life Sciences 30B or Mathematics 3B or 31A. Recommended: courses 100, 122, Life Sciences 1, Mathematics 3C. Introduction to modeling dynamics of ecological systems, including formulation and analysis of mathematical models, basic techniques of scientific programming, probability and stochastic modeling, and methods to relate models to data. Examples from ecology but techniques and principles applicable throughout life and physical sciences. Concurrently scheduled with course C219A. P/NP or letter grading.

C119B. Modeling in Ecological Research. (4) Lecture, two hours; discussion, two hours. Requisite: course C119A. Advanced techniques in mathematical and computational modeling of ecological dynamics and other population dynamic problems. Independent

research projects developed by students. Topics include model formulation, stochastic models, fitting models to data, sensitivity analysis, presentation of model results, and other topics from current literature. Concurrently scheduled with course C219B. P/NP or letter grading.

120. Evolution. (4) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 1, 2, 3, 4, 23L, and Mathematics 3A and 3B (or 31A or Life Sciences 30B). Not open for credit to students with credit for course 185. Designed for departmental majors specializing in environmental and population biology. Introduction to mechanics and processes of evolution, with emphasis on natural selection, population genetics, speciation, evolutionary rates, and patterns of adaptation. P/NP or letter grading.

121. Molecular Evolution. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4, 23L. Molecular biology, with emphasis on evolutionary aspects. DNA replication, RNA transcription, protein synthesis, gene expression, and molecular evolution. Letter grading.

122. Ecology. (4) Lecture, three hours; discussion, two hours. Requisites: course 100, Life Sciences 1, Mathematics 3B or 31A or Life Sciences 30B. Highly recommended: Mathematics 31B, 32A. Designed for departmental majors specializing in environmental and population biology. Introduction to population and community ecology, with emphasis on growth and distributions of populations, interactions between species, and structure, dynamics, and functions of communities and ecosystems. P/NP or letter grading.

123A-123B. Field Marine Ecology. (4 or 8 each) Lecture, five hours; laboratory, 15 hours. Recommended requisites: courses 100, 122. *Offered either as 4- or 8-unit five-week intensive course given off campus as part of Marine Biology Quarter that is in residence at research station located outside continental U.S.* Survey of current topics in marine ecology, including analysis of primary research literature combined with field study of ecology of marine organisms, populations, communities, and ecosystems. Original research project required. Letter grading.

124A-124B. Field Ecology. (4 or 8 each) Lecture, five hours; laboratory or field trip, 15 hours. Requisites: course 100, Life Sciences 1. Recommended: courses 111, 120, 122. *Offered as part of Field Biology Quarter that is in residence at research station located outside continental U.S. for part of or for duration of term.* Field and laboratory research in ecology; collection, analysis, and write-up of numerical data, with emphasis on design and execution of field studies. Letter grading.

125. Tropical Animal Communication. (4 or 8) Requisites: course 100, Life Sciences 1. *Offered either as 4-unit quarter-long course or as 8-unit Field Biology Quarter course.* Four-unit course has lecture, three hours; discussion, two hours. Animal communication behavior, tropical vertebrate biology, and evolution of information processing systems. Eight-unit course covers same basic lecture material in five or six intensive weeks, followed by extended field trips where students do individual projects in animal communication. Letter grading.

C126. Behavioral Ecology. (4 or 8) (Formerly numbered 126.) Requisites: course 100, Life Sciences 1, Mathematics 3C or 32A or Life Sciences 30B. Recommended: course 129. *Offered either as 4-unit quarter-long course or as 8-unit Field Biology Quarter course.* Four-unit course has lecture, three hours; discussion, two hours. Evolutionary perspective of behavioral ecology, with extended consideration of selfish DNA, conflict with genomes, natural selection and coevolution, kin selection and diversity in group functioning and cooperation, social learning, game theory and alternative life histories, and human behavioral ecology. Eight-unit course covers several major areas in animal behavior more broadly, including foraging, sexual selection and predator-prey interactions in five intensive weeks, followed by ex-

tended field trip where students do individual projects. Concurrently scheduled with course C242. Letter grading.

M127. Soils and Environment. (4) (Same as Environment M127 and Geography M127.) Lecture, three hours; discussion, one hour; field trips. General treatment of soils and environmental implications: soil development, morphology, and worldwide distribution of soil orders; physical, chemical, hydrologic, and biological properties; water use, erosion, and pollution; management of soils as related to plant growth and distribution. P/NP or letter grading.

128. Plant Physiological Ecology. (5) Lecture, three hours; laboratory, three hours; one two-day field trip. Requisites: Life Sciences 1, Physics 1C and 4BL, or 6C or 6CH. Study of plant/environment interactions under natural conditions. Transpiration and photosynthesis, leaf temperatures, and water movement in soil/plant/atmosphere continuum. Letter grading.

129. Animal Behavior. (4) Lecture, three hours; discussion, two hours. Requisites: course 100, Life Sciences 1. Introduction to behavioral ecology. Methods and results of evolutionary approaches to study of animal behavior, including foraging strategies, social competition, sexual selection, mating systems, cooperation, and social organization. Letter grading.

130. Principles of Systematic Biology. (4) Lecture, three hours; discussion, two hours. Requisite: Life Sciences 1. Recommended: courses 120, 135. Concepts, principles, and methods of comparative biology as they apply to inference of evolutionary relationships among organisms. Principles and application of biological nomenclature. Letter grading.

M131. Ecosystem Ecology. (4) (Same as Geography M117.) Lecture, three hours; field trips. Enforced requisite: Geography 1 or Life Sciences 2. Designed for juniors/seniors. Development of principles of ecosystem ecology, with focus on understanding links between ecosystem structure and function. Emphasis on energy and water balances, nutrient cycling, plant-soil-microbe interactions, landscape heterogeneity, and human disturbance to ecosystems. P/NP or letter grading.

132. Field Behavioral Ecology. (8) Lecture, two hours; laboratory/field trip, 10 hours. Requisites: course 100, Life Sciences 1. Recommended: course 129. *Five-week course offered only as part of Field Biology Quarter.* Field research in behavioral ecology, emphasizing animal communication. Design and execution of individual and small group field projects during extended field trip. Letter grading.

133. Elements of Theoretical and Computational Biology. (4) Lecture, three hours; discussion, one hour; laboratory, two hours. Requisites: Life Sciences 1, 2, 3, 4, 23L, and Mathematics 3A, 3B, and 3C, or 31A and 31B, or Life Sciences 30B. Strongly recommended: elementary statistics course. Introduction of basic core mathematical ideas and models necessary to understand contemporary ecology and evolutionary biology. Population ecology and growth, community ecology, population genetics, natural selection. P/NP or letter grading.

134B. Field Physiological Ecology of Desert Animals. (8) Field course. Requisite: Life Sciences 1. Recommended: course 100. Two weeks of off-campus research projects with two-week lecture course (four hours per day) and offered only as part of *Field Biology Quarter*. Consideration of physiological, behavioral, morphological, and ecological mechanisms desert animals use to enhance their survival in arid habitat. Students carry out supervised research projects, then write up and orally present their results in seminar fashion. Letter grading.

135. Population Genetics. (4) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4. Strongly recommended: course 100, Mathematics 31A, and 31B or Life Sciences 30B. Basic principles of genetics of population, dealing with genetic structure of natural populations and mechanisms of evolution. Equilibrium conditions and forces altering gene frequencies, polygenic inheritance, molecular evolution, and methods of quantitative genetics. Letter grading.

136. Ecology, Behavior, and Evolution Laboratory. (6) Lecture, four hours; laboratory, eight hours; field trips, six and one half days per term. Requisites: course 100, Life Sciences 1, Mathematics 3C or 32A. Strongly recommended: course 120 or 122 or 129. Designed for Ecology, Behavior, and Evolution majors. Laboratory and field exercises on population genetics, growth, and regulation; competition and predation; behavioral interactions; species' diversity and distribution. Methodological aspects from theoretical models and computer simulations to laboratory and garden experiments to fieldwork. Mandatory field trips, including two weekend trips. Letter grading.

137. Chemical Communication. (4) Lecture, three hours; discussion, one hour. Requisites: Chemistry 14A, 14B, 14BL, 14C, 14CL, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B, and 30BL, Life Sciences 1, 2, 3, 23L. Chemical signals are most important means by which organisms communicate. Exploration of how chemical signals are produced, transported, and influence behavior of microbes, plants, and animals. Synthetic approach, with emphasis on applications to cell biology, physiology, and ecology. P/NP or letter grading.

M139. Introduction to Chemical Oceanography. (4) (Same as Atmospheric and Oceanic Sciences M105.) Lecture, three hours; discussion, one hour. Introductory course for physical sciences, life sciences, and engineering majors interested in oceanic environment. Chemical composition of oceans and nature of physical, chemical, and biological processes governing this composition in past and present. Cycles of major and minor oceanic constituents, with focus on those that are most important for life (i.e., carbon, nitrogen, phosphorus, silicon, and oxygen). Investigation of primary production, export production, remineralization, diagenesis, air-sea gas exchange processes. Letter grading.

142. Aquatic Communities. (4) Lecture, three hours; discussion, one hour. Enforced requisite: Life Sciences 1. Overview of species and communities in marine and freshwater environments. Exploration of interactions of physical and biological factors that shape communities and how scientists test hypotheses. Emphasis on critical reading of primary literature. Letter grading.

M145. Advanced Paleontology. (4) (Same as Earth, Planetary, and Space Sciences M118.) Lecture, three hours. Requisite: course 110 or 117 or Earth, Planetary, and Space Sciences 116. Consideration of major factors that have influenced history of life, including analytical approaches to analyzing patterns in fossil record, nature of rock record, and contribution of data from stable isotopes, functional morphology, phylogenetics, and developmental biology. P/NP or letter grading.

147. Biological Oceanography (4) Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL, Life Sciences 1, 3, 23L. Lectures include physical, chemical, and biological factors affecting abundance and distribution of organisms in marine environment. Laboratory includes experimental studies of local marine organisms, with emphasis on primary and secondary production and nutrient flux. Letter grading.

148. Biology of Marine Plants. (4) Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL, Life Sciences 1, 3, 23L. Introduction to general biology of marine algae, including basics of structure reproduction, life histories, systematics, and introduction to physiology and ecology of marine algae. Techniques in culture and laboratory investigation and utilization of algae. Given off campus at marine science center. Letter grading.

151A. Tropical Ecology. (4) Lecture, one hour; discussion, two hours. Requisite: Life Sciences 1. Broad introduction to biodiversity, community structure, and dynamics and ecosystem function of range of tropical forest habitats. Discussion of such themes as bioge-

ography, forest structure, plant growth forms, animal communities, herbivory, forest dynamics, and disturbance regimes. P/NP or letter grading.

151B. Field Tropical Ecology. (8) Lecture, three hours; fieldwork, five hours. Requisites: course 100, Life Sciences 1. Two weeks of off-campus research projects followed by two-week lecture course and offered only as part of *Field Biology Quarter*. Introduction to biodiversity, community structure, and dynamics and ecosystem function in tropical forest habitat. Letter grading.

152. World Vegetation Ecology and Ecophysiology. (4) Lecture, three hours; discussion, one hour. Enforced requisite: Life Sciences 1. Diversity of physiological and ecological adaptations in biomes of world, explaining distribution and dynamics of world vegetation types. Focus on processes across scales from cells to ecosystem to globe, instrumentation for environmental and ecophysiological measurements, and experiments used to make discoveries about plant adaptation. Letter grading.

153. Ecological Responses to Environmental Challenges. (4) Lecture, three hours; discussion, one hour. Requisites: Chemistry 14A, 14B, and 14BL (or 20A, 20B, and 20L), Life Sciences 1. Recommended: Life Sciences 2, 3, 4, 23L, Physics 6A. Chemical and physical principles pertinent to understanding functional responses of organisms to environmental challenges, including those due to anthropogenic causes. Integrative focus providing comprehensive training in basic sciences of environmental processes, organismal acclimation and adaption, and consequences of individual performance for populations and communities. Select applied topics include challenges associated with global warming, ocean acidification, low oxygen availability and dead zones, and changes in mass transport due to unprecedented variation in air and water motions. P/NP or letter grading.

154. California Ecosystems. (5) Lecture, three hours; laboratory or field trip, four hours. Requisite: Life Sciences 1. Recommended: course 100. Introduction to structure, biodiversity, and dynamics of California ecosystems, with focus on Southern California, and impact of human activities on these systems. P/NP or letter grading.

155. Community Ecology. (4) Lecture, three hours; discussion, one hour. Enforced requisite: Life Sciences 1. Recommended: course 100 or 122. Community ecology is study of biodiversity in ecological context: structure and dynamics of natural species assemblages in space and time, and ecological and evolutionary mechanisms that determine which species are present or absent from particular assemblages. Examination of existing theories of community organization and evidence, both observational and experimental, bearing on these theories. Consideration of diverse array of communities—plant, animal, microbial, terrestrial, and marine—to give appreciation of extraordinary natural history and diversity of life on Earth as it exists in its living ecological context. Discussion of how ecological communities are responding now and will respond in future to anticipated global change, and conservation implications of these changes. Letter grading.

160. Introduction to Plant Biology. (4) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 162. Introduction to aspects of plant biology. Topics include plant body, reproduction, plant diversity, gene expression, and basic plant function. Letter grading.

162. Plant Physiology. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 2, 3, 23L. Basic aspects of plant function, including photochemical, biochemical, and physiological aspects of photosynthesis. Carbon and nitrogen metabolism and its regulation; organelular interactions and compartmentation. Water relations, ion transport, flowering, hormone action, and plant responses to stress. Letter grading.

162L. Plant Physiology and Ecophysiology Laboratory. (2) Laboratory, four hours. Enforced requisites: Life Sciences 1, 2, 3, 23L. Enforced corequisite or requisite: course 152 or 162. Focus on whole-plant

physiology and ecophysiology from biochemical and molecular processes to whole-plant function and field performance to gain understanding and appreciation of plant function, including dynamic processes of growth, development, and reproduction. Exercises provide training in approaches and instrumentation such that students become scientists, applying physiological techniques to answer questions on plant function. Letter grading.

163. Biology of Marine Tetrapods. (4) Lecture, five hours; laboratory and fieldwork, 15 hours. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL, Life Sciences 1, 3, 23L. Highly recommended: course 111. *Five-week intensive course offered only as part of Marine Biology Quarter*. Survey of higher vertebrates living in marine habitats, including estuarine amphibians, marine reptiles, seabirds, and marine mammals. Laboratory emphasizes observational and experimental approaches to study of morphology, systematics, ecology, and behavior of local marine birds and mammals. Given off campus at marine science center. Letter grading.

164. Field Biology of Marine Fishes. (4) Lecture, five hours; laboratory, 15 hours. Requisite: Life Sciences 1. Recommended: Mathematics 3A, 3B, 3C. *Five-week intensive course offered only as part of Marine Biology Quarter*. Selected aspects of natural history, ecology, and behavior of diverse assemblage of local marine fishes. Fieldwork strongly emphasized. Given off campus at marine science center. P/NP or letter grading.

165. Ecological Physiology of Marine Vertebrates. (4) Lecture, five hours; laboratory, 15 hours. Requisites: Chemistry 14B and 14BL, or 20B and 30AL, Life Sciences 1, 3, 23L. Recommended: Life Sciences 30B or Mathematics 3C or 32A, and Physics 1C and 4BL, or 6C or 6CH. *Five-week intensive course offered only as part of Marine Biology Quarter*. Introduction to physiological adaptations of marine vertebrates to major physicochemical variables in world oceans and to major marine habitats. Given off campus at marine science center. Letter grading.

166. Biology of Marine-Land Interface. (4) Lecture, five hours; fieldwork, 15 hours. Enforced requisites: courses 109, 109L, Chemistry 14A, 14B, 14BL (or 20A, 20B, 20L), Life Sciences 1, Physics 6A, Statistics 13. Recommended: Life Sciences 2, 3, 4. Land-sea interface is one of most biologically rich, yet challenging habitats on Earth. Organisms must contend with wide range of environmental conditions, including extreme variations in temperature, oxygen, pH, ultraviolet radiation, osmotic stress, and water availability. These habitats are among best natural laboratories for investigating patterns and processes of organism-environment interactions. Basic training in characterization of physical and chemical environmental features to establish basic tenets of organismal performance, as well as population and community dynamics in response to extreme environmental challenges. Foraging of critical new linkages between chemistry, physics, and biology through lecture, laboratory, and field investigations. Offered as part of Marine Biology Quarter. Letter grading.

170. Animal Environmental Physiology. (6) Lecture, three hours; laboratory, six hours. Requisites: Chemistry 14D, or 30B and 30BL, Life Sciences 1, 2, 3, 4, 23L, Mathematics 3C or 32A or Life Sciences 30B, Physics 1C and 4BL, or 6C or 6CH. Not open for credit to students with credit for Physiological Science 166. Designed for Ecology, Behavior, and Evolution majors. Introduction to physiology (function) of animal organs and organ systems, with emphasis on environmental interactions and ecological adaptations. Letter grading.

M171. Great Adaptations: Origins of Complexity in Nature. (4) (Same as Anthropology M125A.) Lecture, three hours. Enforced requisite: course 13 or 120 or Anthropology 7 or Life Sciences 1. Evolution of complex adaptations in nature. Examination of fundamental processes underlying natural selection and evolution of adaptation: Darwin's postulates, constraints on adaptation, levels of explanation in bi-

ology, methods for identifying adaptations. Evaluation of examples of complex adaptations in nature. Letter grading.

CM173. Earth Process and Evolutionary History. (4) (Formerly numbered C173.) (Same as Earth, Planetary, and Space Sciences CM173.) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisites: Chemistry 14A, 14B (or 20A, 20B), Life Sciences 1, 2, 3, 4. Recommended: one course from Atmospheric and Oceanic Sciences M100, 101, 102, 103, M105, Ecology and Evolutionary Biology 109, 116, 120, 121, 122, M131, 135, 142, 152, 154, Geography 100, 101, or 103. Exploration of relationship between physical processes affecting surface of Earth, such as tectonics and climate, and biological evolution. Geologic history of Earth from its formation and history of scientific advancement. Changes through time in Earth/atmosphere/ocean system discussed in terms of their effects on biological process and biodiversity. Climate issues considered in this historical context of global process. Modern anthropogenic climate change placed in context of geologic record of climate change. Concurrently scheduled with course CM228. P/NP or letter grading.

C174. Comparative Biology and Macroevolution. (4) Lecture, three hours; laboratory, three hours. Requisite: Life Sciences 1. Recommended: one introductory statistics course. Modern comparative biology provides framework for studying broad questions in evolution—How do body shapes evolve? What are dynamics of evolutionary arms race? Why are there so many species in tropics? Why are there so many beetles and so few crocodiles? Did dinosaurs put brakes on diversification of mammals? Examination of why tree of life is essential to understanding patterns of biological diversity and how phylogenetic comparative methods are used to test macroevolutionary hypotheses. Concurrently scheduled with course C230. Letter grading.

175. Evolutionary Dynamics of Sex. (4) Lecture, three hours; discussion, one hour. Enforced requisite: Life Sciences 1. Fitness dynamics of reproduction when females and males are in conflict over reproductive decisions, with focus on animals with human examples as appropriate. Emphasis on natural selection thinking, sexual selection, and origins of sexual conflict, including Fisherian sex allocation, evolution of manipulation through deceptive communication, and theory of Darwinian sexual conflict. Letter grading.

176. Ecological Ethics. (2) Seminar, two hours. Requisite: Life Sciences 1. Debates and discussions on current ethical considerations relevant to fields of ecology, evolution, and behavior. Letter grading.

C177. Practical Computing for Evolutionary Biologists and Ecologists. (4) Lecture, three hours; laboratory, three hours. Enforced requisite: Life Sciences 1. Introduction to fundamental skills needed for manipulation, analysis, and visualization of large data sets. Basic programming and scripting in Python as well as working in shell, regular expressions, and related topics. Concurrently scheduled with course C234. Letter grading.

C179. Communicating Science to Informal Audiences. (5) Lecture, three hours; discussion, one hour; laboratory or fieldwork, two hours. Enforced requisite: one course from course 25, Atmospheric and Oceanic Sciences M10, Chemistry 2, 14A, 20A, Earth, Planetary, and Space Sciences 1, 15, Environment M10, or Life Sciences 1. Designed for juniors/seniors. Combined instruction in inquiry-based teaching methods and learning pedagogy, with six weeks of supervised teaching experience at Santa Monica Pier Aquarium. Students practice communicating scientific knowledge and receive mentoring on how to improve their presentations to develop ocean science literacy at all levels and to encourage broad public understanding of science and environmental stewardship. Need for young scientists to learn how to communicate about their science to audiences is especially critical when considering that Americans are expected to comprehend and respond to increasingly complex issues, such as global climate change, with

limited understanding of how natural world works. Concurrently scheduled with course C237. Letter grading.

180A-180B. Seminars: Biology and Society. (2-4) Seminar, two hours (course 180A) and four hours (course 180B). Investigations and discussions of current socially important issues involving substantial biological considerations, either or both as background for policy and as consequences of policy. May be repeated once for credit with instructor change. Letter grading.

181. Parasitology. (6) Lecture, three hours; laboratory, six hours. Requisites: Life Sciences 1, 3, 23L. Introduction to principles, biology, and evolution of infectiousness, symbiosis, and parasitism, emphasizing protozoan and helminth parasites, including those of man. Letter grading.

182. Marine Parasitology. (4) Lecture, five hours; laboratory, 15 hours. Requisite: Life Sciences 1. Recommended: courses 112, 181. *Five-week intensive course offered only as part of Marine Biology Quarter.* Introduction to natural history and ecology of host-parasite interaction involving intertidal fish hosts. Laboratory includes collection and preparation techniques. Given off-campus at marine science center. Letter grading.

185. Evolutionary Medicine. (4) Lecture, two and one half hours; discussion, one hour. Enforced requisite: Life Sciences 1. Not open for credit to students with credit for course 120. Designed for departmental majors specializing in environmental and population biology and in medicine. Introduction to mechanics and processes of evolution, with emphasis on natural selection, population genetics, speciation, evolutionary rates, and patterns of adaptation. Coverage of fundamental principles of evolution, with special focus on medicine and human health. P/NP or letter grading.

186. Evolutionary Medicine: Clinical Perspective on Medical, Surgical, and Psychiatric Disorders. (4) Lecture, three hours; discussion, one hour. From breast cancer and heart failure to self-injury, obsessive-compulsive and eating disorders, all contemporary medical issues have evolutionary roots. Understanding of application of evolutionary thought to issues faced by physicians, veterinarians, psychologists, and other healthcare providers. Development of awareness and understanding of evolutionary roots of these disorders provides future healthcare providers with expanded perspective that enhances their practice and benefits their patients in whatever field they enter. Letter grading.

187. Variable Topics in Ecology and Evolutionary Biology. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 2, 3, 4, 23L. Investigation, discussion, and study of current important issues involving substantial biological considerations in ecology and evolutionary biology. Contact Undergraduate Advising Office for current topics. May be repeated for credit. P/NP or letter grading.

188. Special Courses in Ecology and Evolutionary Biology. (2) Seminar, two hours. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

190. Research Colloquia in Ecology and Evolutionary Biology. (1) Seminar, one hour. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. P/NP grading.

191. Variable Topics Research Seminars: Ecology and Evolutionary Biology. (4) Seminar, three hours. Seminars on current issues in research in ecology and evolutionary biology. Consult Schedule of Classes for topics and instructors. If content is approved in advance by Undergraduate Advising Office, undergraduate departmental majors may petition to use course to satisfy or partially satisfy elective requirement. May be repeated for credit with consent of instructor. P/NP or letter grading.

192A-192B. Undergraduate Assistant in Ecology and Evolutionary Biology. (4-2) Seminar, 12 hours (course 192A) and six hours (course 192B). Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students in assisting with courses related to biology. Students assist in preparation of materials and development of innovative programs with guidance of faculty members in small course settings. Consult Undergraduate Advising Office for further information. May not be applied toward course requirements for departmental majors. May be repeated for credit. P/NP grading.

193. Journal Club Seminars: Ecology and Evolutionary Biology. (1) Seminar, two hours. Enforced corequisite: one course from 198A through 198D or 199. Limited to undergraduate students. Development of in-depth understanding of and ability to discuss current literature in field of students' own research. May be repeated for credit. P/NP grading.

194A. Research Group or Internship Seminars: Access to Research Careers. (2) Seminar, six hours. Designed for juniors/seniors in research traineeships or those who have strong commitment to pursue graduate studies in molecular, biochemical, physiological, or biomedical fields. Weekly presentation and discussion of paper selected from current literature. No more than 4 units may be applied toward departmental majors. May be repeated for credit. Letter grading.

194B. Research Group or Internship Seminars: Ecology and Evolutionary Biology. (1) Seminar, two hours. Corequisite: one course from 198A through 198D or 199. Designed to encourage participation and stimulate progress in specific research areas for undergraduate students who are part of departmental research group or internship. Discussion of use of specific research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP or letter grading.

195. Community or Corporate Internships in Ecology and Evolutionary Biology. (4) Tutorial, 12 hours. Internship course for juniors/seniors to be supervised by Center for Community Learning, fieldwork site, and faculty adviser. Consult Undergraduate Advising Office for more information. Students meet on regular basis with instructor and provide periodic reports of their experience. May not be applied toward requirements for departmental majors. May be repeated twice for credit. Individual contract with supervising faculty member required. P/NP grading.

196. Research Apprenticeship in Ecology and Evolutionary Biology. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP or letter grading.

198A-198D. Honors Research in Ecology and Evolutionary Biology. (4 each) Tutorial, 12 hours. Limited to juniors/seniors. Supervised individual research designed to broaden and deepen students' knowledge of some phase of biology. Must be taken with Ecology and Evolutionary Biology Department faculty for at least two terms and for total of at least 8 units. Eight units may be applied toward departmental majors. Individual contract required. In Progress (198A) and letter (198B) grading. Students may elect to enroll in additional research through courses 198C and 198D (letter grading). Report on progress must be presented to undergraduate adviser each term 198 course is taken.

199. Directed Research in Ecology and Evolutionary Biology. (2 to 4) Tutorial, six to 12 hours. Preparation: submission of written proposal outlining study or research to be undertaken. Studies to involve laboratory or field-related research, not literature surveys or library research. Proposal to be developed in consultation with instructor and submitted for approval to undergraduate adviser before day instruction begins in that term. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. At end of term culminating report describing progress of study or research and signed by student and in-

structor must be presented to undergraduate adviser. Only one 199 course may be applied toward departmental majors. May be repeated for credit. Individual contract required. Letter grading.

Graduate Courses

M200A. Evolutionary Biology. (4) (Same as Earth, Planetary, and Space Sciences M216.) Lecture, two hours; discussion, two hours. Current concepts and topics in evolutionary biology, including microevolution, speciation and species concepts, analytical biogeography, adaptive radiation, mass extinction, community evolution, molecular evolution, and development of evolutionary thought. S/U or letter grading.

200B. Ecology. (4) Lecture, two hours; discussion, two hours. Principles and current topics in ecology. Topics may include island biogeography, disturbance ecology, chemical ecology, and physiological ecology. S/U or letter grading.

200C. Advanced Animal Behavior. (4) Lecture, two hours; discussion, two hours. Survey of major topics in field of behavioral ecology. Topics include introduction to variety of research pursuits in field and questions and debates at leading edges of research. Advanced interdisciplinary primer that spans topics from mechanisms of behavior at molecular and cellular levels to consequences of behavior for Darwinian fitness and ecological and evolutionary processes. S/U or letter grading.

201. Introduction to R for Ecology and Evolutionary Biology. (1) Lecture, six hours; discussion, six hours. Designed for departmental PhD students. Offered as intensive two-day course at beginning of term. Introduction to R language. Topics include working at command line, writing scripts and functions, flow control, graphics, and conducting basic simulations in discrete and continuous time. S/U grading.

203. Marine Botany and Physiology. (4) Lecture, two hours; discussion, one hour; laboratory, six hours; experimental project. Designed for graduate students. Structure, reproduction, life histories, and biology of marine algae, with emphasis on physiological ecology and biochemistry. Techniques in culture and physiological, ecological, and biochemical investigation of algae. Given off campus at marine science center. S/U or letter grading.

204. Advanced Biology of Algae. (4) Lecture, four hours; discussion, one hour. Consideration of current research in experimental phycology. Topics include discussion of appropriate aspects of chemical and physical oceanography and limnology; algal physiology; biochemistry, physiological ecology, and algal processes in ocean and freshwater habitats. S/U or letter grading.

205. Marine Invertebrate Biology. (4) Lecture, four hours; laboratory, eight hours. Functional morphology, life histories, and systematics of marine invertebrates of all major and most minor taxa; emphasis on living animal and its habitat. Given off campus at marine science center. S/U or letter grading.

206. Advanced Ichthyology. (4) Lecture, three hours; laboratory, three hours. Requisite: course 111 or 112. Advanced study of various aspects of fish biology. Theme varies from year to year. May be repeated for credit. S/U or letter grading.

208. Advanced Vertebrate Morphology. (4) Lecture, two hours; laboratory, eight hours. Requisite: course 110. Emphasis on functional approach to evolution of vertebrate locomotor, feeding, and circulatory systems. Laboratory includes comparative and experimental analyses of morphological adaptation. Independent project required. May be repeated once for credit. S/U or letter grading.

209. Behavior of Arthropods. (4) Lecture, three hours; discussion, one hour. Advanced study of topics in behavior of terrestrial arthropods, including communication, feeding, reproductive, and social behavior. Emphasis on both mechanistic and adaptive approaches toward understanding behavior. Independent project required. S/U or letter grading.

210. Advanced Ornithology. (4) Lecture, two hours; laboratory, two hours; fieldwork, two hours. Requisite: course 114A. Advanced study of topics in modern avian biology. Emphasis on experimental approaches to investigations of physiology (energetics, nutrition, osmoregulation), ecology (population and community organization), and behavior (foraging, breeding, sociability). S/U or letter grading.

217. Marine Ecology. (4) Lecture, four hours; discussion, one hour. Designed for graduate students. Structure, diversity, and energetics of marine communities; behavior, population dynamics, and biogeography of component species; associated oceanography and geology. Given off campus at marine science center. S/U or letter grading.

218. Oceanology. (4) Lecture, four hours; discussion, one hour. Designed for graduate students. Ecology and dynamics of pelagic and benthic associations; physicochemical properties of seawater and marine substrates and their biological significance; qualitative and quantitative methods of oceanology. Given off campus at marine science center. S/U or letter grading.

C219A. Mathematical and Computational Modeling in Ecology. (4) (Formerly numbered C219.) Lecture, three hours; discussion, one hour. Enforced requisite: Life Sciences 30B or Mathematics 3B or 31A. Recommended: courses 100, 122, Life Sciences 1, Mathematics 3C. Introduction to modeling dynamics of ecological systems, including formulation and analysis of mathematical models, basic techniques of scientific programming, probability and stochastic modeling, and methods to relate models to data. Examples from ecology but techniques and principles applicable throughout life and physical sciences. Concurrently scheduled with course C119A. S/U or letter grading.

C219B. Modeling in Ecological Research. (4) Lecture, two hours; discussion, two hours. Requisite: course C219A. Advanced techniques in mathematical and computational modeling of ecological dynamics and other population dynamic problems. Independent research projects developed by students. Topics include model formulation, stochastic models, fitting models to data, sensitivity analysis, presentation of model results, and other topics from current literature. Concurrently scheduled with course C119B. S/U or letter grading.

224. Marine Molecular Biology. (8) Lecture, three hours; laboratory, eight hours. Preparation: background in marine sciences, basic cell biology and biochemistry. Ten-week intensive course designed to train marine biologists in advanced techniques of cell and molecular biology. Independent project required. Given off campus at marine science center. S/U or letter grading.

M226. Global Health Measures for Biological Emergencies. (4) (Same as Epidemiology M226.) Lecture, four hours. Requisite: Epidemiology 220. Mitigation of bioterrorism falls outside traditional public health programs and public health graduate education. Because of seriousness of such threats, it is important that individuals trained in public health understand problems and responses. Letter grading.

CM228. Earth Process and Evolutionary History. (4) (Formerly numbered C228.) (Same as Earth, Planetary, and Space Sciences CM273.) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisites: Chemistry 14A, 14B (or 20A, 20B), Life Sciences 1, 2, 3, 4. Recommended: one course from Atmospheric and Oceanic Sciences M100, 101, 102, 103, M105, Ecology and Evolutionary Biology 109, 116, 120, 121, 122, M131, 135, 142, 152, 154, Geography 100, 101, or 103. Exploration of relationship between physical processes affecting surface of Earth, such as tectonics and climate, and biological evolution. Geologic history of Earth from its formation and history of scientific advancement. Changes through time in Earth/atmosphere/ocean system discussed in terms of their effects on biological process and biodiversity. Climate issues considered in this historical context of global process. Modern anthropogenic climate change

placed in context of geologic record of climate change. Concurrently scheduled with course CM173. S/U or letter grading.

C230. Comparative Biology and Macroevolution. (4) Lecture, three hours; laboratory, three hours. Requisite: Life Sciences 1. Recommended: one introductory statistics course. Modern comparative biology provides framework for studying broad questions in evolution—How do body shapes evolve? What are dynamics of evolutionary arms race? Why are there so many species in tropics? Why are there so many beetles and so few crocodiles? Did dinosaurs put brakes on diversification of mammals? Examination of why tree of life is essential to understanding patterns of biological diversity and how phylogenetic comparative methods are used to test macroevolutionary hypotheses. Concurrently scheduled with course C174. S/U or letter grading.

M231. Molecular Evolution. (4) (Same as Earth, Planetary, and Space Sciences M217.) Lecture, two hours; discussion, two hours. Series of advanced topics in molecular evolution, with special emphasis on molecular phylogenetics. Topics may include nature of genome, neutral evolution, molecular clocks, concerted evolution, molecular systematics, statistical tests, and phylogenetic algorithms. Themes may vary from year to year. May be repeated for credit. S/U or letter grading.

232. Advanced Ecology. (4) Lecture, three hours; discussion, one hour; field trip, three hours. Requisite: course 122. Concepts and topics in ecology, evolutionary or behavioral ecology, or theoretical ecology. Topics vary from year to year and may include island biogeography, tropical biology, biodiversity, modeling in ecology, habitat selection, community structure and organization, and ecology and evolution of reproductive rates. May be repeated for credit. S/U or letter grading.

233. UCLA/La Kretz Workshop in Conservation Genomics. (2) Lecture, two hours; discussion, one hour; laboratory, two hours. Five-day field experience at La Kretz Center Field Station and Stunt Ranch in Santa Monica Mountains. Conservation biology and genetics have had long and intimate relationship and constitute one key application of evolutionary analysis to real-world biological problems. Impacts of population genetics, phylogenetics, and phylogeography have been particularly striking for conservation biology and have helped solve some of most pressing problems in biological conservation. Annual workshop to provide training environment for small group of motivated graduate students to explore how conservation problems can best be addressed with genomic-level data. Hands-on experience on efficient collection, troubleshooting, and analysis of large datasets for conservation-relevant problems. Active participation from members of several U.S. government agencies at forefront of endangered species protection and management, providing forum for exploring relevant aspects of conservation genomics to managers. S/U grading.

C234. Practical Computing for Evolutionary Biologists and Ecologists. (4) Lecture, three hours; laboratory, three hours. Enforced requisite: Life Sciences 1. Introduction to fundamental skills needed for manipulation, analysis, and visualization of large data sets. Basic programming and scripting in Python as well as working in shell, regular expressions, and related topics. Concurrently scheduled with course C177. Letter grading.

235. Population Genetics. (4) Lecture, three hours; discussion, one hour. Basic principles of genetics of population, dealing with genetic structure of natural populations and mechanisms of evolution. Equilibrium conditions and forces altering gene frequencies, polygenic inheritance, molecular evolution, and methods of quantitative genetics. S/U or letter grading.

236. Seminar: Marine Molecular Biology. (4) Seminar, 10 hours. Requisite: course 224. Seminar on current issues and work in marine molecular biology. Given off campus at marine science center. S/U or letter grading.

C237. Communicating Science to Informal Audiences. (5) Lecture, three hours; discussion, one hour; laboratory or fieldwork, two hours. Enforced requisite: one course from course 25, Atmospheric and Oceanic Sciences M10, Chemistry 2, 14A, 20A, Earth, Planetary, and Space Sciences 1, 15, Environment M10, or Life Sciences 1. Designed for juniors/seniors. Combined instruction in inquiry-based teaching methods and learning pedagogy, with six weeks of supervised teaching experience at Santa Monica Pier Aquarium. Students practice communicating scientific knowledge and receive mentoring on how to improve their presentations to develop ocean science literacy at all levels and to encourage broad public understanding of science and environmental stewardship. Need for young scientists to learn how to communicate about their science to audiences is especially critical when considering that Americans are expected to comprehend and respond to increasingly complex issues, such as global climate change, with limited understanding of how natural world works. Concurrently scheduled with course C179. Letter grading.

M238. Ocean Biogeochemical Dynamics and Climate. (4) (Same as Atmospheric and Oceanic Sciences M235.) Lecture, three hours. Interaction of ocean biogeochemical cycles with physical climate system. Biogeochemical processes controlling carbon dioxide and oxygen in oceans and atmosphere over time-scales from few million years to several years. Anthropogenic perturbation of global carbon cycle and climate. Response of ocean ecosystems to past and future global changes. Use of isotopes to study ocean biogeochemical cycles and climate. Interactions between biogeochemical cycles on land and in ocean. S/U or letter grading.

240. Physiology of Marine Animals. (4) Lecture, four hours; discussion, one hour. Designed for graduate students. Lecture and laboratory studies on cellular, tissue, organ, and animal physiology; regulatory biology; metabolic characteristics of cells, energy transformations. Given off campus at marine science center. S/U or letter grading.

C242. Behavioral Ecology. (4) Lecture, three hours; discussion, two hours. Requisites: course 100, Life Sciences 1, Mathematics 3C or 32A or Life Sciences 30B. Recommended: course 129. Evolutionary perspective of behavioral ecology, with extended consideration of selfish DNA, conflict with genomes, natural selection and coevolution, kin selection and diversity in group functioning and cooperation, social learning, game theory and alternative life histories, and human behavioral ecology. Concurrently scheduled with course C126. Letter grading.

243. Animal Communication. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 3C or 32A, and Physics 1C and 4BL, or 6C or 6CH. Physical properties of animal signals and physiological mechanisms underlying their generation and reception. Lectures treat signal analysis, signal transmission, and receptor design in light of constraints placed on each sensory modality. Examples of communication systems using visual, auditory, chemical, electrical, and magnetic cues, with emphasis on biological adaptations for efficiently signaling species-specific information. S/U or letter grading.

244. Advanced Insect Physiology. (4) Lecture, two hours; laboratory, five hours. Detailed discussion of current problems in insect physiology, with advanced laboratory. S/U or letter grading.

247. Advanced Plant Biology. (4) Lecture, three hours; discussion, two hours. Requisite: course 162 or Molecular, Cell, and Developmental Biology C141. Open to undergraduates with consent of instructor. Designed to expose first-year graduate students to topics of current interest in plant biology. Subjects include plant genetics, growth and development, organelle structure, development and function, and plant-specific metabolic processes (photosynthesis, nitrogen fixation, metabolism of small molecules). S/U or letter grading.

250. Professional Skills for Biological Research. (2 to 3) Seminar, two hours. Preparation, writing, and submission of research proposals. Collection and maintenance of field and laboratory data, preparation of scientific presentations, review of literature, and publishing strategies. Optional field trip offered during some years for 1 extra unit. S/U or letter grading.

251. Seminar: Systematics. (2) Seminar, two to four hours. Current topics in systematic biology, including methods development and specific applications in study of phylogeny. Theme varies from year to year. May be repeated for credit. S/U or letter grading.

253. Seminar: Plant Structure. (2) Seminar, two hours. S/U or letter grading.

255. Seminar: Invertebrate Zoology. (2) Seminar, two hours. S/U or letter grading.

259. Seminar: Herpetology. (2) Seminar, three hours. Seminar on current approaches to herpetology. Main theme varies from year to year in areas such as biogeography, ecology, behavior, environmental physiology. S/U or letter grading.

260. Seminar: Biology of Terrestrial Vertebrates. (2) Seminar, two hours. S/U or letter grading.

261. Molecular Ecology of Plant Populations. (2) Seminar, two hours. Requisite: course M200A. Integration of ecological, population genetic, and evolutionary concepts to understand evolutionary ecology and conservation biology of plant populations in natural and disturbed settings, with application to both terrestrial and marine systems. Letter grading.

263. Seminar: Population Genetics. (2 or 4) Seminar, three to six hours. Seminar on topics of current interest in population genetics, such as kin selection, sociobiology, cultural evolution, conservation genetics, etc. S/U or letter grading.

264. Seminar: Stomatal Function. (4) Seminar, two hours; discussion, two hours. Open to undergraduates with consent of instructor. Structure and function of guard cells; gas exchange; environmental and hormonal regulation of stomatal responses; sensory transduction; stomatal adaptations. S/U or letter grading.

265. Seminar: Biophysical Plant Ecology. (2) Seminar, two hours. S/U or letter grading.

267. Seminar: Current Topics in Evolutionary Ecology. (2) Seminar, two hours. S/U or letter grading.

268. Seminar: Population Biology. (2) Seminar, two hours. S/U or letter grading.

269. Seminar: Animal Ecology. (2) Seminar, three hours. Advanced study of specific topics in animal ecology and related fields. S/U or letter grading.

270. Seminar: Environmental Physiology. (2) Seminar, two hours. S/U grading.

271. Seminar: Phycology and Mycology. (2) Seminar, two hours. Requisite: course 101. Advanced study in biology of algae and fungi. Topics in physiological ecology, physiology, and biochemistry of algae and fungi, and their industrial uses. Algae and fungi as experimental organisms. Phylogeny and origin of eukaryote organisms. Evolutionary origin of chloroplasts. S/U or letter grading.

272. Seminar: Marine Biology. (2) Seminar, two hours. S/U or letter grading.

273. Seminar: Entomology. (2) Seminar, two hours. Discussion of specific topics in entomology and related fields. Main theme varies from year to year, but usually emphasizes areas such as behavior, ecology, and evolution. S/U grading.

274. Seminar: Behavioral Ecology. (2) Seminar, two hours. Discussion of theoretical and empirical aspects of topics in behavioral ecology. S/U or letter grading.

279. Seminar: Evolutionary Biology. (2) Seminar, two hours. Requisite: course M231. Emphasis on particular issue in evolutionary biology, varying in topic whenever offered. Topics may include advances in phylogenetic methodology; relationship between development and evolution; biogeography, climate change, and faunal evolution; dispersal mechanisms

and macroevolutionary patterns; adaptation and diversification; macroevolutionary patterns in fossil record. S/U or letter grading.

282. Seminar: Ichthyology. (2) Seminar, two hours. Requisite: course 111 or 112. Student presentations and discussion of specific topics in ichthyology. Theme varies from year to year. May be repeated for credit. S/U or letter grading.

M286. Seminar: Statistical Problem Solving for Population Biology. (2) (Same as Statistics M286.) Seminar, two hours. Designed for graduate students. Statistical solutions to complex data analysis and/or experimental design problems encountered by biology graduate students in their own research. S/U or letter grading.

288. Seminar: Plant Cell Biology. (2) Seminar, two hours. Recommended preparation: course 162. S/U or letter grading.

M290. Seminar: Comparative Physiology. (2) (Same as Physiological Science M290.) Seminar, two and one half hours. Discussion of specific topics in comparative physiology of animals. Topics vary from year to year, with emphasis on systems physiology, neuroethology, or behavioral physiology. S/U or letter grading.

291. Seminar: Physiology and Biochemistry of Arthropods. (2) Seminar, two hours. S/U or letter grading.

296. Seminar: Ecology and Evolutionary Biology. (1 to 4) Seminar, three hours. Advanced study and analysis of current topics in cellular, organismic, and population biology. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

297. Selected Topics in Ecology and Evolutionary Biology. (1 to 4) Seminar, one to three hours. Advanced study and analysis of variable research topics in research issues in ecology and evolutionary biology. Consult Schedule of Classes for topics and instructors. May be repeated for credit with consent of instructor. S/U or letter grading.

299. Seminar: Parasitology. (2) Seminar, two hours. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Preparation for Teaching Biology in Higher Education. (2) Seminar, to be arranged. Designed for graduate students. Study of problems and methodologies in teaching biology, which includes workshops, seminars, apprentice teaching, and peer observation. S/U grading.

496. Preparation for Teaching Biology in Higher Education. (2) Lecture, two hours. Designed for graduate students. Strongly recommended as sequel to course 495 discussions on teaching, theory, and development of advanced skills. Study of methods and approaches to teaching of specific areas in biology, with emphasis on laboratory teaching, instructor/student interaction, and undergraduate motivation. S/U grading.

596. Directed Individual (or Tutorial) Studies. (2 to 12) Tutorial, to be arranged. Letter grading.

596F. Directed Individual (or Tutorial) Studies. (2 to 8) Tutorial, to be arranged. Given off campus at marine science center. S/U or letter grading.

597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations. (2 to 12) Tutorial, to be arranged. May not be applied toward MA or PhD course requirements. S/U grading.

598. MA Thesis Research and Writing. (2 to 12) Tutorial, to be arranged. S/U grading.

599. PhD Dissertation Research and Writing. (2 to 12) Tutorial, to be arranged. S/U grading.

ECONOMICS

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Marek G. Pycia, PhD

Tomasz M. Sadzik, PhD
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Lecturer

Edward P. McDevitt, PhD

Adjunct Assistant Professors

Patrick D. Convery, MBA, PhD
Randall R. Rojas, PhD
William E. Simon, JD, PhD

Scope and Objectives

The Department of Economics undergraduate program is designed for students who wish to gain a thorough understanding of both empirical and theoretical approaches to economics. Emphasis is on economic principles applied to resolving interpersonal conflicts of interest and coordinating productive activity in a world of scarce resources. Because students must gain a thorough theoretical and technical competence before extensive study of the applied specializations in the discipline, the analytic core of the major in Economics is closely structured. Some courses are appropriate for nonmajors, but the curriculum is most suitable for students who wish to make the study of economics the primary focus in their undergraduate education.

The undergraduate major provides analytical training in reference to socioeconomic phenomena and provides an excellent theoretical background for those pursuing graduate education in economics, law, management, public administration, journalism, social welfare, architecture and urban planning, and education.

The graduate program is designed primarily for students pursuing the PhD degree. The doctorate is awarded to those students who have achieved the level of study and training required for a professional economist. The degree recognizes students' ability to make scholarly contributions in their fields of specialization and to undertake advanced research in those areas.

Undergraduate Study

Economics BA

Admission

Application for the Economics major should be filed at the undergraduate counselors office in 2263 Bunche Hall. To apply, students must have completed at least 72 quarter units (but no more than 137 quarter units), one 12-unit term in residence in regular session at UCLA, and all courses listed under Preparation for the Major. In addition, they must be enrolled in UCLA regular session at the time of application.

Economics Premajor

While students are completing the lower division preparation courses for the major, they may be classified as Economics premajors.

Preparation for the Major

Required: Economics 1, 2, 11, 41; one Writing II course or English Composition 129B; Mathematics 31A, and 31B or 31E. Each course must be taken for a letter grade. A 2.0 (C) grade is required in each premajor course. To

enter the major, students must have a minimum 2.5 grade-point average in the economics and mathematics preparation courses and a GPA of at least 2.0 in any upper division courses taken for the major before applying.

Repetition of more than one preparation course or of any preparation course more than once results in automatic denial of admission to the major.

Transfer Students

Transfer applicants to the Economics major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one microeconomics course, one macroeconomics course, two calculus courses from the mathematics/physical sciences sequence, and one English critical reading and writing course.

Transfer students are required to take Economics 41 at UCLA rather than prior to transfer.

Transfer credit for any of the above is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Ten upper division economics courses as follows: Economics 101, 102, 103, 103L, and six Economics Department upper division elective courses. No more than two of the elective courses may also be selected from Management 120A, 120B, 122, 127A, 130A, 130B, 180 (real estate finance only).

Each course must be taken for a letter grade. Former courses 100, 110, and 120 may not be included among the 10 upper division courses. Transfer credit is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

To graduate, students must have at least a 2.0 grade-point average in their upper division major courses, with grades of C- or better in Economics 101, 102, 103, and 103L.

Economics BA/Applied Economics MS Dual Program

An intercampus dual degree program between UCLA and UC Santa Cruz allows students to obtain a BA in Economics from UCLA and an MS in Applied Economics from UC Santa Cruz in five years. Consult the economics undergraduate counselor for additional information.

Business Economics BA

The Business Economics BA program offers a major for students seeking a business orientation in their study of economics. It does not replicate the traditional undergraduate business school curriculum. Instead, it offers a more tightly focused curriculum that is guided by the rigorous logic and integrative perspective of economics. It is designed to prepare

students for graduate education in business, economics, and law. The program requires students to include specific courses offered by the department and the John E. Anderson Graduate School of Management (see The Major).

Admission

Enrollment in the program is limited. Applications for admission are handled exclusively by the Department of Economics. To apply, students must have completed at least 72 quarter units (but no more than 137 quarter units), one 12-unit term in residence in regular session at UCLA, and all courses listed under Preparation for the Major. In addition, they must (1) be enrolled in UCLA regular session at the time of application, (2) have a 2.0 (C) minimum grade in each preparation course, (3) have a minimum 3.0 (B) overall average in all preparation courses except the writing course, and (4) have a minimum 2.0 (C) grade-point average in their upper division courses taken for the major before applying (Economics 101 applies on the major preparation grade-point average).

The requisite grade-point averages plus completion of the preparation for the major courses do not guarantee admission to the program. Admission is on a competitive basis, using the above qualifications as minimum standards for consideration.

Business Economics Premajor

While students are completing the preparation courses for the major, they may be classified as Business Economics premajors. (Transfer students who wish to enter UCLA as Business Economics premajors must meet the admission screening requirements. For information, contact Undergraduate Admission.)

Preparation for the Major

Required: Economics 1, 2, 11, 41, 101; one Writing II course; Management 1A, 1B; Mathematics 31A, and 31B or 31E. Each course must be taken for a letter grade.

Repetition of more than one preparation course or of any preparation course more than once results in automatic denial of admission to the major.

Transfer Students

Transfer applicants to the Business Economics major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one microeconomics course, one macroeconomics course, two calculus courses from the mathematics/physical sciences sequence, one English critical reading and writing course.

Transfer students are required to take Economics 41 at UCLA rather than prior to transfer.

Transfer credit for any of the above is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Economics 102, 103, 103L, and at least two courses from the 106 series; English Composition 131B; five upper division elective courses in economics and management (no more than three management courses from Management 108, 120A, 120B, 122, 123, 124, 126, 127A, 127B, 130A, 130B, 140 may be applied toward the elective requirement). In addition to Economics 103 and 103L, at least two economics courses with laboratories must be completed and may be selected from either the Economics 106 series or an economics elective.

Each upper division major course must be taken for a letter grade. Transfer credit for any of the major courses is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

To graduate, students must have a minimum 2.0 grade-point average in their upper division major courses, with at least a C- in each course. (Economics 101 applies on the preparation for the major, therefore requiring a minimum grade of C.)

Mathematics/Economics BS

See the Mathematics/Economics listing for a description of the major.

Honors Program

The departmental honors program is open to majors in Economics and Business Economics who have a cumulative grade-point average of at least 3.5 in the major and in all courses taken at UCLA prior to application.

To qualify for departmental honors at graduation, students must (1) select at least seven of the required upper division economics courses from the approved list designated for departmental honors, (2) complete a two-term senior thesis acceptable to the departmental honors committee in Economics 198A and 198B, and (3) complete the major requirements with at least a 3.5 grade-point average in the economics courses. Highest honors are awarded at the discretion of the departmental honors committee based on grade-point average and quality of the senior thesis.

Economics 198A and 198B, the courses required for thesis preparation, may be counted as upper division courses toward the field in which the thesis is written (for purposes of satisfying the requirements for the major). Further information and application forms are available from an undergraduate counselor in 2263 Bunche Hall.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Economics offers Master of Arts (MA), Candidate in Philosophy (CPHil), and Doctor of Philosophy (PhD) degrees in Economics and a self-supporting Master of Applied Economics (MAE) degree.

Economics

Lower Division Courses

1. Principles of Economics. (4) Lecture, three hours; discussion, one hour. Not open to students with credit for former course 100. Introduction to principles of economic analysis, economic institutions, and issues of economic policy. Emphasis on allocation of resources and distribution of income through price system. P/NP or letter grading.

2. Principles of Economics. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 1. Not open to students with credit for former course 100. Introduction to principles of economic analysis, economic institutions, and issues of economic policy. Emphasis on aggregative economics, including national income, monetary and fiscal policy, and international trade. P/NP or letter grading.

5. Introductory Economics. (4) Lecture, three hours. Not open to students with credit for course 1, 2, or former course 100. Principles of economics as tools of analysis. Presentation of set of concepts with which to analyze wide range of social problems that economic theory illuminates. May not be used to fulfill entrance requirements for any Economics Department major. P/NP or letter grading.

11. Microeconomic Theory. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 1, 2, Mathematics 31A, 31B. Laws of demand, supply, returns, and costs; price and output determination in different market situations. P/NP or letter grading.

41. Statistics for Economists. (4) Lecture, three hours; discussion, one hour. Enforced requisites: Mathematics 31A, 31B. Not open to students with credit for former Statistics 11. Introduction to probability and statistics for economists, with emphasis on rigorous arguments. Letter grading.

97. Economic Toolkit. (2) Lecture, two hours. Should be taken prior to taking course 11. Coverage of essential mathematical and spreadsheet tools that Economics majors use in their core courses and upper division elective courses. Review of algebra (graphing lines, solving systems of equations), geometry (determining areas), calculus (first derivatives, partial differentiation, elementary integral calculus), and Excel (handling data, using simple arithmetical, mathematical, and financial functions, use of Solver). Offered in summer only. P/NP grading.

Upper Division Courses

101. Microeconomic Theory. (4) Lecture, three hours; discussion, one hour. Requisite: course 11. Theory of factor pricing and income distribution, general equilibrium, implications of pricing process for optimum allocation of resources, game theory, and interest and capital. P/NP or letter grading.

102. Macroeconomic Theory. (4) Lecture, three hours; discussion, one hour. Requisite: course 101. Theory of income, employment, and price level. Analysis of secular growth and business fluctuations; introduction to monetary and fiscal policy. P/NP or letter grading.

103. Introduction to Econometrics. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 11, and 41 or Mathematics 170A or Statistics 100A. Enforced corequisite: course 103L. Introduction to theory and practice of econometrics, with goal to make students effective consumers and producers of empirical research in economics. Emphasis on intuitive understanding rather than on rigorous arguments; concepts illustrated with applications in economics. P/NP or letter grading.

103L. Econometrics Laboratory. (1) Lecture, one hour; laboratory, one hour. Requisites: courses 11, and 41 or Mathematics 170A or Statistics 100A. Enforced corequisite: course 103. Econometric analysis of case-based studies. Hands-on data collection and problem solving. Use of econometric software. P/NP or letter grading.

106A. Economics in Practice. (4) Seminar, three hours. Enforced requisites: courses 11, 101, 102. Enforced corequisite: course 106AL. Students, in groups of four, address three small problems and one large and more complex problem. Discussion of student-proposed solutions to problems in their groups, with small-group discussions to student presentations of results in class. Detailed coaching and feedback by MBA students on student analysis and presentations. Final written and oral presentations required. P/NP or letter grading.

106AL. Economics in Practice Laboratory. (1) Lecture, one hour; laboratory, one hour. Requisites: courses 11, 101, 102. Enforced corequisite: course 106A. Case-based analysis requiring students to apply material from course 106A to real-world problems regarding issues such as economic theory and empirical methods. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

106D. Designed Markets. (4) Lecture, three hours; discussion, one hour. Requisites: courses 11, 101. Enforced corequisite: course 106DL. Discussion of markets and other institutions that were purposefully designed, mostly by economists. Choices designers face when designing such markets. Markets and their context and corresponding economic models. Topics include matching between medical residents and hospitals, matching between high school students and New York and Boston high schools, kidney transplants, course allocation in business schools, eBay auctions, and prediction markets. Examination of how to optimize one's actions and outcomes in such markets. P/NP or letter grading.

106DL. Designed Markets Laboratory. (1) Lecture, one hour; laboratory, one hour. Requisites: courses 11, 101. Enforced corequisite: course 106D. Case-based analysis requiring students to apply material from course 106D to real-world problems regarding topics such as matching between medical residents and hospitals, matching between high school students and New York and Boston high schools, kidney transplants, course allocation in business schools, eBay auctions, and prediction markets. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

106E. Economics of Entrepreneurship. (4) Lecture, three hours. Requisite: course 101. Enforced corequisite: course 106EL. Enrollment priority to Business Economics majors. Application of economic theory to practice of managing new businesses—combining elements of strategy, marketing, and entrepreneurial finance courses. Examination of both strategic decisions of entrepreneurs (pricing, advertising, deterring entry) and more practical issues (funding, business plans, patents). Letter grading.

106EL. Economics of Entrepreneurship Laboratory. (1) Lecture, one hour; laboratory, one hour. Requisite: course 101. Enforced corequisite: course 106E. Case-based analysis requiring students to apply material from course 106E to real-world problems regarding topics involving combining elements of strategy, marketing, and entrepreneurial finance courses. Examination of both strategic decisions of entrepreneurs (pricing, advertising, deterring entry) and more practical issues (funding, business plans, patents). Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

106F. Finance. (4) Lecture, three hours. Requisite: course 102. Enforced corequisite: course 106FB. Enrollment priority to Business Economics majors. Introduction to principles of asset valuation and role of financial markets in market economy. Basic topics in-

clude time value of money, discounted cash flow analysis, CAPM model, and applications to public policy. Letter grading.

106FB. Finance Laboratory. (1) Lecture, one hour; laboratory, one hour. Requisite: course 102. Enforced corequisite: course 106F. Case-based analysis requiring students to apply theory from course 106F to real-world problems regarding topics such as discounted cash flow analysis, CAPM model, applications to public policy, and more. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

106G. Introduction to Game Theory. (4) Lecture, three hours; discussion, one to two hours (when scheduled). Requisite: course 101. Enforced corequisite: course 106GL. Enrollment priority to Business Economics majors. Introduction to basic ideas of game theory and strategic thinking. Discussion of ideas such as dominance, backward induction, Nash equilibrium, commitment, credibility, asymmetric information, and signaling, with application to examples from economics, politics, business, and other real-life situations. Letter grading.

106GL. Introduction to Game Theory Laboratory. (1) Lecture, one hour; laboratory, one hour. Requisite: course 101. Enforced corequisite: course 106G. Case-based analysis requiring students to apply material from course 106G to real-world problems involving game theory and strategic thinking in economics, politics, business, and other real-life situations. Hands-on data collection and problem solving and presentation of student analyses in writing with possible oral presentations. P/NP or letter grading.

106I. Organization of Firms. (4) Lecture, three hours. Enforced requisites: courses 11, 101. Enforced corequisite: course 106IL. Enrollment priority to Business Economics majors. Role of firms in traditional economic theory and modern developments in theory of firms. Topics include relationship between employer and employee, principal-agent models and moral hazard, formal versus relational contracts, successful firms as coherent systems of mutually supporting parts, property rights and asset ownership, boundaries of firms, employment versus independent contracting, internal organization of firms, role and levels of firm hierarchy. P/NP or letter grading.

106IL. Organization of Firms Laboratory. (1) Lecture, one hour; laboratory, one hour. Enforced requisites: courses 11, 101. Enforced corequisite: course 106I. Case-based analysis requiring students to apply material from course 106I to real-world problems. Hands-on data collection and problem solving and presentation of student analyses in writing and with oral presentations. P/NP or letter grading.

106M. Financial Markets and Financial Institutions. (4) Lecture, three hours; discussion, one hour. Requisites: courses 11, 101, 102. Enforced corequisite: course 106ML. Application of analytical tools of economics and finance to real-world problems in financial markets to link models students have learned in prior courses to patterns observed in financial markets and to understand when it is that further theoretical refinements are required to better account for certain observed patterns. Development of understanding of potential effects of monetary and regulatory policies on financial markets. Topics include bond market, stock market, foreign exchange market, financial crises, and financial regulation. Analysis and discussion of lessons of subprime crisis and European sovereign debt crisis. P/NP or letter grading.

106ML. Financial Markets and Financial Institutions Laboratory. (1) Lecture, one hour; laboratory, one hour. Requisites: courses 11, 101, 102. Enforced corequisite: course 106M. Case-based analysis requiring students to apply material from course 106M to real-world problems involving financial markets and financial institutions. Issues include potential effects of monetary and regulatory policies on financial markets. Topics include bond market, stock market, foreign exchange market, financial crises, and financial

regulation. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

106P. Pricing and Strategy. (4) Lecture, three hours. Requisite: course 101. Enforced corequisite: course 106PL. Enrollment priority to Business Economics majors. Advanced pricing topics typically include linear programming and shadow pricing, peak load pricing, two-part pricing, strategic pricing, and auctions and bidding. Letter grading.

106PL. Pricing and Strategy Laboratory. (1) Lecture, one hour; laboratory, one hour. Requisite: course 101. Enforced corequisite: course 106P. Case-based analysis requiring students to apply material from course 106P to real-world problems involving linear programming and shadow pricing, peak load pricing, two-part pricing, strategic pricing, and auctions and bidding. Hands-on data collection and problem solving and presentation of student analyses in writing. P/NP or letter grading.

106T. Economics of Technology and E-Commerce. (4) Lecture, three hours. Requisites: courses 11, 101. Enforced corequisite: course 106TL. Use of rigorous economic tools to analyze world of technology and e-commerce. Examination of economic theory, empirical analysis, and case studies to study variety of new markets. Topics include bidding in online auctions, two-sided markets, matching markets, and reputation mechanisms. Written case on one particular firm and presentation required. P/NP or letter grading.

106TL. Economics of Technology and E-Commerce Laboratory. (1) Lecture, one hour; laboratory, one hour. Requisites: courses 11, 101. Enforced corequisite: course 106T. Case-based analysis requiring students to apply theory from course 106T to real-world problems regarding issues such as bidding in online auctions, two-sided markets, matching markets, reputation mechanisms, and more. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

106V. Investments. (4) Lecture, three hours. Requisite: course 102. Recommended: course 106F. Enforced corequisite: course 106VL. Enrollment priority to Business Economics majors. Introduction to principles investment and portfolio theory. Topics include optimal portfolio construction, fixed income analysis, option pricing theory, and active portfolio management. P/NP or letter grading.

106VL. Investments Laboratory. (1) Lecture, one hour; laboratory, one hour. Requisite: course 102. Recommended: course 106F. Enforced corequisite: course 106V. Case-based analysis requiring students to apply theory from course 106V to real-world problems regarding issues such as portfolio management, option pricing, and other investment topics. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

107. History of Economic Theory. (4) Lecture, three hours. Enforced requisites: courses 11, 101, 102. Survey of economic analysis from Greco-Roman antiquity to early 20th century, concentrating on 18th and 19th centuries; special attention to selected writers, including Aristotle, mercantilists, Physiocrats, Hume, Smith, Malthus, Ricardo, Marx, marginalists, and Marshall. P/NP or letter grading.

111. Theories of Economic Growth and Development. (4) Lecture, three hours. Requisites: courses 11, 101, 103. Application of theoretical and empirical tools from microeconomics to provide insights into problems confronting low-income countries today and to evaluate policies that are likely to be effective in improving well-being of poorest on globe. P/NP or letter grading.

112. Policies for Economic Development. (4) Lecture, three hours. Requisite: course 102 or 111. Suggested strategies for economic development: inflation, balanced growth, industry versus agriculture, import substitution, export-oriented expansion, foreign aid, and others. Selected case studies. P/NP or letter grading.

121. International Trade Theory. (4) Lecture, three hours; discussion, one hour. Requisite: course 101. Not open to students with credit for former course 120. Theory of international trade: bases, direction, terms, volume, and gains of trade. Effects of tariffs, quantitative restrictions, and international integration. Effects of free and restricted trade on economic welfare and political stability. P/NP or letter grading.

122. International Finance. (4) Lecture, three hours; discussion, one hour. Requisite: course 102. Enforced corequisite: course 122L. Not open to students with credit for former course 120. Emphasis on interpretation of balance of payments and adjustment to national and international equilibria through changes in price levels, exchange rates, and national income. Other topics include making international payments, determination of exchange rates under various monetary standards, capital movements, exchange controls, and international monetary organization. P/NP or letter grading.

122L. International Finance Laboratory. (1) Lecture, one hour; laboratory, one hour. Requisite: course 102. Enforced corequisite: course 122. Case-based analysis requiring students to apply material from course 122 to real-world problems involving international finance. Topics and analysis include balance of payments, exchange rates under various monetary arrangements, capital flows, exchange controls, and international monetary organization. Hands-on data collection and problem solving and presentation of student analyses in writing. P/NP or letter grading.

123. Foreign Exchange Market and Exchange Rate Forecasting. (4) Lecture, three hours. Limited to Business Economics, Economics, and Mathematics/Economics majors with experience using statistical packages who have appropriate background in computer programming and mathematics (C++ programming recommended). Empirically based advanced presentation of foreign exchange market and financial instruments used in this market, with emphasis on real-world applications of theoretical concepts. Deeper understanding of foreign exchange market and exchange rate fluctuation gained and acquisition of empirical skills necessary to make practical use of real-world data. Specialized software to be installed in UCLA computer laboratory to allow students to analyze and graph macroeconomic data and evaluate accuracy (profitability) of their forecasts. P/NP or letter grading.

C126A-C126B-C126C. Seminars: International Economics. (4-4-4) Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in international economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C285A-C285B-C285C. P/NP or letter grading.

130. Public Economics. (4) Lecture, three hours. Requisites: courses 11, 101, 103. Enforced corequisite: course 130L. Role of government in market economy. Alternative justifications for government intervention. Principles and effects of spending programs (especially social insurance and health), taxation, deficit financing, and federal credit programs. Taxation in open economy. Properties of public choice mechanisms. P/NP or letter grading.

130L. Public Economics Laboratory. (1) Lecture, one hour; laboratory, one hour. Requisites: courses 11, 101. Enforced corequisite: course 130. Case-based analysis requiring students to apply theory from course 130 to real-world problems regarding government spending programs, taxation, deficit financing, and federal credit programs. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

131. Economics of Health and Healthcare. (4) Lecture, three hours. Requisites: courses 11, 101, 103. Enforced corequisite: course 131L. Economic anal-

ysis of health and healthcare. Presentation of several detailed economic models, including models of addiction, demand for healthcare, demand for insurance, nonprofit behavior, and other models. Evaluation of quantitative information from course readings and development of better understanding of econometric concepts and results. P/NP or letter grading.

131L. Economics of Health and Healthcare Laboratory. (1) Lecture, one hour; laboratory, one hour. Enforced requisites: courses 11, 101, 103. Enforced corequisite: course 131. Case-based analysis requiring students to apply theory from course 131 to real-world problems regarding economics of health and healthcare. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

132. Topics in Taxation and Social Insurance. (4) Lecture, three hours; discussion, one hour. Requisites: courses 11, 101. In-depth examination of selected topics related to current policy debates. Topics vary from year to year but typically emphasize tax policy or social insurance. Topics may include optimal taxation; tax inefficiencies and their implications for labor supply, savings, and investment; income redistribution and personal income tax; corporate taxation and implications for firms' investment and financing decisions; Social Security and SSDI reform; and welfare programs. P/NP or letter grading.

M134. Environmental Economics. (4) (Same as Environment M134.) Lecture, three hours. Requisites: course 41 or Statistics 12 or 13, and course 101 (may be waived with consent of instructor). Introduction to major ideas in natural resources and environmental economics, with emphasis on designing incentives to protect environment. Highlights important role of using empirical data to test hypotheses about pollution's causes and consequences. P/NP or letter grading.

M135. Economic Models of Public Choice. (4) (Same as Political Science M105.) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: any lower division political science course. Enforced requisite: course 11. Designed for juniors/seniors. Analysis of methods and consequences of arriving at collective decisions through political mechanisms. Topics include free-rider problem, voting and majority choice, demand revelation, and political bargaining. P/NP or letter grading.

137. Introduction to Urban and Regional Economics. (4) Lecture, three hours. Requisite: course 11. Survey of broad range of policy and theoretical issues that are raised when economic analysis is applied in urban setting. Topics include urbanization and urban growth, housing markets, location decisions of households and firms, transportation, urban labor markets, and local public sector. P/NP or letter grading.

140. Inequality: Mathematical and Econometric Approach. (4) Lecture, three hours. Requisites: courses 101, 103, and Mathematics 33A or 115A. In past decade economists have learned remarkable amount about how society works. Increased understanding through application of distinctively economic methods of research—explicit mathematical models and eclectic statistical techniques—to topics like healthcare, crime, education, and immigration, leading to increased understanding of inequality, how to measure it, how inequality has increased in U.S., how America differs from other rich countries, and what causes inequality. Study of this work, with focus on two important influences on inequality—education and health. P/NP or letter grading.

141. Topics in Microeconomics: Mathematical Finance. (5) Lecture, three hours; computer laboratory, one hour. Requisites: course 11, Mathematics 32A, either Statistics 100A or Mathematics 170A. Economics of financial markets, competitive equilibrium with time and uncertainty, one period security market model, market completeness. P/NP or letter grading.

142. Topics in Microeconomics: Probabilistic Microeconomics. (4) Lecture, three hours. Requisite: course 101. Combination of basic probability introduced in Statistics 11 with microeconomic models

presented in courses 11 and 101 in order to explain phenomena such as insurance, job search, and stock market behavior. Optimal production and consumption under uncertainty. Review of probability and introduction to alternative measures of risk and risk aversion. P/NP or letter grading.

143. Advanced Econometrics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 103. Not open for credit to students with credit for former course 147A or 147B. Heteroskedasticity, limited dependent variable, panel data, time-series. P/NP or letter grading.

144. Economic Forecasting. (4) Lecture, three hours. Preparation: familiarity with data analysis software (e.g., R, Excel, MATLAB, Stata) and/or programming experience. Enforced requisites: courses 101, 103/103L. Survey of theory and application of time-series methods to forecasting in economics, business, and government. Topics include modeling and forecasting trend, seasonality, and cycles. Discussion of stochastic trends, volatility measure, and evaluation of forecasting techniques. Hands-on approach to real-world data analysis methods widely used by economists and other professionals. P/NP or letter grading.

145. Topics in Microeconomics: Mathematical Economics. (4) Lecture, three hours. Requisite: course 101. Possible topics include game theory; competitive equilibrium analysis; examination of market failure and role for market intervention. P/NP or letter grading.

C146A-C146B-C146C. Seminars: Asset Pricing. (4-4-4) Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in asset pricing theory for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C296A-C296B-C296C. P/NP or letter grading.

148. Behavioral Economics. (4) Lecture, three hours. Enforced requisite: course 101. Behavioral economics is emerging subfield of economics that incorporates insights from psychology and other social sciences into economics to improve realism of economic models by incorporating realistic features such as aversion for losses, problems with self control, or concerns for others and thereby improve economic analyses. Review of some standard assumptions made in economics and examination of evidence on how human behavior systematically departs from these assumptions. Investigation of attempts to explore alternative models of human decision making and assessment to what extent these alternative models help improve economic analyses. P/NP or letter grading.

150. Labor Economics. (4) Lecture, three hours. Requisites: courses 11, 101, 103. Enforced corequisite: course 150L. Supply and demand for labor. Analysis of government, union, and other constraints on competitive system of wage determination. Wage level and structure. Wages and human capital theory. P/NP or letter grading.

150L. Labor Economics Laboratory. (1) Lecture, one hour; laboratory, one hour. Requisites: courses 11, 101, 103. Enforced corequisite: course 150. Case-based analysis requiring students to apply theoretical tools from course 150 to real-world problems involving labor economics. Topics include labor supply decisions, household production decisions, life-cycle aspects of labor supply, short-run and long-run labor demand, monopsony in labor market, quasi-fixed labor costs and labor demand, human capital, and other extended topics. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

151. Topics in Labor Economics. (4) Lecture, three hours. Requisites: courses 101, 150. Selected topics in labor theory; income distribution; business cycles

and unemployment; investments in human capital and life cycles; migration; human fertility; marriage and divorce, etc. P/NP or letter grading.

C156A-C156B-C156C. Seminars: Labor Economics. (4-4-4) Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in labor economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C266A-C266B-C266C. P/NP or letter grading.

160. Money and Banking. (4) Lecture, three hours. Requisite: course 102. Principles of money and banking in U.S.; legal and institutional framework; money supply process; instruments, effects, and practice of monetary policy. P/NP or letter grading.

161. Monetary Theory. (4) Lecture, three hours. Requisites: courses 101, 160. Nature of money and monetary exchange; level and term structure of interest rates; level and growth rate of money; transmission of monetary shocks; theory and practice of monetary policy. P/NP or letter grading.

164. Advanced Topics in Macroeconomics: Theory of Economic Growth. (4) Lecture, three hours. Requisite: course 102. Enforced corequisite: course 164L. Use of neoclassical growth model to address various issues, with emphasis on quantitative analysis. Development of economic theory and application to study of long-run growth, industrial revolution, and Great Depression. P/NP or letter grading.

164L. Advanced Topics in Macroeconomics: Theory of Economic Growth Laboratory. (1) Lecture, one hour; laboratory, one hour. Requisite: course 102. Enforced corequisite: course 164. Case-based analysis requiring students to apply theory from course 164 to real-world macroeconomic growth problems. Hands-on data collection and problem solving and presentation of student analyses in writing. P/NP or letter grading.

165. History of Capitalism in American Economy. (4) Lecture, three hours. Enforced requisite: course 102. Enforced corequisite: course 165L. How capitalism—what economists call market economy with well-defined and protected civil rights and property rights—has contributed to America's economic growth. Quantitative course, with analysis of how different features of capitalist economies impact economic growth, investment, consumption, and technical change, using computer simulations based on prominent historical examples. P/NP or letter grading.

165L. History of Capitalism in American Economy Laboratory. (1) Lecture, one hour; laboratory, one hour. Enforced requisite: course 102. Enforced corequisite: course 165. Case-based analysis requiring students to apply theory and historical data from course 165 to simulate and analyze how variety of macroeconomic policies impact economic activity. Hands-on data collection and problem solving and presentation of student analyses in writing. P/NP or letter grading.

C166A-C166B-C166C. Seminars: Monetary Economics/Macroeconomics. (4-4-4) Seminar, three hours. Requisite: course 102. Limited to seniors. Overview of most current developments in monetary economics and macroeconomics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C226A-C226B-C226C. P/NP or letter grading.

170. Industrial Organization: Theory and Tactics. (4) Lecture, three hours. Requisite: course 101. Enforced corequisite: course 170L. Not open for credit to students with credit for former course 170 or 171. Monopoly, collusion and competition, strategic firm behavior, nonprice competition with and without entry, pricing practices, antitrust. Comparison of eco-

nomic and legal treatments of competitive process. Monopoly competition, and collusion as economic theory, as antitrust doctrine, and as fact. Source of monopoly. Predatory behavior. Misleading practices in theory and policy. General problem of relationship between private rights of action and competitive entry. P/NP or letter grading.

170L. Industrial Organization: Theory and Tactics Laboratory. (1) Lecture, one hour; laboratory, one hour. Requisite: course 101. Enforced corequisite: course 170. Case-based analysis requiring students to apply material from course 170 to real-world problems involving monopoly, collusion, strategic firm behavior, pricing practices, antitrust and other topics. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

173A-173B. Introduction to Social Entrepreneurship. (4-4) Lecture, one hour; research group meeting, two hours. Course 173A is requisite to 173B. Full-scale immersion into world of social entrepreneurship. Introduction to basics of business planning for social enterprises. Students are assigned in teams to work with participating social enterprises in Los Angeles area to implement new revenue-generating business plan for social enterprises to which they are assigned. Teams receive support from MBA student volunteers as advisers on how to work effectively together and how to resolve issues that arise with staff of assigned social enterprise. Courses 173A and 173B must be taken in consecutive terms. In Progress (173A) and P/NP or letter (173B) grading.

174. Economics of Sports. (4) Lecture, three hours. Enforced requisites: courses 11, 41, 101. Recommended: courses 103/103L. Course in applied microeconomics that employs both theoretical and empirical tools to analyze wide range of topics related to sports industry. Topics include history of labor relations in professional sports, history and analysis of player salaries in professional sports, market for professional sports franchises and sports broadcast rights, league expansion and relocation decisions, understanding of role of economic impact studies (cost-benefit analysis) and public/private partnerships in facility financing, relationship between academics and athletics in collegiate sports, racial discrimination in sports, exploration of behavioral issues such as strategic effort, measuring return on investment from sport sponsorships, and calculation of economic damages in legal cases involving athletes. P/NP or letter grading.

C176A-C176B-C176C. Seminars: Industrial Organization. (4-4-4) Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in industrial organization for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C276A-C276B-C276C. P/NP or letter grading.

181. Development of Economic Institutions in Western Europe. (4) Lecture, three hours. Requisite: course 11. European economic history. Custom, command, and market modes of organization. Evolution of property rights, contract forms, and monetary arrangements. Decline of feudal institutions, especially serfdom. Open field village and enclosures. Development of banking. Public finances and role of government. Industrial revolution in Britain and its spread to continent. Rise of factories, industrial firms, and unions. Changes in standard of living and demographic consequences. P/NP or letter grading.

183. Development of Economic Institutions in U.S. (4) Lecture, three hours. Requisites: courses 11, 103. Enforced corequisite: course 183L. Study of changing economic conditions in U.S. from Colonial times to early 20th century and effects of these changes on American society. P/NP or letter grading.

183L. Development of Economic Institutions in U.S. Laboratory. (4) Lecture, one hour; laboratory, one hour. Requisite: course 11. Enforced corequisite: course 183. Empirical analysis requiring students to apply material from course 183 to selected historical issues such as migration, slavery, industrialization, capital formation, Great Depression, human capital formation, and California development and relate them to current real-world issues. Hands-on data collection and problem solving and presentation of student analyses in writing. P/NP or letter grading.

C186A-C186B-C186C. Seminars: Economic History. (4-4-4) Seminar, three hours. Limited to seniors. Overview of most current developments in economic history for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C246A-C246B-C246C. P/NP or letter grading.

187. Upper Division Research Seminar: Applications of Economic Theory. (4) Seminar, three hours. Requisites: courses 11, 101. Limited enrollment seminars in which students usually write research paper on topic selected in consultation with instructor. May be repeated for credit with topic change. P/NP or letter grading.

188. Career Development. (1) Lecture, one hour. Enrollment priority to departmental majors. Designed to provide Business Economics majors with key knowledge and practical skills used in real world that complement traditional academics to maximize interview, communication, and presentation skills and strengthen résumé building. Coverage of career paths in business profession in various aspects to broaden students' knowledge of career opportunities. Review of current business environment, financial markets, economy, unemployment, banking crises, market updates, and all related business topics. P/NP grading.

191. Variable Topics Research Seminars: Economics. (4) Seminar, three hours. Enforced requisites: courses 101, 102, 103. Research seminars on selected topics in economics. Reading, discussion, and development of culminating project. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

192. Undergraduate Practicum in Economics. (3) Seminar, two hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students. Students assist in preparation of course materials and development of innovative programs with guidance of faculty members. P/NP or letter grading.

195A-195B. Community or Corporate Internships in Economics I, II. (2-4) Tutorial, to be arranged. Requisites: courses 11, 101. Limited to junior/senior Economics, Business Economics, Economics/International Area Studies, and Mathematics/Economics majors. Internship to be supervised by Economics Department. Further supervision to be provided by business or entity for which student is doing internship. Students meet on regular basis with instructor and provide periodic reports of their experience. May not be applied toward major requirements. Only 8 units from courses 195A and 195B may be applied toward undergraduate degree. Individual contract with supervising faculty member required. P/NP grading.

195C. Community and Corporate Internships in Economics. (4) (Formerly numbered 195CE.) Tutorial, to be arranged; fieldwork, eight to 10 hours. Requisites: courses 11, 101. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated by Economics Department. Students complete weekly written assignments, attend bi-weekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. May not be applied toward major re-

quirements. May be repeated for credit with consent of department. Individual contract with supervising faculty member required. P/NP or letter grading.

198A. Honors Research in Economics I. (4) Tutorial, three hours. Requisites: courses 11, 101, 102. Limited to senior departmental honors program students. First term of two-term sequence in which students develop honors thesis or comprehensive research project under direct supervision of faculty member. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

198B. Honors Research in Economics II. (4) Tutorial, three hours. Requisite: course 198A. Limited to senior departmental honors program students. Second term of two-term sequence in which students complete honors thesis or comprehensive research project under direct supervision of faculty member. Individual contract required. Letter grading.

199A. Directed Research in Economics. (4) Tutorial, three hours. Requisites: courses 11, 101, 102. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated twice but may be applied only once toward major requirements. Individual contract required. P/NP or letter grading.

199B. Directed Research in Economics/International Area Studies. (4) Tutorial, four hours. Requisites: courses 103, and 121 or 122. Limited to senior Economics/International Area Studies majors. Students prepare research papers under guidance of faculty mentor on economy of country or region of specialization. May be repeated for credit. Individual contract required. Letter grading.

Graduate Courses

Foundations of Economics

200. Mathematical Methods in Economics. (4) Lecture, three hours. Should be taken prior to enrollment in course 201A. Examination of mathematical methods used in graduate-level courses in microeconomics, macroeconomics, and quantitative methods. Topics include real analysis, linear algebra and matrices, calculus of many variables, static optimization, convex analysis, and dynamics and dynamic optimization. S/U grading.

200B. Mathematical Methods in Economics II. (4) Lecture, three hours; laboratory, two hours. Should be taken prior to or concurrent with course 201B. Linear algebra and its application to linear difference equations. Basic real analysis, normed vector space/Banach space, Hahn/Banach theorem, Schauder fixed point theorem, and theory of correspondences. S/U grading.

201A-201B-201C. Microeconomics. (4-4-4) Lecture, three hours. S/U or letter grading:

201A. Theory of Firm and Consumer. (4) Lecture, three hours. Two input/two output model. Walrasian equilibrium and Pareto efficiency. Choice over time—consumer savings and firm investment decisions. Choice under uncertainty—state claims model, asset pricing. S/U or letter grading.

201B. Basic Concepts and Techniques of Noncooperative Game Theory and Information Economics. (4) Lecture, three hours. Nash equilibrium and subgame perfection. Games with incomplete information. Models of strategic market behavior. Screening and signaling. Bargaining models. Theory of firm. S/U or letter grading.

201C. Game Theory with Asymmetric Information and Applications. (4) Lecture, three hours. Perfect Bayesian equilibrium and refinements, mechanism design. Applied topics such as adverse selection, signaling, moral hazard, bidding, price discrimination, and public good provision. S/U or letter grading.

202A-202B-202C. Macroeconomics. (4-4-4) Lecture, three hours. S/U or letter grading:

202A. Dynamics and Growth Theory. (4) Lecture, three hours. Essential techniques and concepts from dynamical mathematics and neoclassical growth

theory. Linear and nonlinear dynamical systems. Dynamic programming and control theory. Stochastic dynamics. Determinacy of equilibrium. Descriptive, optimal, and overlapping generations models of accumulation. Stochastic growth theory. Increasing returns and applications to economic development. S/U or letter grading.

202B. Business Cycles. (4) Lecture, three hours. Survey of representative agent and complete market models of short-run fluctuations. Facts about fluctuations and long-term growth. Real business cycle theory. Calibrating and simulating dynamic models. Asset prices, money, and inflation. Taxation of factor incomes. Cyclical aspects of employment. S/U or letter grading.

202C. Topics in Macroeconomics. (4) Lecture, three hours. Heterogeneous-agent models of endogenous fluctuations and growth. General equilibrium techniques in macroeconomics. Overlapping fluctuations model with national debt. Fiscal policy. Externalities, indeterminacy, and growth. Expectations and business cycles. Money and monetary policy. Historical overview of mainstream macroeconomics. Wicksell and Keynes. Monetarist controversy. New classical and new Keynesian macroeconomics. S/U or letter grading.

203A. Introduction to Econometrics I. (4) Lecture, three hours; discussion, one hour. Probability and statistical tools for econometric models. Topics include random variables, distribution and density functions, transformations, identification, sampling, estimators, asymptotic properties. S/U or letter grading.

203B. Introduction to Econometrics II. (4) Lecture, three hours; discussion, one hour. Estimation and testing. Basic linear regression model, tests of hypotheses, generalized least squares, heteroskedasticity, multicollinearity, error-in-variables, and qualitative dependent variables. S/U or letter grading.

203C. Introduction to Econometrics III. (4) Lecture, three hours; discussion, one hour. Econometrics methods for time-series econometrics, including theory and applications. Topics include detrending techniques, unit root theory, cointegrated system approaches, autocorrelation robust inference, Wold and Beveridge and Nelson (BN) decompositions, model selection, nonlinear nonstationary models, spatial density asymptotics and semi-nonparametric time-series models. S/U or letter grading.

M204A-204Z. Applications of Economic Theory. (4 each) Lecture, three hours. S/U or letter grading:

M204A-204B-204C. California Population Research Topical Seminar Series. (4-4-4) (Same as Sociology M225A.) Seminar, three hours. Examination of issues such as demography, health, aging, labor, and broad array of topics concerned with effects of economic, social, and political transformations on human behavior both in U.S. and abroad. Each course may be taken independently for credit. S/U grading.

M204L-M204M-M204N. Seminars: Pharmaceutical Economics and Policy. (1-1-2) (Same as Health Policy M204A-M204B-M204C.) Seminar, three hours every other week. Requisite: Health Policy M236. Limited to graduate public health and economics students. Various topics in economics of pharmaceutical industry, including rates of innovation, drug regulation, and economic impact of pharmaceuticals. In Progress (M204L, M204M) and letter (M204N) grading.

204R. (4) Lecture, three hours. Preparation: completion of first-year microeconomics and graduate econometrics courses. In past decade economists have learned remarkable amount about how society works. Increased understanding has come about through application of distinctively economic methods of research—explicit mathematical models and eclectic statistical techniques—to topics such as healthcare, crime, education, and immigration. Taken together this work has led to increased understanding of inequality, how to measure it, how inequality has increased in U.S., how America differs from other rich countries and, most important, what causes inequality. Study of this work, with focus on two im-

portant influences on inequality—education and health—which are two areas in which knowledge is accumulating most rapidly. S/U grading.

205. Economic Modeling. (4) Lecture, three hours. Development of modeling skills by considering sequence of economic issues (e.g., peak load pricing, regulation, monopoly, capital asset pricing, Pareto efficiency). Emphasis on multivariate constrained optimization. S/U or letter grading.

206. Law and Economics Workshop. (2 or 3) Seminar, two hours. Requisite: course 201A or Management 405. Knowledge of empirical methods and basic calculus required. Interdisciplinary speakers series bringing together outside speakers with scholars and students from UCLA Law School and academic departments. Topics include contracts, torts, intellectual property, and business law. Students write graded reaction papers. May be repeated for credit. Concurrently scheduled with Law 648 and Management 294. S/U or letter grading.

207. History of Economic Thought. (4) Lecture, three hours. Topics from classical economics, including work of Smith, Ricardo, and Mill, and developments from 1870s, including contributions of major figures of marginalistic revolution, socialist controversy, and history of welfare economics. S/U or letter grading.

M208. Introduction to Demographic Methods. (4) (Same as Biostatistics M208, Community Health Sciences M208, and Sociology M213A.) Lecture, four hours. Preparation: one introductory statistics course. Introduction to methods of demographic analysis. Topics include demographic rates, standardization, decomposition of differences, life tables, survival analysis, cohort analysis, birth interval analysis, models of population growth, stable populations, population projection, and demographic data sources. Letter grading.

Economic Theory

211A. Contract Theory. (4) Lecture, three hours. Preparation: introductory probability. Enforced requisite: course 201C. Study of trading relationships between small number of agents. Coverage of many tools and techniques used in models of moral hazard, adverse selection, and incomplete contracting, starting with static models of moral hazard and mechanism design and development of their dynamic counterparts. Consideration of environments where agents cannot use formal contracts, studying relational contracts and trading relationships with no contracts. Analysis of wide variety of applications from industrial organization, corporate finance, personnel economics, and public economics. S/U or letter grading.

211B. Economics of Uncertainty, Information, and Games. (4) Lecture, three hours. Preparation: introductory probability. Enforced requisite: course 201C. Theory of individual decision making under uncertainty, applied to topics such as asset pricing models, adverse selection, moral hazard, bargaining, signaling, auctions, and search. S/U or letter grading.

211C. Game Theory and Economic Applications. (4) Lecture, three hours. Preparation: introductory probability. Enforced requisite: course 201C. Intended for students who are interested in doing research in microeconomic theory and for students who want to acquire good theory background to do applied work. Coverage of combination of standard results in field and topics of current research, including notions of equilibrium in static and dynamic games, reasoning in games, repeated games, games of incomplete information, and experiments. S/U or letter grading.

212A-212Z. Topics in Advanced Theory. (4 each) Lecture, three hours. Current research in microeconomic theory. Content varies. Courses in this sequence not ordinarily given every year. May be repeated for credit. S/U or letter grading:

212A. Search Theory. (4) Lecture, three hours. Preparation: calculus, introductory probability. Price searching, queueing, Brownian motion, martingales, and applications to theory of firm. May be repeated for credit. S/U or letter grading.

212B. Applied Game Theory. (4) Lecture, three hours. Preparation: calculus, introductory probability. Use of theory of Bayesian games to study bargaining, monetary theory, and oligopoly. Use of theory of mechanisms to study auction design and imperfectly competitive markets. May be repeated for credit. S/U or letter grading.

213A-213B. General Equilibrium and Game Theory. (4-4) Lecture, three hours. Requisite: course 201C. Selected advanced theoretical topics of current interest and introduction to modern mathematical economics, including general equilibrium theory and game theory. S/U or letter grading.

214A-214Z. Topics in Mathematical Economics. (4 each) Lecture, three hours. Requisite: course 213B. Current research in mathematical economics. Content varies. Ordinarily only two courses in this sequence given every year. May be repeated for credit. S/U or letter grading:

214A. General Equilibrium Theory. (4) Lecture, three hours. Requisite: course 201C. Core convergence theorem, cooperative and noncooperative approach to competitive equilibrium theory, perfectly competitive equilibria, no-surplus condition, and applications to mechanism theory and incomplete market models. May be repeated for credit. S/U or letter grading.

M215. Topics in Applied Game Theory. (4) (Same as Political Science M208B.) Lecture, three hours. Preparation: calculus or introductory probability. Designed for graduate economics and political science students. Survey and applications of major solution concepts to models of bargaining, oligopoly, cost allocation, and voting power. S/U or letter grading.

218A-218B-218C. Proseminars: Economic Theory. (4-4-4) Seminar, three hours. Quarterly seminars for predissertation and dissertation writers. Discussion of advanced topics and recent developments in game theory, information and uncertainty, and general equilibrium theory. Presentation of recent papers published and unpublished in economic theory as well as research of instructor and students. In-class presentation expected. S/U grading.

219A-219B-219C. Workshops: Economic Theory and Mathematical Economics. (4-4-4) Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

Also see Management 203A (decision theory)

Monetary Economics

221A-221D. Monetary Economics I to IV. (4 each) Lecture, three hours. S/U or letter grading:

221A. Monetary Economics I. (4) Lecture, three hours. Requisites: courses 202A, 202B, 202C. Dynamic methods in business cycles and economic growth. Multiperiod life-cycle models. Sustainable public deficits. Money and inflationary finance. Human capital. Endogenous fluctuations and regime switching. Econometrics of multiple equilibrium models. Political economy of government deficits and inflation. S/U or letter grading.

221B. Monetary Economics II. (4) Lecture, three hours. Emphasis on theoretical, historical, and policy aspects of monetary economics. Financial intermediation, bank panics, asset price volatility, game theoretic models of policy, inflation, implication of monopolistic competition, search and coordination failures, central bank operations, and evolution of monetary institutions. S/U or letter grading.

221C. Monetary Economics III. (4) Lecture, three hours. Requisites: courses 202A, 202B, 202C. Emphasis on quantitative dynamic models useful in study of equilibrium business cycles and public finance. Recursive competitive equilibria in representative agent overlapping-generation models, including models with money, taxes, liquidity constraints, and other distortions. S/U or letter grading.

221D. Monetary Economics IV. (4) Lecture, three hours. Requisites: courses 202A, 202B, 202C. Emphasis on applied macroeconomics, with topic

change each year. Students select one particular data set to study. Each week class studies article from recent work in applied macroeconomics or applied econometrics that teaches one technique or suggests one theoretical restriction on data. Subgroups of students report back to class using technique on their selected data set. S/U or letter grading.

222B-222Z. Topics in Monetary Economics. (4 each) Lecture, three hours. Current research in monetary economics. Content varies. May be repeated for credit. S/U or letter grading.

C226A-C226B-C226C. Seminars: Monetary Economics/Macroeconomics. (4-4-4) Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in monetary economics and macroeconomics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C166A-C166B-C166C. S/U (C226B) and S/U or letter (C226A, C226C) grading.

228A-228B-228C. Proseminars: Monetary Economics. (4-4-4) Seminar, three hours. Workshops for predissertation and dissertation writers. Literature surveys or research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper or presentation required. S/U grading.

229A-229B-229C. Workshops: Monetary Economics. (4-4-4) Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading. Also see Management 239A, 239B, 239C (PhD sequence in finance), 239D (advanced topics in finance), 239X, 239Y, 239Z (finance workshops)

Econometrics

231A. Advanced Econometrics I. (4) Lecture, three hours. Econometric methods for microeconomic models. Topics include identification, nonparametric estimation, limited dependent variable models, duration, panel data, tests of hypotheses. S/U or letter grading.

231B. Advanced Econometrics II. (4) Lecture, three hours. Econometric methods for empirical research in economics. Topics include simultaneous equations, instrumental variables, panel data, treatment effects, and point and partial identification, with applications in static and dynamic games, social interactions, matching, and network formation. S/U or letter grading.

231C. Advanced Econometrics III. (4) (Formerly numbered 232C.) Lecture, three hours. Advanced topics in econometrics that may vary year to year. Current topics include empirical process methods with applications to quantile regression and general M-estimation, estimation and inference methods in high-dimensional models, including LASSO and Dantzig Selector techniques, and bootstrap. May be repeated for credit. S/U or letter grading.

M232A-232Z. Topics in Econometrics. (4 each) Lecture, three hours. Requisites: courses 231A, 231B. Current research in econometrics. Content varies. Courses in this sequence not ordinarily given every year. May be repeated for credit. S/U or letter grading:

M232A. Bayesian Econometrics. (4) (Same as Political Science M208E.) Lecture, three hours. Requisites: courses 231A, 231B. Subjective probability, introduction to decision theory, Bayesian analysis of regression, sensitivity analysis, simplification of models, criticism. May be repeated for credit. S/U or letter grading.

232B. Time Series. (4) Lecture, three hours. Requisites: courses 231A, 231B. Stationary stochastic processes, Box/Jenkins methods, spectral analysis, fore-

casting, rational expectation models, analysis of macroeconomic data. May be repeated for credit. S/U or letter grading.

238A-238B-238C. Proseminars: Econometrics. (4-4-4) Seminar, three hours. Quarterly seminars for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Research paper or presentation required. S/U grading.

239A-239B-239C. Workshops: Econometrics. (4-4-4) Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

Economic History

241. Economic History of Western Europe. (4) Lecture, three hours. Designed for graduate students. Seminar on European economic history, with emphasis on evolution of institutions and growth. Serfdom, medieval agriculture and agricultural revolution, demographics, industrial revolution, imperial expansion, and decline of Britain. S/U or letter grading.

242. Economic History of U.S. (4) Lecture, three hours. Seminar on American economic history. Onset of industrialization, relative economic backwardness of South, slavery, technological change, rise in industrial concentration, women in labor force, development of financial markets. S/U or letter grading.

243A-243Z. Topics in Economic History. (4 each) Lecture, three hours. Current research in economic history. Content varies. May be repeated for credit. S/U or letter grading.

C246A-C246B-C246C. Seminars: Economic History. (4-4-4) Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in economic history for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C186A-C186B-C186C. S/U grading.

248A-248B-248C. Proseminars: Economic History. (4-4-4) Seminar, three hours. Quarterly seminars for predissertation and dissertation writers. Discussion of advanced topics and recent developments in economic history. Presentation of work-in-progress. Research paper required. S/U grading.

249A-249B-249C. Von Grimp Workshops: History of Entrepreneurship in U.S. Economy. (4-4-4) Lecture, three hours. Designed for graduate students. Workshops for advanced graduate students. Research in progress discussed by visiting experts, UCLA faculty members, graduate students. S/U grading.

Public Finance

251A. Theory and Policy of Taxation. (4) Lecture, three hours. Examination of influence of taxation on economic efficiency and incidence of taxation in first part of course. Topics include tax equivalences, Ramsey rules, and alternative forms of taxation. Special tax provisions, tax incentives, and progressivity in taxation in second part of course. S/U or letter grading.

251B. Cost-Benefit Analysis of Public Projects and Programs. (4) Lecture, three hours. Requisite: course 251A. Presentation of those aspects of applied capital theory that are relevant in decisions concerning investment projects in first part of course. Differences between social and private benefits and costs (shadow prices) for foreign exchange, capital, and labor, with applications to public investment decisions, in second part of course. S/U or letter grading.

252. Economics of Federalism. (4) Lecture, three hours. Theories of perfect games and social organization. Role of government, collective goods, collective defense, local public goods, spillovers, and intergovernmental relations. S/U or letter grading.

253A-253Z. Topics in Public Finance. (4 each) Lecture, three hours. Current research in public finance. Content varies. Topics include Social Security taxes and programs, unemployment insurance, public provision of medical care, theory of public goods, and theory of public choice. May be repeated for credit. S/U or letter grading.

254A-254B-254C. Workshops: Public Economics. (4-4-4) Lecture, three hours. Designed for graduate students. Workshops for advanced graduate students. Research in progress discussed by graduate students, UCLA faculty members, visiting experts. S/U grading.

Applied Microeconomics

261A-261B. Labor Economics I, II. (4-4) Lecture, three hours. S/U or letter grading:

261A. Labor Economics I. (4) Lecture, three hours. Wage determination in competitive labor markets. Extension of wage determination to schooling and occupational choice, life-cycle earnings profiles, discrimination, minimum wage legislation, and unionism. Emphasis on empirical literature. S/U or letter grading.

261B. Labor Economics II. (4) Lecture, three hours. Requisite: course 261A. Models of life-cycle learning and work behavior, with particular emphasis on recent literature examining labor force behavior and experience of women. S/U or letter grading.

262A-262Z. Topics in Labor Economics. (4 each) Lecture, three hours. Current research in labor economics. Content varies. May be repeated for credit. S/U or letter grading:

262D. Development Economics. (4) Lecture, three hours. Preparation: completion of first-year graduate microeconomics and econometrics courses. Coverage of important key topics in microeconomics of development, such as health, education, risk coping, savings, credit, and household economics. Discussion of empirical methods. S/U or letter grading.

262F. Public Sector Microeconomics. (4) Lecture, three hours. Preparation: completion of first-year graduate microeconomics and econometrics courses. Coverage of topics related to tax incidence, deadweight loss, public expenditure, income taxation and transfer programs, with emphasis on impacts of such programs on labor supply and savings, social security, unemployment insurance, and other insurance programs. S/U or letter grading.

263. Topics in Urban Economics. (4) (Formerly numbered 293A.) Lecture, three hours. Current research in urban and regional economics. Content varies. Serves as forum for presentation of papers on urban economics by students, UCLA faculty members, and visitors. May be repeated for credit. S/U or letter grading.

264A. General Equilibrium and Finance. (4) (Formerly numbered 291A.) Lecture, three hours. Designed for graduate students. Introduction to mathematical finance from general equilibrium viewpoint. CAPM and static equilibrium models. Intertemporal models in discrete and continuous time. Spanning, option prices, and derivatives. Martingales, random walks, and market efficiency. S/U or letter grading.

264B. Fundamentals and Bubbles in Asset Prices. (4) (Formerly numbered 291B.) Lecture, three hours. Requisite: course 264A. Designed for graduate students. Applications of dynamic general equilibrium to asset pricing in economies with exchange and production. Basic empirical puzzles in U.S. and international asset prices, 1880 to 2000: excess volatility, equity premium and risk-free rate puzzle, predictability. Models of habit formation, asset price bubbles, and limited arbitrage asset pricing theories. Market imperfections and bounded rationality. S/U or letter grading.

264C. Asset Prices, Forecasting, and Learning. (4) (Formerly numbered 291C.) Lecture, three hours. Requisite: course 264A. Designed for graduate students. Introduction to forecasting methods and applications to asset pricing. Signal-extraction under different uncertainty specifications. Kalman filtering and forecasting. Robust filtering and forecasting. Models of behavioral finance. Stylized facts on forecasts and asset pricing anomalies: short-term momentum and long-term reversals of returns. Option pricing anomalies. S/U or letter grading.

264D. Econometrics of Asset Prices. (4) (Formerly numbered 291D.) Lecture, three hours. Requisite: course 264A. Designed for graduate students. Applications of time-series methods to analysis of asset prices: general method of moments, vector autoregressions, and maximum likelihood estimation. Restrictions imposed by no-arbitrage on time series of returns. Empirical implications of macroeconomic models for asset prices. Response of asset prices to shocks. Incomplete markets. S/U or letter grading.

C266A-C266B-C266C. Seminars: Labor Economics. (4-4-4) Seminar, three hours. Designed for pre-dissertation and dissertation writers. Overview of most current developments in labor economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C176A-C176B-C176C. S/U (C266B) and S/U or letter (C266A, C266C) grading.

268A-268B-268C. Proseminars: Labor and Population. (4-4-4) Seminar, three hours. Quarterly seminars for pre-dissertation and dissertation writers working on empirical issues in areas of labor and population, broadly defined. Presentation of work-in-progress or background material for proposed thesis topics, to be discussed and criticized by faculty and fellow students. Presentation or research paper required. S/U grading.

269A-269B-269C. Workshops: Labor Economics. (4-4-4) Lecture, three hours. Workshops for pre-dissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

Industrial Organization

271A-271B. Industrial Organization, Price Policies, and Regulation I, II. (4-4) Lecture, three hours. S/U or letter grading:

271A. Industrial Organization, Price Policies, and Regulation I. (4) Lecture, three hours. Major economic aspects of property rights system. Firm and market compared from perspective of alternative arrangements for allocating resources. Traditional problems of competition, monopoly, and industrial concentration. Brief analysis of those portions of antitrust policy bearing on industrial structure. S/U or letter grading.

271B. Industrial Organization, Price Policies, and Regulation II. (4) Lecture, three hours. Requisite: course 271A. Study of firm organization and pricing under conditions of less than perfect competition; information costs and advertising; economic and legal analysis of marketing practices such as discrimination, tie-in selling, resale price maintenance, exclusive dealing, and territorial arrangements. S/U or letter grading.

271C. Mathematical Theory in Industrial Organization. (4) Lecture, three hours. Requisites: courses 201A, 201B, 201C. Formal modeling of theory of industrial organization: principal-agent problem, entry deterrence, endogenous price discrimination, monopolistic competition, new approaches to rationality. S/U or letter grading.

272A-272Z. Topics in Industrial Organization. (4 each) Lecture, three hours. Current research in industrial organization. Content varies. May be repeated for credit. S/U or letter grading.

273A. Public Utility Regulation. (4) Lecture, three hours. Theory, practice, and consequences of regulation in electric power, gas, water, telecommunications, broadcasting, and other regulated industries; experiences of unregulated monopoly and public enterprises by way of contrast. S/U or letter grading.

C276A-C276B-C276C. Seminars: Industrial Organization. (4-4-4) Seminar, three hours. Designed for pre-dissertation and dissertation writers. Overview of most current developments in industrial organization for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C176A-C176B-C176C. S/U (C276B) and S/U or letter (C276A, C276C) grading.

278A-278B-278C. Proseminars: Industrial Organization and Regulation. (4-4-4) Seminar, three hours. Quarterly seminars for pre-dissertation and dissertation writers to discuss advanced topics and recent developments in industrial organization and regulation. Presentation of work-in-progress for feedback from faculty and fellow students. Presentation or research paper required. S/U grading.

279A-279B-279C. Workshops: Business Organization. (4-4-4) Lecture, three hours. Workshops for pre-dissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading. Also see Management 262 (pricing policy)

International Economics

281A. International Trade Theory. (4) Lecture, three hours. Theoretical and empirical analysis of microeconomic relationships among countries. Determinants of commodity and factor flows, prices, and factor rewards. Effects of trade barriers. S/U or letter grading.

281B. International Finance. (4) Lecture, three hours. Theory and evidence on balance of payments, exchange rate determination, international transmission of inflation and business cycles, macroeconomic policy in open economies, alternative monetary systems. S/U or letter grading.

281C. International Economics. (4) Lecture, three hours. Theoretical and empirical analysis of interrelation between flows of capital, people, and goods. Applications to current policy. S/U or letter grading.

282A-282Z. Topics in International Economics. (4 each) Lecture, three hours. Current research in international economics. Content varies. May be repeated for credit. S/U or letter grading.

284. Soviet Economic Theory and Organization. (4) Lecture, three hours. Overall strategy of planning used by U.S.S.R. planners and specific planning methods, interpreted broadly to cover not only instructions and objectives but also institutional arrangements. Intended and unintended outcomes of methods. S/U or letter grading.

C285A-C285B-C285C. Seminars: International Economics. (4-4-4) Seminar, three hours. Designed for pre-dissertation and dissertation writers. Overview of most current developments in international economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C126A-C126B-C126C. S/U grading.

Development Economics

286A. Economic Development. (4) Lecture, three hours. Requisites: courses 201C, 202C. Study of theoretical and empirical problems related to developing countries. Emphasis on relation between international trade and economic development, dynamic aspects

of commercial policies, inflation, stabilization, structural adjustment, growth and migration. S/U or letter grading.

286B. Cost-Benefit Analysis of Development Projects. (4) Lecture, three hours. Requisite: course 286A. Methodology for evaluating investment projects, with special attention to types of issues that arise in developing countries. Discussion of social versus private evaluation criteria; applications to highway, electricity, and irrigation projects. S/U or letter grading.

287A-287Z. Topics in Development Economics. (4 each) Lecture, three hours. Current research in development economics. Content varies. Courses in this sequence not ordinarily given every year. May be repeated for credit. S/U or letter grading:

287A. Economic Problems of Latin America. (4) Lecture, three hours. Economic history of Latin America. Great depression, import substitution and industrialization, inflation and growth, free market experiments, and economic integration. May be repeated for credit. S/U or letter grading.

287B. Economic Development in East Asia. (4) Lecture, three hours. Recent economic history of East Asia, focusing on postwar development of Japan, Korea, and China. Emphasis on role of international investment and trade, especially with U.S., in area's economic development. May be repeated for credit. S/U or letter grading.

287C. Topics in Economic Development. (4) Lecture, three hours. Designed for graduate students. Topics in monetary and exchange rate policy in developing countries. Students expected to develop analytical tools and underlying policy issues. May be repeated for credit. S/U or letter grading.

288A-288B-288C. Proseminars: International and Development Economics. (4-4-4) Seminar, three hours. Quarterly seminars for predissertation and dissertation writers on current issues in international trade and finance and development economics. Presentation of work-in-progress for feedback from faculty and other graduate students. Presentation or research paper required. S/U grading.

Applied Economics (MAE)

291A. Microeconomic Theory. (4) Lecture, three hours. Limited to Master of Applied Economics students. Coverage of fundamentals of optimization, choices by price-taking agents, consumer and producer surplus, monopoly and competition, Walrasian equilibrium and two welfare theorems, constant returns to scale economy, choice over time, uncertainty, and information and market design. Letter grading.

292A. Macroeconomic Theory. (4) Lecture, three hours. Limited to Master of Applied Economics students. Introduction to main topics of graduate macroeconomics, including macroeconomic data, models of economic growth, supply and demand of factors of production, business cycle models, unemployment, monetary policy and inflation, and fiscal policy and deficits. Letter grading.

292B. Applied Macroeconomics. (4) Lecture, three hours. Limited to Master of Applied Economics students. Study of alternative theories of causes of unemployment and inflation, with focus on Keynesian approach to monetary and fiscal policy and modifications and extensions of Keynesian ideas designed to explain financial crises. Letter grading.

293A. Introduction to Statistical Methods and Econometrics. (4) Lecture, three hours. Limited to Master of Applied Economics students. Introduction to probability, statistics, econometrics, and time-series methods used in economics, business, and government. Topics include random variables, hypothesis testing, estimation, distribution functions, simple and multiple regression, and estimation with stationary/nonstationary processes. Letter grading.

293B. Practicing Econometrics: Nuts and Bolts of Cutting-Edge Empirical Work. (4) Lecture, three hours. Limited to Master of Applied Economics students. Basic tools necessary for high-level cutting-edge empirical research. Coverage of variety of

methods suited for empirical studies that apply to experimental data, quasi-experimental data, panel data, and cross-sectional data. Letter grading.

295A. Money and Banking. (4) Lecture, three hours. Limited to Master of Applied Economics students. Introduction to models and data used to understand connection between asset prices, health of financial sector, and macroeconomy, including review of recent papers to gain introduction to questions being addressed on research frontier. Letter grading.

295B. Macroeconomic Implications of Globalization. (4) Lecture, three hours. Limited to Master of Applied Economics students. Development of understanding of some main macroeconomic implications of increasing integration of world economy through trade linkages, multinational production, and financial markets. Letter grading.

295C. Economics of Entrepreneurship. (4) Lecture, three hours. Limited to Master of Applied Economics students. Examination of role of entrepreneurship and entrepreneurial strategies—source of ideas, value creation, market development, scaling, exit strategies. Group practice of entrepreneurship. Development of original ideas into business plans. Letter grading.

295D. Environmental Economics. (4) Lecture, three hours. Limited to Master of Applied Economics students. Introduction to major ideas in environmental economics by studying causes and consequences of pollution, with special emphasis on understanding China's environmental challenges and policy options. Letter grading.

295E. Financial Crises and Exchange Rate Forecasting. (4) Lecture, three hours. Limited to Master of Applied Economics students. Introduction to recent developments in international finance. Coverage of lending booms and financial crises both theoretically and empirically, as well as foreign exchange market anomalies and different approaches to forecasting exchange rates. Letter grading.

C296A-C296B-C296C. Seminars: Asset Pricing. (4-4-4) Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in asset pricing theory for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C146A-C146B-C146C. S/U (C296B) and S/U or letter (C296A, C296C) grading.

298A-298B-298C. Proseminars: Asset Pricing. (4-4-4) Seminar, three hours. Quarterly seminars for predissertation and dissertation writers on empirical issues in area of asset pricing, broadly defined. Presentation of work-in-progress or background material for proposed dissertation topics that are discussed and criticized by faculty members and fellow students. Presentation or research paper required. S/U grading.

Special Studies

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching College Economics. (2) Seminar, one hour; laboratory, three hours. Designed for graduate students. Required of all new teaching assistants. Classroom practice in teaching, with individual and group instruction on related educational methods, materials, and evaluation. May be repeated for credit. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Individual Study. (2 to 8) Tutorial, to be arranged. Directed individual study or research. S/U grading.

597. Individual Study: Graduate Examinations. (2 to 8) Tutorial, to be arranged. Directed individual study in preparation for MA comprehensive examination or PhD qualifying examinations. S/U grading.

599. Individual Research: PhD Dissertation. (2 to 8) Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Directed individual research in preparation of PhD dissertation. S/U grading.

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Mitchell J. Chang, PhD
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Megan L. Franke, PhD
Louis M. Gomez, PhD (*MacArthur Foundation Professor of Digital Media and Learning*)
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Noreen M. Webb, PhD

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 Edith Mukudi Omwami, PhD
 Thomas M. Philip, PhD
 Cecilia Rios-Aguilar, PhD

Assistant Professors

M. Kevin Eagan, Jr., PhD, *in Residence*
 David G. Garcia, PhD
 Jennie K. Grammer, PhD
 Lorena Guillén, PhD
 Mark P. Hansen, PhD, *in Residence*
 Jessica C. Harris, PhD
 Minjeong Jeon, PhD
 Matthew J. Madison, PhD
 Ananda Drake Marin, PhD
 Safiya U. Noble, PhD
 Federica Raia, PhD, *in Residence*
 Gerardo Ramirez, PhD

Adjunct Professors

Katherin M. Anderson-Levitt, PhD
 Diane Durkin, PhD
 Faye C. Peitzman, PhD
 Jody Z. Priselac, EdD
 Karen Hunter Quartz, PhD
 Linda P. Rose, PhD

Adjunct Associate Professor

Richard L. Wagoner, PhD

Scope and Objectives

As one of the top-ranked public graduate programs in education in the nation, the Department of Education is guided by a commitment to integrate theory and practice and to improve educational practice and policy. The department attracts prominent scholars and is internationally recognized for its research centers in evaluation, higher education, child development, and urban education. Whether students choose to pursue a PhD, an EdD, a master's degree, or a services or instructional credential, they graduate with a broad understanding of educational theory and tested practice.

Undergraduate Study

Education Studies Minor

The Education Studies minor is intended to address the diverse information needs of the UCLA undergraduate community to (1) allow students to learn more about the multitude of contemporary professional research issues confronting the field of education, (2) understand the complex interactions between the legal, social, political, and economic forces that influence and shape educational policies in America, (3) provide an introductory course sequence for students who wish eventually to pursue careers in education either as teachers or researchers, and (4) provide an analysis of current educational practices by which UCLA students can become better consumers of educational services as future parents, taxpayers, and citizens.

To enter the minor, students must have completed one minor course from the approved course list, have at least sophomore standing with a minimum overall 2.3 (C+) grade-point average, and file an admission application with the education studies academic adviser in the Office of Student Services, 1009 Moore Hall, <http://gseis.ucla.edu/education/academic-programs/education-studies-minor/>. Applicants are expected to be committed to inquiry of issues central to educational research and practice. Students must follow the program of study in effect at the time of their admission. Students completing their sophomore year are encouraged to apply.

Required Upper Division Courses (32 units minimum): A minimum of four core courses selected from Education 108, 118 through 138, 149, M186, 187, and M194A, M194B, M194C (to be taken concurrently with either M182A, M182B, M182C or M183A, M183B, M183C) and three additional courses selected from the core courses listed above or from 80, 92A through 92F, M102, M103, M112, 140, 141, 142, 143, 144, M145A, M145B, 146A, 146B, 147, M148, 162, CM178/CM178L, 185, 191A through 191X, 192A/170A, 192B/170B, 196C.

Only one course from Education 80 and 92A through 92F may be applied toward the elective requirement. Courses CM178/CM178L, 192A/170A, and 192B/170B must be taken concurrently.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications,

and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Education offers Master of Arts (MA) and Doctor of Philosophy (PhD) degrees in Education, Master of Education (MEd) degree, Doctor of Education (EdD) degree, Doctor of Philosophy (PhD) degree in Special Education (with California State University, Los Angeles), and Doctor of Education (EdD) degree in Educational Administration (with UC Irvine).

One articulated degree program (Education MEd/Latin American Studies MA) and one concurrent degree program (Education MEd, MA, EdD, or PhD/Law JD) are also offered.

Education

Lower Division Courses

10. Introduction to Humanities, Social Sciences, and Scientific Inquiry. (4) Lecture, 30 hours; laboratory, eight hours. Introduction to range of critical concepts in humanities, social sciences, and hard sciences. Use of multicultural texts that represent variety of genres and disciplines to develop critical reading and writing skills. Development of scientific inquiry skills relevant to study of mathematics and science in medical professions. Weekly compositions, critical thinking journals, and participation in laboratory experiments. Application of these concepts to critical issues facing migrant farmworker communities and similar groups throughout state and country, with focus on issues such as identity, language, culture, and central social, health, and educational issues facing Latino community. Offered in summer only. P/NP or letter grading.

80. Understanding Collegiate Experience. (4) Lecture, three hours; discussion, 90 minutes. Designed to help students better understand their experience within college environment by learning about research that has been done on college students and impact of college. Examination of diverse issues ranging from reasons why students go to college to how students are ultimately influenced by college experience. Letter grading.

85A-85B-85C. Evaluation for Practitioners. (1-1-2) Tutorial, one hour. Provides participating Student Initiated Access Center (SIAC) program staff with basic understanding of evaluation skills. Students learn how to describe programs in terms of inputs, activities, outputs, and outcomes and are able to frame relevant and measurable evaluation questions based on program needs. P/NP grading.

92A. Study of Teaching and Learning Methods. (4) Seminar, three hours. Analysis of learning theory and teaching methods in light of research on student characteristics, learning environments, student/instructor interaction, and outcomes of instruction. Application of theory and research to practice. Letter grading.

92B. Practicum in Higher Education. (4) Seminar, three hours. Enforced requisites: courses 92A, 92F. Examination of intellectual and personal development of college students through differential environments and instructional experiences. Letter grading.

92C. Dynamics of Peer Mentoring. (4) Seminar, three hours. First course in series of three designed to provide proficiency in learning principles and procedures relevant to peer mentoring. Undergraduate students present College of Letters and Science academic support workshops to their peers with intent of enhancing academic and career perspectives. Letter grading.

92D. Development of Peer Mentoring. (4) Seminar, three hours. Requisite: course 92C. Second course in series of three designed to provide proficiency in learning principles and procedures relevant to peer

mentoring. Undergraduate students present College of Letters and Science academic support workshops to their peers with intent of enhancing academic and career perspectives. Concentration on relationship between creativity and presentation. P/NP or letter grading.

92E. Evaluation of Peer Mentoring. (4) Seminar, three hours. Requisite: course 92D. Third course in series of three designed to provide proficiency in learning principles and procedures relevant to peer mentoring. Undergraduate students present College of Letters and Science academic support workshops to their peers with intent of enhancing academic and career perspectives. Concentration on program assessment. P/NP or letter grading.

92F. Academic Success in Undergraduate Experience. (2) Lecture, one hour; discussion, one hour. Designed for first-year or transitioning students to promote understanding of factors involved in making adjustments to college experience, both academic and social. Letter grading.

98. Critical Issues in Education. (4) Seminar, 30 minutes; laboratory, 30 minutes. Introduction to critical educational issues and approaches taken by researchers, policymakers, and education advocates as they respond to these issues. Laboratory portion of course engages students in small research groups where they acquire background on particular issue of interest, learn about social sciences research, and conduct mini-research projects. May be repeated for credit. Letter grading.

Upper Division Courses

M102. Mexican Americans and Schools. (4) (Same as Chicana and Chicano Studies M102.) Seminar, four hours. Theoretical and empirical overview of Chicana/Chicano educational issues in U.S., with special emphasis on disentangling effects of race, gender, class, and immigrant status on Chicana/Chicano educational attainment and achievement. Examination of how historical, social, political, and economic forces impact Chicana/Chicano educational experience. P/NP or letter grading.

M103. Asian American Education and Schooling. (4) (Same as Asian American Studies M114.) Seminar, four hours. Examination of existing body of research from various disciplines on Asian/Pacific American educational experiences. Letter grading.

M104. Introduction to Arts Education for Multiple Publics: Theory and Practice. (4) (Same as Arts Education M102.) Seminar, three hours; outside study, nine hours. Introductory course with focus on arts education for multiple publics in inner-city settings. Study of core issues in arts education, creativity, and social justice as students develop, implement, and assess original syllabi, lesson plans, and community learning projects for multiple publics in inner-city schools and arts organizations. Collaboration with partner schools in planning, teaching, and evaluation of arts education programs in dance, music, theater, and visual arts. P/NP or letter grading.

M108. Sociology of Education. (5) (Same as Sociology M175.) Lecture, four hours; discussion, one hour. Study of how U.S. educational system both promotes socioeconomic opportunities and maintains socioeconomic inequalities: historical and theoretical perspectives on role of education in U.S. society; trends in educational attainment; ways in which family background, class, race, and gender affect educational achievement and attainment; stratification between and within schools; effects of education on socioeconomic attainment, family, health, attitudes, and social participation; educational policies to improve school quality and address socioeconomic inequalities. Letter grading.

M112. Inner and Outer Worlds of Children: Social Policies. (4) (Same as Honors Collegium M112.) Seminar, four hours. Practices and analysis of social policies impacting on children. Topics include assessment, social justice and geographical space, temporal orientation, and classical theories of adolescent development. Letter grading.

118. Literacy in Society. (5) Lecture, four hours. Literacy plays significant role in cognition and language, political governance and law, and economic, social, and personal well-being. Exploration of these aspects of literacy and their implications for teaching and learning. Examination of literacy in workplace, healthcare, and community. Consideration of new literacies, interrelationship between literacy and technology, and impact of illiteracy on income and opportunity. Letter grading.

120. Early Childhood Development. (5) Seminar, four hours. Development of positive social behaviors and their enhancement. Broad overview of children's psychological development, with emphasis on personal, social, and emotional attributes of preschool and elementary school child. Aspects of prosocial behavior and aggression. Enhancement of prosocial behavior and modification of such negative behaviors as aggression. Review and evaluation of contemporary educational programs for promoting positive social behaviors in elementary schools. Methodological aspects of child development. Overview of early childhood education and issues related to role of family, school, and television in child development. Letter grading.

121. Introduction to K-12 Issues in American Public Education. (5) Seminar, four hours. Examination of American schooling experience (K-12) and analysis of various school and social policies that impact on children and adolescents. Systematic examination of major participants in American schooling process (parents, students, teachers, geographical space of school environment, school organizations, and society) and how they are associated with American schooling experience. Discussion of contemporary themes such as risk behaviors, SAT controversy, high school exit examinations, social promotion, technology in classroom, psychosocial development of children, school reform, equal educational opportunity, affirmative action, and educational assessment. Letter grading.

122. Perspectives on American College. (5) Seminar, four hours. Examination of role colleges and universities play in larger cultural life of U.S. society. Use of analysis of student movements as vehicle for exploration of key sociological, political, and cultural developments on U.S. campuses. Emphasis on interrelated research, academic, social, and policy issues underlying diverse system of higher education. Letter grading.

123. Teaching Profession. (5) Seminar, four hours. Exploration of traditional and alternative teaching practices and public responses to teachers teaching and students learning. Examination of education in socioeconomic context and discussion of some philosophical questions that challenge teaching profession. Letter grading.

C124. History of Higher Education. (5) Seminar, four hours. Exploration of major eras in history of higher education. Topics include issues concerning access, diversity, parental choice, cultural literacy, teacher empowerment, and role of popular media. Concurrently scheduled with course C209A. Letter grading.

C125. Politics of Education. (5) Lecture, two hours; discussion, two hours. Political dimensions of education institutions as organizations. Relationships between education institutions and political institutions in society. Political theory as foundation for public policy analysis; interest groups in education policy formation and implementation; and focus on Freireian pedagogy. Concurrently scheduled with course C207. P/NP or letter grading.

C126. Educational Anthropology. (5) Seminar, four hours. Research seminar designed to familiarize students with discipline of anthropology and subfield of anthropology and education. Exploration of concept of culture through various anthropological perspectives, with focus on theories of culture, cultural transmission and acquisition, and cultural reproduction and production for understanding schooling and its outcomes. Examination of research methodologies in anthropology, as well as critical historical overview of

discipline and current debates and dilemmas of doing anthropological research in educational settings. Issues of race, gender, sexual orientation, and class, and consideration of application of anthropological theory and methods to educational practice and research. Concurrently scheduled with course C203. Letter grading.

127. Educational Psychology. (5) Lecture, two hours; discussion, two hours. Broad overview of educational psychology, with examination of relationship of teaching and learning; various perspectives as to how children learn; issues of teaching and learning that arise based on child's social class, ethnic background, gender, age, and level of ability. Letter grading.

128. Adolescent Psychosocial Development: Problems and Potentials. (5) Seminar, four hours. Research seminar providing overview of research literature on adolescent development and use of education environment as context for this development. Primary focus of adolescent development to be psychosocial in nature and relation of topics to understanding of one's identity, personal development, and relationships with other individuals and society at large. Study of psychological and education theories that apply to specific sub-samples of adolescents (e.g., women and adolescents of color), as well as those that are relevant to population of youth at large. Letter grading.

129. Education and Law. (5) Seminar, four hours. Research seminar providing overview of high-profile legal controversies that shape so many policy debates at both K-12 and higher education levels. Major areas of focus include campus safety, religion and schools, educational quality and law, broadband right to equal educational opportunity, and Internet-related issues and concerns. Letter grading.

130. Race, Class, and Education Inequality in U.S. (5) Lecture, two hours; discussion, two hours. Focus extensively on understanding educational experiences of following groups in U.S.: African Americans, Asian Americans and Pacific Islanders, Chicanas/Chicanos/Latinas/Latinos, and low-income white Americans. Examination of how historical development of public education in U.S. has influenced its present form. Critical look at some current issues and policy debates in education, including debate over school reform, bilingual education, and affirmative action. Letter grading.

131. Issues in American Education: Perspectives from History and Popular Culture. (4) Seminar, four hours. Exploration of ways we draw on different kinds of texts to illuminate critical issues in American secondary education. Issues include transformation in secondary education from 1890 to present, politics of social class, and racial and gender representation of secondary education. Letter grading.

132. Autism: Mind, Brain, and Education. (5) Lecture, two hours; discussion, two hours. Study of autism spectrum disorders (ASD) and related disabilities. Discussion of characteristics of disorder, effective interventions, and exploration of impact of children with ASD on families. Limited number of independent observations of individuals in community required. Letter grading.

133. Topics in Child Development and Social Policies. (5) Seminar, four hours; fieldwork, two hours. Research seminar designed to enable students to (1) gain basic understanding of ways in which public policies are established and implemented, (2) learn about policy landscape in several major domains of child and family life in U.S. and other countries, and (3) use scientific research on children's cognitive and social development to evaluate and understand effects of social and economic policies. Letter grading.

134. Educational Leadership, Organizational Theory, and Policy. (5) Seminar, four hours. Designed for students interested in developing understanding and appreciation for breadth of leadership models/theories in education, including traditional, entrepreneurial, behavioral, and relationship-based models. Analysis of effectiveness of organizations and/or policies in terms of educational leadership, and develop-

ment of personal leadership profile in context of alternative models of leadership relevant to education. Letter grading.

135. Introduction to Educational Inquiry. (5) Seminar, five hours. Limited to juniors/seniors. Introduction to educational inquiry, with special attention to different ways of conducting research in field of education. Focus on different ways authors conceptualize/investigate inequity. Development of culminating project. Letter grading.

M136. Working Families and Educational Inequalities in Urban Schools. (4) (Same as Labor and Workplace Studies M136.) Seminar, three hours; fieldwork, five hours. Exploration of complex relationship between working-class and poor communities and inequalities in American urban schools. Drawing on multiple disciplinary frameworks that address issues of race, ethnicity, and immigration, schools viewed as sites where inequalities are produced and resisted. Review of history of exclusionary treatment and divergent conceptual frames that educational researchers have used to understand notion of inequality, access to quality public education, and how race, ethnicity, and class affect school experiences for working-class and poor communities. Look inside schools through community service learning opportunity to examine systems, structures, and everyday practices that sustain and reproduce inequality and policies that intend to remedy educational inequalities in urban schools. Opportunity to investigate issues of working-class families and inequalities as they relate to students' own communities and experiences. P/NP or letter grading.

137. Public Policy in Higher Education. (5) Lecture, four hours. Introduction to range of contemporary and ongoing higher education public policy issues, and conceptual and theoretical frameworks typically used to understand them. Development of fluency in public policy language, with focus on national, state, and institutional policy perspectives. Letter grading.

138. Critical Pedagogy and Cultural Studies in Urban Education. (5) Lecture, two hours; discussion, two hours. Consideration of potential of conceptual and empirical work in critical pedagogy and cultural studies to inform, confront, and transform many challenges faced in urban education today. Study of theory and research of critical pedagogists such as Paulo Freire, Peter McLaren, and others. Letter grading.

139. Educational Program Evaluation. (5) Seminar, four hours. Stages and methods for conducting evaluations of educational and social programs, with emphasis on evaluation approaches that are theoretically grounded, methodologically rigorous, practical, and useful. Letter grading.

140. Time and Behavior in Educational Organizations. (4) Seminar, three hours. Designed for juniors/seniors. Exploration of psychosocial perspective of how temporal orientation and time investments impact and shape human behavior, with specific emphasis on educational issues related to school reform, teen pregnancy, school violence, teacher burnout, teacher midlife crisis, cultural diversity, information-seeking behaviors, and academic attainment. Letter grading.

141. Writing to Learn: Teaching Writing in Elementary and Secondary Schools. (4) Seminar, four hours. Ways to teach writing at elementary and secondary level through examination of related concepts of ideas, evidence, part, and whole, and writing process. Emphasis on how reading, writing, and thinking exercises engage students and lead them to develop their own ideas. Letter grading.

142. Reflections of Education Abroad Program Study. (4) Seminar, two hours; activity, two hours. Designed to provide returned Education Abroad Program (EAP) students with structured opportunity to deepen their reflections on their time abroad through contact with literature, academic articles, and speakers. Provides EAP reciprocity students with opportunity to analyze their transition to UCLA and allows both returned and reciprocity students chances to learn through service to EAP. Letter grading.

143. Understanding Pathways to College. (4) Lecture, two hours; discussion, two hours. Examination of inequality across K-12 and higher education to understand how college admissions are stratified across racial and class lines. Roles of school personnel, higher education admissions, families, and students in promoting equal educational opportunity. Course is good preparation for students interested in working in UCLA programs such as Early Academic Outreach Programs that serve students in Los Angeles area schools. Letter grading.

144. Advanced Undergraduate Research Seminar. (4) Seminar, four hours. Limited to juniors/seniors. Advanced independent skills course of joint interest to professor and student. Research topics deal with K-12 American educational experience, with specific emphasis on diversity, assessment, technology, at-risk, geographical space, and psychosocial development of children. Letter grading.

M145A-M145B. Restoring Civility: Understanding, Using, and Resolving Conflict. (4-4) (Same as Chicana and Chicano Studies M174A-M174B.) Lecture, one hour; discussion, three hours. Course M145A is enforced requisite to M145B. Designed for students who want to learn principles of dialogue and mediation, as alternatives to violence, and practice how to apply them in educational settings. In Progress (M145A) and letter (M145B) grading.

M145C. Alternatives to Violence: Peer Mediation in Public Schools. (4) (Same as Chicana and Chicano Studies M174C.) Lecture, one hour; fieldwork, three hours. Requisites: courses M145A, M145B. Limited to juniors/seniors. Application of student knowledge and experience to help students in partner schools to develop peer mediation programs to be sustained by future UCLA students. Work at partner school sites and demonstration of firm grasp of concepts of conflict resolution through weekly reflective journals, discussion through biweekly meetings, and final journal entry. Application of critical thinking, review of literature from earlier courses, and reflection on student field experiences to deepen understanding of violence, its causes, and what schools can do to mitigate it. Letter grading.

146A. Research Apprenticeship in Peer Counseling. (4) Seminar, four hours. Limited to juniors/seniors. Highly interactive, student-centered course designed to provide hands-on experience in academic peer advising and leadership and understanding of underlying theories, principles, and related issues. Students advise their peers in Education Studies minor courses and build community among those students. Letter grading.

146B. Research Apprenticeship in Peer Advising and Leadership. (4) Seminar, four hours. Enforced requisite: course 146A. Limited to juniors/seniors. Highly interactive, student-centered course designed to provide hands-on experience in academic peer advising and leadership and understanding of underlying theories, principles, and related issues. Students advise their peers in Education Studies minor courses and build community among those students. Letter grading.

147. Lesbian, Gay, Bisexual, and Transgender Issues in Education and Law. (4) Lecture, four hours. Lesbian, gay, bisexual, and transgender-related controversies that arise in schools, colleges, and universities today and how they are being addressed by legal and education communities. In particular, examination of real-life consequences of current laws and exploration of what might be done to make things better for all persons. Letter grading.

M148. Women in Higher Education. (4) (Same as Gender Studies M148.) Seminar, three hours. Designed for juniors/seniors. Overview of issues related to experience of women in higher education. Topics include curricular transformation, feminist pedagogy, gender equity, women faculty members, and intersection of gender and race. Letter grading.

149. Innovation and Social Entrepreneurship in Education. (5) Lecture, two hours; laboratory, two hours. Exploration of various types of charter schools as well as alternative methods for social change.

Evaluation of in-depth social entrepreneurship, its theoretical constructs, and its application to charter schools as social enterprises. Letter grading.

150. Student Development in Theory and Practice. (2) Seminar, two hours. Introduction to field of student affairs and contribution of student development theory. General overview of various student affairs functions and programs, along with key theories that inform practice. P/NP grading.

151. Student Development in Theory and Practice: Strategic Career Decision Making. (2) Seminar, two hours. Importance of making informed career decisions and understanding how cultural and family values play role in career development process. Through interactive lessons and projects, development of strategies to anticipate and effectively deal with lifelong challenges such as work/life balance, career fulfillment, and career transitions. P/NP grading.

C160. Theory and Practice of Intergroup Dialogue: Building Facilitation Skills. (4) Seminar, four hours. Topics include social psychology of intergroup relations, intercultural and dialogic communication theories, methods for reconciling and bridging differences in schools and communities, research and evaluation of intergroup dialogues and other educational methods for improving intergroup relations, and core competencies for planning, delivering, and evaluating intergroup dialogues in multicultural settings. While providing foundational grounding in theory and pedagogy of intergroup dialogue, particular attention to relationships between intergroup dynamics, structural inequalities, systems of privilege and oppression, and mental health outcomes and disparities among populations. Concurrently scheduled with course C244. Letter grading.

162. Policy Analysis and Real Politics of Education. (3) Lecture/discussion, three hours. Exploration of relationship between scholarly policy analysis and actual workings of policy systems. Selected topics include achievement standards and assessment, school finance, equal access to education, and school reform. Letter grading.

164. Race and Education: Access, Equity, and Achievement. (5) Seminar, four hours. Social/psychological perspective on education, with particular attention to race, ethnicity, and inequality. Study of structural, social, and personal determinants of educational outcomes. Consideration of relationship of schools to social context and other societal institutions. Examination of how education sets life trajectory in America and effects of race/ethnicity on access to educational opportunity in our society. Letter grading.

166. Language, Literacy, and Academic Development: Educational Considerations for School-Age Multilingual and English Language Learner Students. (5) Seminar, five hours. Use of child-centered approach to examine instructional strategies and assessment practices with preK-12 multilingual and English language learner (ELL) students who are learning academic content at same time they are acquiring English (and possibly additional languages) in school. Critical comparison of effectiveness of English-only programming with dual-language approaches (e.g., two-way immersion, transitional bilingual education) and roles of summative and formative assessments in educational decision making with multilingual and ELL students. Letter grading.

170A. Experiential Learning: Community-Based Outreach Programs. (2) Fieldwork, four hours. Enforced corequisite: course 192A. Training and supervised practicum for undergraduate students interested in raising their academic achievement and that of high school and middle school students. Letter grading.

170B. Experiential Learning: America Reads. (2) Fieldwork, four hours. Enforced corequisite: course 192B. TB test required prior to first day of instruction. Training and supervised practicum for undergraduate students, including tutoring and mentoring of K-3 students at America Reads sites. Letter grading.

CM178. Critical Media Literacy and Politics of Gender: Theory and Production. (4) (Same as Gender Studies CM178.) Seminar, three hours. Corequisite: course CM178L. Use of range of pedagogical approaches to theory and practice of critical media literacy that necessarily involves understanding of new technologies and media forms. Study of both theory and production techniques to inform student analysis of media and critical media literacy projects. Concurrently scheduled with course CM278. Letter grading.

CM178L. Critical Media Literacy and Politics of Gender: Laboratory. (2) (Same as Gender Studies CM178L.) Laboratory, two hours. Corequisite: course CM178. Hands-on production experience as integral component of course CM178. Concurrently scheduled with course CM278L. Letter grading.

M182A. Language, Literacy, and Human Development Ethnography. (2) (Same as African American Studies M182A.) Fieldwork, three hours. Enforced corequisite: course M194A. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M182B. Culture, Gender, and Human Development Ethnography. (2) (Same as African American Studies M182B.) Fieldwork, three hours. Enforced corequisite: course M194B. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M182C. Culture, Communications, and Human Development Ethnography. (2) (Same as African American Studies M182C.) Fieldwork, three hours. Enforced corequisite: course M194C. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M183A. Language, Literacy, and Human Development Ethnography. (3) (Same as African American Studies M183A.) Fieldwork, six hours. Enforced corequisite: course M194A. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M183B. Culture, Gender, and Human Development Ethnography. (3) (Same as African American Studies M183B.) Fieldwork, six hours. Enforced corequisite: course M194B. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M183C. Culture, Communications, and Human Development Ethnography. (3) (Same as African American Studies M183C.) Fieldwork, six hours. Enforced corequisite: course M194C. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

184. Variable Topics in Teaching and Learning. (2) Lecture, one hour. Variable topics course, with emphasis on theories of teaching and learning, connecting them to instructional activities for students in various learning settings, including libraries and schools. P/NP grading.

185. Community Service Learning for Academic Achievement. (4) Lecture, two hours; discussion, two hours. Must be taken prior to course 192A. Emphasis on cognitive learning and motivation theories and their relevance to strategies for developing curricular instructional techniques and training that contribute to tutoring, counseling, and other instructional assistance in various school settings. P/NP or letter grading.

M186. Equal Rights and Unequal Education. (4) (Same as Political Science M183 and Public Policy M186.) Lecture, four hours. Exploration of contradictions between American beliefs about equal opportunity and racial equality and inequalities that exist in public education. Three major topic areas in education as vehicles for understanding philosophical and empirical complexities of issues surrounding equality in American education and life. Examination of issues from legal, sociological, political, and philosophical perspectives. Arguments range from Martin Luther King to Ronald Reagan, and legal cases include Plessy versus Ferguson to Brown versus Board of Education, as well as cases still pending in courts. Letter grading.

187. Variable Topics in Education. (5) Seminar, five hours. Limited to juniors/seniors. Variable topics course organized around disciplinary knowledge central to development of core understandings of educational and learning processes, phenomenon, policies, methods, and instruction. Development of culminating project. Consult Schedule of Classes for topics and instructors. May be applied as core credit for Education Studies minor students. May be repeated three times for credit. Letter grading.

M190. Arts Education Undergraduate Practicum: Preparation, Observation, and Practice. (4) (Same as Arts Education M192.) Seminar, three hours. Enforced requisite: course M104. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students participating in Visual and Performing Arts Education minor. Students implement and evaluate original arts education programs under guidance of faculty members in small course settings. P/NP or letter grading.

M190SL. Arts Education Undergraduate Practicum and Capstone Project. (4) (Same as Arts Education M192SL.) Seminar, three hours; practicum, three hours; outside study, six hours. Enforced requisites: courses M104, M190. Limited to juniors/seniors. Continuation of arts education training and supervised practicum for advanced undergraduate students participating in Visual and Performing Arts Education minor. Students continue to implement and evaluate original arts education programs under guidance of faculty members and designated guiding teachers in K-12 public school settings. May be repeated for credit with consent of instructor. P/NP or letter grading.

191A-191X. Current Issues in Education. (4 each) Seminar, four hours. Limited to juniors/seniors. Variable topics course organized on selected current issues basis, integrating field observations and readings through seminar discussions. Development of culminating project. Consult Schedule of Classes for topics and instructors. May be repeated for credit. Letter grading.

192A. Undergraduate Practicum in Community-Based Outreach Programs. (2) Seminar, two hours. Requisite: course 185. Enforced corequisite: course 170A. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to study learning and developmental factors as well as cultural, social, and environmental factors that affect student academic achievement. Exploration, testing, and application of various learning styles that enable students to become more effective learners. Letter grading.

192B. Undergraduate Practicum in America Reads. (2) Seminar, two hours. Enforced corequisite: course 170B. Limited to juniors/seniors. TB test required prior to first day of instruction. Training and supervised practicum for advanced undergraduate students that provides opportunity to reflect on both content and experience pertaining to America Reads sites. Letter grading.

193Y-193Z. High School Advising Program. (4-4) Discussion, two hours; fieldwork, five hours. Service learning courses designed to provide students with information and techniques sufficient to allow them to undertake academic advising in low socioeconomic high schools. Letter grading.

M194A. Language, Literacy, and Human Development Research Group Seminars. (5) (Same as African American Studies M194A.) Seminar, three hours; laboratory, two hours (when scheduled). Enforced corequisite: course M182A or M183A. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and language. May be taken independently for credit. Letter grading.

M194B. Culture, Gender, and Human Development Research Group Seminars. (5) (Same as African American Studies M194B.) Seminar, three hours; laboratory, two hours (when scheduled). Enforced corequisite: course M182B or M183B. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and gender. May be taken independently for credit. Letter grading.

M194C. Culture, Communications, and Human Development Research Group Seminars (5) (Same as African American Studies M194C.) Seminar, three hours; laboratory, two hours (when scheduled). Enforced corequisite: course M182C or M183C. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and technologies. May be taken independently for credit. Letter grading.

195. Community Internships in Education. (4) Tutorial, one hour; fieldwork, eight to 10 hours. Internship in K-16 schools or community to be supervised by Center for Community Learning and faculty sponsor. Students meet biweekly with teaching assistant, write reflective journals, and prepare final paper. May be repeated for credit. Individual contract with supervising faculty member required. Letter grading.

195CE. Community or Corporate Internships in Education. (4) Tutorial, one hour; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in supervised preapproved K-12 settings coordinated through Center for Community Learning. Students meet on regular basis with faculty sponsor or designee to construct series of reading and writing assignments that examine educational issues related to meaningful work at internship site. Students expected to learn ways in which urban schools are structured, organized, and operate. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

196C. Instructional Apprenticeship in Teaching and Learning at UCLA Lab School. (4) Tutorial, 10 hours. Limited to juniors/seniors. Training and supervised apprenticeship for advanced undergraduate students at UCLA Lab School (Corinne A. Seeds campus), K-6 elementary school on UCLA campus. Students gain understanding of innovative educational work that goes into teaching and learning at UCLA Lab School through seminars, readings, observations, and discussions. Individual meetings with faculty mentor throughout term. May be repeated for credit. Individual contract required. Letter grading.

196D. Instructional Apprenticeship in Teaching and Learning at UCLA Partner Schools. (4) Tutorial, 10 hours. Limited to juniors/seniors. Introduction to K-12 teaching profession through training and supervised off-campus experiences at UCLA partner schools (Nora Sterry Elementary School, Brockton Elementary School, Emerson Middle School, University High School, UCLA Community School, or other LAUSD schools coordinated by students). Students gain grounded understanding of social issues in education through readings, observations, direct support in classrooms, and tutoring activities. Individual meetings with faculty mentor throughout term. May be repeated for credit. Individual contract required. Letter grading.

196R. Research Apprenticeship in Education. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP grading.

197. Individual Studies in Education. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Education. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Historical Research and Writing. (4) Lecture, four hours. Methods of historical research and writing for students who are or who will be engaged in research and in report or paper or thesis writing, regardless of their field of interest. S/U or letter grading.

200B. Survey Research Methods in Education. (4) Lecture, four hours. Requisite: course 230A. Problems of conceptualization, organization, and gathering nonexperimental and quasi-experimental quantitative and qualitative data. S/U or letter grading.

200C. Analysis of Survey Data in Education. (4) Lecture, three hours; laboratory, two hours. Requisite: course 200B. Introduction to techniques of processing and analyzing nonexperimental and quasi-experimental quantitative data. S/U or letter grading.

200D. Research Methods: Special Topics. (4) Lecture, four hours. Variable topics in research methods in education. S/U or letter grading.

M201C. History of American Education. (4) (Same as History M264.) Discussion, three hours. History of educational thought and of social forces impinging on American education from 1880s to present. Analysis of relation between these ideas and forces, and aims and practices of American education today. S/U or letter grading.

202. Evaluation Theory. (4) Lecture, four hours. Prevalent evaluation theories, systems for categorizing these theories, and process of theory development in educational evaluation. S/U or letter grading.

C203. Educational Anthropology. (5) Seminar, four hours. Research seminar designed to familiarize students with discipline of anthropology and subfield of anthropology and education. Exploration of concept of culture through various anthropological perspectives, with focus on theories of culture, cultural transmission and acquisition, and cultural reproduction and production for understanding schooling and its outcomes. Examination of research methodologies in anthropology, as well as critical historical overview of discipline and current debates and dilemmas of doing anthropological research in educational settings. Issues of race, gender, sexual orientation, and class, and consideration of application of anthropological theory and methods to educational practice and research. Concurrently scheduled with course C126. Letter grading.

204A. Introduction to Education and Social Sciences. (4) Lecture, four hours. Interdisciplinary course intended to introduce students to study of educational issues, texts, and movements of thought through social sciences and comparative perspectives. S/U or letter grading.

204B. Introduction to Comparative Education. (4) Lecture, four hours. Examination of conceptual and methodological questions underlying comparative education. Particular attention to development of field and to styles of social analysis that may be applied to comparative and cross-national studies in education. S/U or letter grading.

204C. Education and National Development. (4) Lecture, four hours. Designed for graduate students. Analysis of various social sciences perspectives and methodologies (including modernization, dependency, Marxist, neo-Marxist, liberation theology, and world-system theories of change and development) and changing notions of role of education in development of less-industrialized countries of world. S/U or letter grading.

204D. Minority Education in Cross-Cultural Perspective. (4) Lecture, four hours. Historical and contemporary analyses of educational policies with regard to ethnic, religious, and linguistic minorities through selected national and international case studies. Introduction to cross-cultural education in representative countries in relation to social, political, and economic systems. S/U or letter grading.

204E. International Efforts in Education. (4) Lecture, four hours. Designed for graduate students. Critical analysis of complex world of "development cooperation," with particular reference to bilateral and multilateral efforts in education. S/U or letter grading.

204F. Nonformal Education in Comparative Perspective. (4) Lecture, four hours. Comparative and international study of organized and systematic educational activity for children, youth, and adults carried on outside of schools. Types of programs include, among others, consciousness raising, community action, skills training, literacy, and extension programs. S/U or letter grading.

205. Computers in Educational Process. (4) Lecture, four hours. Introduction to theory, experimentation, evaluation, and future of computer systems in education, with emphasis on computer-assisted instruction (CAI), and use of computers to teach programming and to foster development of writing, computational, and filing skills. S/U or letter grading.

206A. Philosophy of Education: Introduction. (4) Lecture, four hours. Systematic introduction to field, indicating ways in which philosophy serves to elucidate educational aims, content, methods, and values. S/U or letter grading.

C207. Politics of Education. (5) Lecture, two hours; discussion, two hours. Political dimensions of education institutions as organizations. Relationships between education institutions and political institutions in society. Political theory as foundation for public policy analysis; interest groups in education policy formation and implementation; and focus on Freireian pedagogy. Concurrently scheduled with course C125. S/U or letter grading.

208A. Perspectives on Sociology of Education. (4) Lecture, four hours. Sociological perspectives on current issues in educational policy and practice, including desegregation, decentralization, equality of educational opportunity, structure of educational organization, teacher/student relationships, reform in education at elementary, secondary, postsecondary levels. S/U or letter grading.

208B. (Im)migrant Youth, Ethnography, and Education. (4) Seminar, four hours. Exploration of experiences of immigrant youth in U.S. schools, with focus on language, culture, and educational equity in urban settings. Letter grading.

208C. Explanation in Social Sciences and Educational Research. (4) Lecture, two hours; discussion, two hours. Designed for graduate students. Overview of basic strategies and forms of explanation relevant to inquiry in education from vantage point of various social and behavioral sciences disciplines. S/U or letter grading.

C209A. History of Higher Education. (5) Seminar, four hours. Exploration of major eras in history of higher education. Topics include issues concerning access, diversity, parental choice, cultural literacy, teacher empowerment, and role of popular media. Concurrently scheduled with course C124. S/U or letter grading.

209C. Research and Evaluation in Higher Education. (4) Lecture, four hours. Development of conceptual and practical understanding of research and evaluation in higher education. Topics include basic statistics, survey design, data analysis, assessment issues, and research proposal writing. Letter grading.

210. Education as Profession: Theory, Research, and Practice. (4) Lecture, 90 minutes; discussion, two and one half hours. Introduction to major issues and approaches in educational research through series of faculty presentations, selected readings, and writing assignments. Letter grading.

211A. Educational and Psychological Measurement: Underlying Theory and Practice. (4) Lecture, four hours. Requisite: course 230A. Measurement theory as applied to educational and psychological testing, with focus primarily on classical test theory, reliability estimation, and test construction and selection. S/U or letter grading.

211B. Educational and Psychological Measurement: Generalizability Theory. (4) Lecture, four hours. Requisites: courses 230A, 230B, 230C. Basic and advanced topics in use of generalizability theory to address problems in measurement. S/U or letter grading.

211C. Advanced Item Response Theory. (4) Lecture, four hours. Requisites: course 211A or 211B or Psychology 255A, Psychology 255B. Review of standard item response theory models, multidimensional models, multiple group models and models with covariates, item and person parameter estimation, differential item functioning analysis, testing model fit, linking and scale alignment, computerized adaptive testing. S/U or letter grading.

212A. Learning and Education. (4) Lecture, four hours. Models of learning, modeling, reinforcement, motivation, encoding, memory, transfer, individual differences, and instruction. S/U or letter grading.

212B. Motivation and Affect in Educative Process. (4) Lecture, four hours. Review of theoretical and empirical literature on motivational factors in school settings and conditions for acquisition of affective outcomes. S/U or letter grading.

213C. Group Counseling Theory and Process. (4) Lecture, three hours; discussion, one hour. Requisite: course 414A. Group productivity, leadership in groups, social perception, attitude formation, and effect of behavior changes in individuals and groups. Evaluation of social, psychological, and educational principles related to therapeutic experiences of individuals in small groups. Letter grading.

213D. Assessment in Counseling and Student Affairs. (4) Lecture, four hours. Overview of assessment issues and methods used in counseling and student affairs activities. Emphasis on concepts of testing and measurement, applications of measurement theory, and contemporary issues that are significant in influencing assessment in student affairs programs. Letter grading.

214A. Counseling Theory and Practice. (4) Lecture, four hours. Alternatives in counseling practice in relation to theories of personality development and functioning, research on effectiveness of counseling, professional issues in counseling, educational aspects of counseling. S/U or letter grading.

214C. American Professoriate: Faculty Status, Role, and Performance. (4) Discussion, four hours. Historical and contemporary issues involving American professoriate. Topics include employment, academic culture, teaching and research, reward structure, faculty development. Letter grading.

214E. Substance Abuse and Addiction. (4) Lecture, four hours. Theory and practice of prevention and intervention in substance abuse and addiction from perspective of counseling and educational practice. S/U or letter grading.

214F. Student Problems: Social Context. (4) Lecture, four hours. Designed to assist students in understanding configuration of social forces that lead to student dysfunctions. Consideration of number of

contemporary social problems that are of concern to school counselors, educators in general, and behavioral scientists. S/U or letter grading.

M215. Personality, Motivation, and Attribution. (4) (Same as Psychology M239.) Discussion, three hours. Current research and theory relating personality variables (e.g., attributional styles, self-esteem) to motivational concerns such as persistence and intensity of behavior. Perceived causes of outcomes in achievement and affiliative domains. S/U or letter grading.

216. Counseling Models from Cross-Cultural Perspective. (4) Lecture, four hours. Research related to psychological, educational, and sociological characteristics of counseling clients within cross-cultural perspective and implications for counseling models. Evaluation of counseling practices through analysis of school, community, and mental health settings. Letter grading.

217A. Social Development and Education. (4) Seminar, four hours. Biological and familial, school, and other influences on children; development in context of current research and theoretical models; consideration of theoretical and methodological research on family, peer group, and school; application of developmental theory and research to educational practice. S/U or letter grading.

217B. Cognitive Development and Education. (4) Lecture, two hours; discussion, two hours. Designed for graduate students. Critical review of theories and research in cognitive development, with focus on work of Piaget and Vygotsky, and relation of this work to issues in educational practice. S/U or letter grading.

M217C. Personality Development and Education. (4) (Same as Psychology M245.) Lecture, four hours. Review of research and theory of critical content areas in personality development that bear on school performance: achievement motivation, self-concept, aggression, sex differences, empathy, and other social behaviors; review of status of emotional behavior in personality theory and development. S/U or letter grading.

217D. Language Development and Education. (4) Lecture, four hours. Research and theory on how children develop their first language; sociolinguistic and psycholinguistic issues in preschool and primary years; bilingual and dialectical issues. S/U or letter grading.

217E. Emerging into Adulthood. (4) Seminar, four hours. Examination of theories and research related to transition to adulthood and role of race/ethnicity, gender, and immigration status in shaping development. Topics include historical and cross-cultural comparisons of emerging adulthood; ethnic, racial, and gender identity; family relationships and expectations; college opportunities and experiences; entering workforce; alternative pathways (incarceration and military); and civic engagement. Letter grading.

M217F. Adolescent Development. (4) (Same as Psychology M242G.) Seminar, four hours. Designed for graduate students. Review of recent research on physical, cognitive, social, and psychological development during second decade of life. Topics include pubertal development, changes in parent/adolescent relationships, role of peers, identity development, high-risk behaviors, stress and coping, and school adjustment. Letter grading.

M217G-M217H-M217I. Child Abuse and Neglect. (2-2-1). (Same as Community Health Sciences M245A-M245B-M245C, Dentistry M300A-M300B-M300C, Law M281A-M281B, Medicine M290A-M290B, Nursing M290A-M290B-M290C, and Social Welfare M203F-M203G-M203H.) Lecture, two hours. Course M217G is requisite to M217H, which is requisite to M217I. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of Schools of Dentistry, Law, Medicine, Nursing, and Public Health and Departments of Education and Psychology, as well as by relevant public agencies. Letter grading.

218. Measurement of Educational Achievement and Aptitude. (4) Lecture, four hours. Requisite: course 230A. Critical study of tests of achievement and aptitude, with emphasis on group tests; relation of achievement to aptitude; social implications of measurement of intelligence; elements of validity and reliability. S/U or letter grading.

219. Laboratory: Advanced Topics in Research Methodology. (4) Laboratory, four hours. Provides assistance in design of research and interpretation of data to advanced students from other divisions. Coverage of special topics not included in other courses on research methods. S/U or letter grading.

220A. Inquiry into Schooling: Organization and Change. (4) Lecture, four hours. Critical analysis of issues in reconstruction of schooling; concepts of function and structure of schooling; organization theory; systems approaches in analysis of organization development and change. S/U or letter grading.

221. Computer Analyses of Empirical Data in Education. (4) Lecture, two hours; laboratory, two hours. Requisites: courses 209C (section 1), 230A. Designed to develop conceptual and technical skills needed for designing and executing empirical research utilizing statistical packages. Each student conducts two original studies. Equal emphasis on techniques of data analysis and interpretation of results. S/U or letter grading.

222A. Introduction to Qualitative Methods and Design Issues in Educational Research. (4) Lecture, three hours; discussion, one hour. Introductory course for students interested in epistemology, theories, and styles of qualitative research in educational settings. Theory and practice of naturalistic, qualitative research design covered in second half of course. Letter grading.

222B. Participant-Observation Field Methods. (4) Lecture, two hours; discussion, two hours. Requisite: course 222A. First of two courses on participant-observation field methods. Key skills (e.g., observation, recording, interviewing, role management, data storage) learned through classroom lectures and simulations, and by conducting actual field-based research project. Letter grading.

222C. Qualitative Data Reduction and Analysis. (4) Lecture, two hours; discussion, two hours. Requisite: course 222B. Continuation of fieldwork project started in course 222B, with focus on practical skills and conceptual/methodological issues involved in reducing and analyzing qualitative data. Letter grading.

222D. Qualitative Inquiry: Special Topics. (4) Lecture, four hours. Special topics course on some field or aspect of qualitative inquiry. Topics may include classroom ethnography, advanced ethnographic writing and/or multimedia design, discourse analysis, and microethnography of social interaction. S/U or letter grading.

223. Procedural Issues in Evaluation. (4) Lecture, four hours. Assessment methodologies appropriate for evaluation problems. Writing evaluation proposals, developing program monitoring procedures, selecting appropriate evaluation design strategies, coping with ethical considerations in evaluation, framing decision context, and reporting evaluation results. Letter grading.

224. Problems and Issues in Bilingual and Multicultural Education. (4) Lecture, two hours; discussion, two hours. Introduction to development and implementation of bilingual and multicultural programs in U.S. Analysis of program goals, models, typologies, and effectiveness. S/U or letter grading.

225A. Issues in Education of Exceptional Individuals. (4) Lecture, four hours. Designed for graduate students. Analysis of major research regarding contemporary trends, issues, and programs for exceptional individuals; consideration of commonalities and differences among exceptional individuals. S/U or letter grading.

225B. Advanced Issues in Education of Exceptional Individuals. (4) Lecture, four hours. Synthesis of developmental and educational theory relevant to study of exceptional individuals, including consider-

ation of historical context of current research and applied issues in special education. S/U or letter grading.

226. Seminar: Special Topics in Writing, Rhetoric, and Educational Methodology. (4) Seminar, four hours. Special topics seminar on writing in education that could focus on history of writing about education, social and political dimensions of it, its variation by discipline, and its uses in professional and public contexts. Letter grading.

227A. Research on Learning Characteristics of Exceptional Individuals. (4) Lecture, four hours. Requisite: course 225B. Overview of research and theory regarding learning characteristics of exceptional individuals and discussion of application of this work to educational practice. S/U or letter grading.

227B. Research on Cognitive and Language Characteristics of Exceptional Individuals. (4) Lecture, four hours. Requisite: course 227A. Review of empirical and theoretical literature regarding language and cognitive development of exceptional individuals; focus on intervention programs developing language and cognition. S/U or letter grading.

227C. Research on Behavioral and Social Characteristics of Exceptional Individuals. (4) Lecture, four hours. Requisite: course 227B. Analysis of social and emotional development of exceptional individuals and development of social competence in special education programs. S/U or letter grading.

228. Observation Methods and Longitudinal Studies. (4) Lecture, two hours; discussion, two hours. Requisite: course 230A. Design of observational and longitudinal studies. Formulation of study conclusions concerning influences on children's development. Conduct of observations; processing and analysis of data. Use of portable computers for recording observations. S/U or letter grading.

229. Seminar: Special Topics in Urban Schooling. (4) Seminar, four hours. Research on selected topics in fields of administration, policy, curriculum, and teaching studies and on conceptualization of hypotheses and research programs on division topics and issues. Letter grading.

230A. Introduction to Research Design and Statistics. (4) Lecture, four hours. Designed for graduate students. Key concepts and issues in design and conduct of social sciences research. Introduction to descriptive statistics and fundamentals of statistical inference. Letter grading.

230AL. Introduction to Research Design and Statistics: Computer Laboratory. (1) Laboratory, one hour. Corequisite: course 230A. Computer data analysis laboratory for introductory research design and statistics. Instruction in SPSS, Stata, and SAS statistical analysis packages. S/U grading.

230B. Linear Statistical Models in Social Science Research: Multiple Regression Analysis. (4) Lecture, four hours. Requisite: course 230A or passing score on screening examination. Solid and comprehensive training in regression-based methods for analyzing quantitative social science data. Letter grading.

230BL. Linear Statistical Models: Computer Laboratory. (1) Laboratory, one hour. Corequisite: course 230B. Computer data analysis laboratory for linear statistical models. Instruction in SPSS, Stata, SAS, and other relevant statistical analysis packages. S/U grading.

230C. Linear Statistical Models in Social Science Research: Analysis of Designed Experiments. (4) Lecture, four hours. Requisites: courses 230A, 230B. Solid and comprehensive training in experimental design and analysis methods, especially use of analysis of variance methods. Letter grading.

230CL. Linear Statistical Models for Experimental Research: Computer Laboratory. (1) Laboratory, one hour. Corequisite: course 230C. Computer data analysis laboratory for linear statistical models for experimental research. Instruction in SPSS and SAS statistical analysis packages. S/U grading.

230X. Applied Research Design and Statistics for Social Sciences. (4) Lecture, four hours. Requisite: course 230A or passing score on screening examination. Introduction to commonly used statistical methods in social sciences, including regression, analysis of variance, contingency tables. Emphasis on application and interpretation. Letter grading.

231A. Toolkit for Quantitative Methods Research. (4) Lecture, four hours. Requisites: courses 230A, 230B, 230C. Elementary probability. Working knowledge with calculus. Mathematical and statistical results useful for advanced quantitative methodology research. Matrix algebra. Random vectors. Multivariate distribution theory. Likelihood and Bayesian estimation and inference. Linear and generalized linear models. Simulation. S/U or letter grading.

M231B. Factor Analysis. (4) (Same as Psychology M253.) Lecture, four hours. Requisites: courses 211B, 231A. Exploratory factor analysis, rotations, confirmatory factor analysis, multiple-group analysis. S/U or letter grading.

231BL. Factor Analysis: Computer Laboratory. (1) Laboratory, one hour. Corequisite: course M231B. Computer data analysis laboratory for exploratory and confirmatory factor analysis. Instruction in CEFA, LISREL, and other relevant statistical analysis packages. S/U grading.

231C. Analysis of Categorical and Other Nonnormal Data. (4) Lecture, four hours. Requisites: courses 230B, 230C. Regression analysis with dichotomous and polytomous dependent variables, log-linear modeling, coefficients of association for categorical variables, factor analysis, and structural equation modeling. Letter grading.

231D. Advanced Quantitative Models in Nonexperimental Research: Multilevel Analysis. (4) Lecture, four hours. Requisites: courses 230B, 230C. Examination of conceptual, substantive, and methodological issues in analyzing multilevel data (i.e., on individuals in organizational settings such as schools, corporations, hospitals, communities); consideration of alternative analytical models. Letter grading.

M231E. Statistical Analysis with Latent Variables. (4) (Same as Statistics M244.) Lecture, three hours. Requisites: courses 231A, M231B. Extends path analysis (causal modeling) by considering models with measurement errors and multiple indicators of latent variables. Confirmatory factor analysis, covariance structure modeling, and multiple-group analysis. Identification, estimation, testing, and model building considerations. Letter grading.

231EL. Latent Variable Modeling: Computer Laboratory. (1) Laboratory, one hour. Corequisite: course M231E. Computer data analysis laboratory for latent variable modeling. Instruction in LISREL and other relevant statistical analysis packages. S/U grading.

232. Instructional Analysis. (4) Lecture, four hours. Theoretical and empirical analysis of instructional variables as they relate to diverse types of instructional strategies. Development of skill in techniques of conducting instructional research. S/U or letter grading.

233. Professional Writing in Education. (4) Lecture, four hours. Intended to assist in professional development as writers, with focus on style and organization, scholarly genres, modes of discourse, and broader issues of conceptualization and method. Letter grading.

234. Critical Perspectives on Economic Approaches to Education. (4) Seminar, four hours. Introduction to concepts and principles in economics of education using critical perspective. Overview of evolving relationship between education and economics, including growing use of education as economic policy tool and increased role of economic principles in internal functioning of educational systems. S/U or letter grading.

235. Comparative Political Economy of Education and Skills. (4) Seminar, four hours. Use of political economy of education perspective for exploring, at international and comparative levels, link between alternative models of governing, providing and fi-

nancing education and training systems and impact of alternatives on outcomes such as unequal chances to learn, types of skill formation, and well-being. S/U or letter grading.

236. Human Abilities. (4) Lecture, four hours. Requisite: course 230A. Nature, development, and measurement of intellectual abilities and their relations to learning and instruction. Review of research and theory of models of ability and test development. S/U or letter grading.

237. Law and Urban Education. (4) Lecture, four hours. Examination of recent legal controversies that may impact ability of urban educators to meet needs of students in multicultural society, with special emphasis on such equity-related issues as desegregation, school finance, standardized testing, and rights of language minority students. Letter grading.

238. Cross-National Analysis of Higher Education. (4) Lecture, four hours. Comparative study of national systems of higher education: their division of work, basic values, structures of authority, modes of national integration, and types of change. S/U or letter grading.

239. Organization and Governance of Educational Systems. (4) Lecture, four hours. Academic organizations, precollege and postsecondary, are most appropriately studied as complex, professionalized organizations. Emphasis on characteristics of educational institutions and systems as organizations: environmental relations, governance structures, processes, and patterns of decision making and policy-making. S/U or letter grading.

240. Immigrant Children and Education. (4) Seminar, four hours. Examination of immigrant child and youth experience, with primary focus on educational outcomes. Topics include historical changes in experiences of immigrant youth, dynamics of immigrant families, cultural, ethnic, and socioeconomic status-related influences in immigrant youths' adjustment, and school-family connections. Letter grading.

241. Research Methodology in School Administration. (4) Lecture, four hours. Examination of research problems and strategies in school administration. S/U or letter grading.

243. Reflections on Methods in Social Sciences. (4) Lecture, four hours. Preparation: two research methods courses. Fundamental issues surrounding use of methods in social sciences, including issues in philosophy of social sciences, relationship between theory and facts, ontological status of constructs, cognition and social research, sources of evidence in ethnography, research and social policy. Letter grading.

C244. Theory and Practice of Intergroup Dialogue: Building Facilitation Skills. (4) Seminar, four hours. Topics include social psychology of intergroup relations, intercultural and dialogic communication theories, methods for reconciling and bridging differences in schools and communities, research and evaluation of intergroup dialogues and other educational methods for improving intergroup relations, and core competencies for planning, delivering, and evaluating intergroup dialogues in multicultural settings. While providing foundational grounding in theory and pedagogy of intergroup dialogue, particular attention to relationships between intergroup dynamics, structural inequalities, systems of privilege and oppression, and mental health outcomes and disparities among populations. Concurrently scheduled with course C160. Letter grading.

245. Seminar: Cost-Benefit Analysis in Education. (4) Seminar, four hours. Conceptual and theoretical underpinnings of cost-benefit analysis, critical analysis of current cost-benefit studies, and procedures for conduct of cost-benefit studies. S/U or letter grading.

246A. Decision Analysis and Advanced Computer Methods for Educational Policy and Planning. (4) Seminar, four hours. How information technology and decision analysis impact K-12 schooling, higher education, and technical training/workplace settings. With research paper, oral presentation, and two re-

search briefs, students can pursue decision analysis areas of special interest to their professional and career objectives. S/U or letter grading.

247. Special Topics in Law and Educational Policy. (4) Lecture, four hours. Policy-based inquiry with focus on specific law-related debates that inevitably influence both K-12 and higher education communities. Identification of strategies that have been successfully employed by those who have sought to use law to shape educational policy. Letter grading.

248. Seminar: Special Topics in Child Development and Education. (4) Seminar, four hours. Content varies; limits of investigation set by individual instructor. S/U or letter grading.

250A. Fundamentals of U.S. Higher Education System. (4) Lecture, four hours. Designed for graduate students. Two-course sequence designed to orient new students to issues, ideas, and literature that constitute this division, with emphasis on underlying social and political issues that shape higher education and organizational change. Letter grading.

250B. Organizational Analysis of Higher Education. (4) Lecture, four hours. Designed for graduate students. Two-course sequence designed to orient new students to issues, ideas, and literature that constitute this division, with emphasis on underlying social and political issues that shape higher education and organizational change. Letter grading.

250C. Theoretical Frameworks of Higher Education. (4) Lecture, four hours. Designed for graduate students. Overview of various social sciences theories used to analyze institutions and issues of contemporary higher education. Explanation of how theory and methodology affect research design and framing of research questions in studies of higher education. Letter grading.

252A. Seminar: Educational Organizations. (4) Seminar, four hours. Requisite: course 208A. S/U or letter grading.

252B. Educational Enterprise. (4) Lecture, two hours; discussion, two hours. Requisite: course 252A. Limited to Educational Leadership Program students. Use of structural, human resource, political, and symbolic frames to study K-16 education, with focus on educational environments, organizations, and curriculum and instruction. Letter grading.

M253A. Seminar: Current Problems in Comparative Education. (4) (Same as Gender Studies M253A.) Seminar, four hours. Examination of some of most influential critical theorists, including Marx, Nietzsche, Freud, Marcuse, Foucault, Fanon, and de Beauvoir and their contributions to critique of contemporary education, society, and politics. S/U or letter grading.

253B. Seminar: African Education. (4) Seminar, four hours. Designed for graduate students. Contemporary issues in African educational systems, including questions of access and equity, quality and efficiency, relevance and responsiveness, links between schools and communities, and policy and practice in education. S/U or letter grading.

253C. Seminar: Asian Education. (4) Seminar, four hours. S/U or letter grading.

253D. Seminar: Latin American Education. (4) Seminar, four hours. S/U or letter grading.

253E. Seminar: European Education. (4) Seminar, four hours. S/U or letter grading.

253F. Seminar: Education in Revolutionary Societies. (4) Seminar, four hours. Multidisciplinary and comparative study of socialist educational theory examined through writings of Marx, Lenin, Mao, and others. Implementation of this theory in specific case studies, along with comparative assessments of non-socialist nations. S/U or letter grading.

253G. Seminar: Asian Americans and Education. (4) Seminar, four hours. Basic issues and topics related to Asian Americans in field of education. Examples of issues and topics include Asian Americans and community, socioeconomic status, education-to-work transition, language and culture question. S/U or letter grading.

253H. Seminar: Chicanos/Hispanics and Education. (4) Seminar, four hours. Basic issues and topics related to Chicanos and other Hispanic groups in education. Review of literature on specific educational levels and Chicano/Hispanic student progress (e.g., early childhood, elementary, higher education; specific topics: assessment, access, tracking, segregation; implications for schooling). S/U or letter grading.

253I. Education and Social Change in Middle East and Islamic World. (4) Seminar, four hours. Critical and analytic examination of historical and current role of traditional and modern (Western) education in affecting social, political, and economic changes in countries of Middle East and Islamic world (including Pacific Rim, South and Central Asia). S/U or letter grading.

254. Seminar: History of Education. (4) Seminar, four hours. Requisite: course M201C. Study of current movements in historiography of education and critical reading of texts in history of education. S/U or letter grading.

255A-255B-255C. Seminars: Special Topics. (4-4-4) Seminar, four hours. May be repeated for credit. S/U or letter grading. **255A.** Measurement; **255B.** Design; **255C.** Data Analysis.

256A. Seminar: Special Topics in School Learning. (4) Seminar, four hours. S/U or letter grading.

256B. Seminar: Special Topics in Development. (4) Seminar, four hours. S/U or letter grading.

257. Seminar: Research in Counseling Psychology. (4) Seminar, four hours. In-depth analysis of selected research approaches/areas in counseling psychology. S/U or letter grading.

258A. Seminar: Problems in Instructional Research. (4) Seminar, four hours. S/U or letter grading.

258B. Seminar: Problems in Instructional Development. (4) Seminar, four hours. S/U or letter grading.

259. Administration of International Programs in Higher Education. (4) Seminar, four hours. Introduction to theory and practice of internationalization in U.S. higher education, looking at meaning of concept of comprehensive internationalization across campus, issues of effective leadership and management, and individual aspects of internationalization, including study abroad program development and implementation, international student recruitment and support services, international curriculum—area and language studies, English as a second language programs, international internships and careers, faculty development in international travel and research, international partnerships/branch campuses, international development and grant projects, international alumni, distance learning/massive open online courses (MOOCs)/hybrid models. Letter grading.

260. Seminar: Principles of Curriculum and Instruction. (4) Seminar, four hours. S/U or letter grading.

261E. Higher Education Seminar: Diversity Issues and Research Perspectives. (4) Seminar, four hours. Examination of how racial diversity and its related dynamics have transformed and at same time been reshaped by institutions of higher education, with focus specifically on student experiences, curricula, institutional climate, educational policies, and administrative practices. Letter grading.

261F. Seminar: Cognitive and Personal Development of College Students. (4) Seminar, four hours. Examination of cognitive development of college students; issues of personal and social development, including leadership, and interpersonal relations and skills. S/U or letter grading.

262B. Seminar: Reading. (4) Seminar, four hours. S/U or letter grading.

262F. Seminar: Research Topics in Bilingual/Multicultural Education. (4) Seminar, four hours. S/U or letter grading.

263. Seminar: Higher Education. (4) Seminar, four hours. S/U or letter grading.

264. Seminar: Teacher Education. (4) Seminar, four hours. Research, issues, and practices in preservice and in-service teacher preparation, evaluation, and

certification. Social, philosophical, and methodological issues and current trends in America and abroad. Opportunities to observe, participate in, and discuss teacher education programs. S/U or letter grading.

265. Higher Education Policy. (4) Lecture, four hours. Requisites: courses 250A, 250B. Understanding public policy for higher education requires understanding of both issues and policy process. Review of major topics on which U.S. government is active, as well as key actors and their influence. Letter grading.

M266. Feminist Theory and Social Sciences Research. (4) (Same as Gender Studies M266.) Lecture, four hours. Examination of how diverse feminist social theories of last quarter century have both challenged and strengthened conventional social sciences theories and their methodologies. Introduction especially to feminist standpoint theory, distinctive critical theory methodology now widely used in social sciences. Letter grading.

267. Seminar: Educational Technology. (4) Seminar, four hours. S/U or letter grading.

268. Theorizing Reading: Rhetorics of Academic Discourse. (4) Lecture, two hours; discussion, two hours. Designed for graduate students. Introduction to theoretical approaches to reading, such as post-structuralist, feminist, deconstruction, reader reception, and semiotics, and to core ideas of some leading theorists of reading, such as Roland Barthes, Wolfgang Iser, Barbara Johnson, Stanley Fish, and Gayatri Spivak. Letter grading.

269. Representations of Education in Cinema. (4) Lecture, two hours; discussion, two hours. Designed for graduate students. Exploration of ways in which we draw on diverse “texts,” particularly films set in or around schools, to illuminate contemporary issues in American secondary education (e.g., issues pertaining to representation of teachers, students, parents, and administrators and curriculum in popular films about high school and adolescents). Letter grading.

270. Introduction to Cultural Studies. (4) Lecture, four hours. Investigation of current trends in cultural studies through examination of different methods of cultural interpretation, seminal texts in cultural studies, and practical criticism engaging popular artifacts of media culture. Emphasis on developing critical media literacy as goal of cultural studies. Letter grading.

271A. Proseminar: Educational Psychology. (2) Seminar, two hours. Introduction to variety of research issues in field of educational psychology, including topics related to human development, learning and instruction, counseling, and special education, and to different methodological approaches used to study them. S/U grading.

272. Case-Study Research in Education Policy and Practice. (4) Discussion, four hours. Use of case-study methods in education research, providing opportunities for applying methodological skills to actual case-study research projects. Focus on single and multiple case studies that investigate issues in education policy and practice. Letter grading.

273A. Structure and Dynamics of Educational System. (4) Lecture, two hours; discussion, two hours. Overview of school administration, teaching, curriculum, and policy studies. Focus on American education as institutional system wherein federal, state, and local policy, school administration, curriculum theory and design, and teaching are inextricably connected in delivery of education. Letter grading.

273B. Social Foundations of Education. (4) Seminar, four hours. Introduction to literature on multiculturalism and teachings in diverse social, cultural, and economic contexts. Exploration of debates over multiculturalism and teaching for democratic citizenship by review of diverse number of anthropological, sociological, educational curricula and literatures. Letter grading.

274. Science, Technology, and Social Research after Eurocentrism. (4) Lecture, four hours. Philosophy of natural sciences for social scientists that examines challenges to conventional research assumptions

raised by multicultural and postcolonial science and technology studies that have emerged since World War II. Focus on sciences and technologies in third-world development projects, comparative ethnoscence movements, and new theories of knowledge and how to do maximally objective research emerging from these literatures. Letter grading.

275. Race and Education. (4) Seminar, four hours. Designed for graduate students. Examination of role of race in educational policymaking. Exploration of broad interpretation of how schools contribute to racial stratification and inequality by linking sociological and sociopsychological theories of race, racial attitudes, and conflict to historical policy analysis. Letter grading.

276. Contemporary Theories of Writing. (4) Lecture, four hours. Review of current theories of writing and literacy research and examination of relationships among writing and literacy, culture, and human development. In particular, examination of history of writing research over last three decades as part of broader intellectual history. Letter grading.

277. Language in Classroom. (4) Seminar/fieldwork, four hours. Survey of language and literacy theories and examination of relationship between literacy learning and social practices of classrooms/schools. Study and utilization of qualitative methods of inquiry and discourse analysis. Letter grading.

CM278. Critical Media Literacy and Politics of Gender: Theory and Production. (4) (Same as Gender Studies CM278.) Seminar, three hours. Corequisite: course CM278L. Use of range of pedagogical approaches to theory and practice of critical media literacy that necessarily involves understanding of new technologies and media forms. Study of both theory and production techniques to inform student analysis of media and critical media literacy projects. Concurrently scheduled with course CM178. Letter grading.

CM278L. Critical Media Literacy and Politics of Gender: Laboratory. (2) (Same as Gender Studies CM278L.) Laboratory, two hours. Corequisite: course CM278. Hands-on production experience as integral component of course CM278. Concurrently scheduled with course CM178L. Letter grading.

279. History of Urban Schooling. (4) Lecture, four hours. Designed for graduate students. Survey of major events, political and economic forces, and ideas that shaped urban schools since 1890. Examination of historical scholarship across range of political/ideological perspectives. Letter grading.

280A. Seminar: Selected Topics in Special Education. (2 to 6) Seminar, two to six hours. Focus on research and clinical problems in special education. Introduction to range of clinical services and research strategies. Exploration of current topics in field. S/U or letter grading.

280B. Seminar: Exceptional Individuals. (4) Seminar, four hours. Limited to doctoral students. S/U or letter grading.

281. College Access Seminar. (4) Seminar, two hours; discussion, two hours. Knowledge of changing dynamics of college access at individual, organizational, and field levels and understanding of links between K-12 and postsecondary stratification and how educational advantage and disadvantage accumulates throughout education and affects equity in college access. Letter grading.

282. Students at Risk: Reconsideration. (4) Seminar, four hours. Designed for second-year graduate students. Notion of at risk has become standard element of biomedical/public health and educational/social sciences discourse. Consideration of risk from range of disciplines and modes of inquiry. Letter grading.

283. Social Research in Multicultural and Postcolonial World. (4) Lecture, four hours. Philosophy of social sciences that focuses on how to think fruitfully about two issues: (1) inevitability of nonneutral procedures and results of research conducted within liberal state that must be committed to value-neutrality and

(2) challenges that multicultural and postcolonial social theory have raised to conventional research theories and methodologies. Letter grading.

284. Critical Theory in Education: Power, Politics, and Liberation. (4) Lecture, four hours. Designed for graduate students. Introduction to major themes, issues, and methodologies within what has come to be known as "critical and educational tradition," including some major theoretical writings in liberal, neo-Marxist, left liberal/postmodernist, and Marxist sub-fields of critical education tradition. Letter grading.

M285. Culture, Brain, and Development Forum. (1) (Same as Anthropology M293, Neuroscience M293, and Psychology M248.) Seminar, 90 minutes every other week. Interdisciplinary seminar series to provide students with exposure to current research in understanding complex relationship between culture, brain, and development. S/U or letter grading.

M286. Culture, Brain, and Development. (4) (Same as Anthropology M293S, Neuroscience M294, and Psychology M247.) Seminar, three hours. Designed for graduate students. Integration of knowledge across different disciplines to understand interrelations of culture, brain, and development, where development includes both human ontogeny and human phylogeny. S/U or letter grading.

287. Research on Language Issues in Education. (4) Seminar, four hours. Roles of language(s) in formal and informal education, including study of opportunities and challenges offered by language variation found in schools. Examination of language acquisition theories along with those of language ideologies, language policies, and multilingualism. Letter grading.

288. Research Apprenticeship Course. (2) Discussion, two hours. Course facilitates mentorship model of training PhD students in education, with focus on development of graduate student research topics. Assignment of common readings related to these topics; students have opportunity to offer and receive feedback. May be repeated for credit. S/U grading.

M289A-M289B. Immigration, Racial Change, and Education in 21st-Century Metropolis. (4-4) (Same as Political Science M287A-M287B, Public Policy M289A-M289B, and Sociology M290A-M290B.) Seminar, four hours. Examination of metropolitan American society and institutions at beginning of 21st century. Consideration of best available information on patterns of settlement, changing functions of urban space and institutions, and issues of opportunity linked to urban structure in society facing unprecedented demographic change that will end primarily European domination of our society by mid-century, creating democracy with no racial or ethnic majority. How this demographic transition and postindustrial transformation of urban functions and space interact to shape opportunity and inequality. Vast economic transformations, brought about by globalization of workplace and dramatic decline of industrial employment in advanced nations, not only greatly raise stakes on creating equal opportunity but also cut off what were previously extremely important parts of intergenerational mobility. In Progress (M289A) and letter (M289B) grading.

290. Educational Policy Analysis: Research, Theory, and Practice. (4) Seminar, four hours. Broad overview of development of educational policy from 1950s to present. Examination of current issues and debates within educational policy in U.S. through different theoretical lenses. Exploration of major bodies of research on educational policy and alternative paradigms. Letter grading.

M294A-M294B. High School Reform: Persisting Failure, Urgent Challenges. (1 to 8 each) (Same as Law M243A-M243B.) Seminar, four hours. Course M294A is enforced requisite to M294B. Research seminars with focus on what is probably most serious and neglected problem in American educational reform. In past half century real progress has been made in preschool, gains in achievement in early grades have been produced, and very well-regarded system of higher education has been established—but reform of high school has failed. Exploration of institutional and policy roots of these problems and as-

essment of available research on key dimensions to help students launch original research studies in one related area. Presentations by experts actively involved in high school reform efforts included. In Progress (M294A) and S/U or letter (M294B) grading.

295. Freire. (4) Seminar, four hours. Requisite: course C125 or C207 or prior knowledge of Freire's work. Analysis of intellectual production of Paulo Freire linked to social context in which it took place. Study of his life and work in five phases: Brazilian Experience (1921 to 1964); Chilean Experience, where he published *Education as Practice of Freedom and Pedagogy of Oppressed*, as well as other lesser-known works, while also devoting most of this period to empirical research in literacy training (1964 to 1969); his work at Harvard, and then World Council of Churches in Geneva (1970 to 1980), including his consulting with postcolonial revolutionary governments in Africa; his return to Brazil and his work as Secretary of Education in São Paulo (1989 to 1992); and his global travels from 1980 until his death in 1997. Focus on work left incomplete before his death (including eco-pedagogy and citizen's schools), and by implication his analyses, critiques, and impact in world, his methodology of generative word, and comparisons with other theoretical referents. Letter grading.

296A-296F. Seminars: Research Topics in Education. (2 each) Seminar, three hours. Advanced study and analysis of current topics in education. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

296G. Research Topics in Education: Legal Aspects of Educational Management. (2) Lecture, two hours. Examination and analysis of legal issues, especially as they apply to school organizations. Letter grading.

296H. Research Topics in Education: Organizational Theory. (2) Lecture, two hours. Examination and analysis of organizational theories, especially as they apply to school organizations. Letter grading.

296I. Theory in Educational Inquiry. (2) Seminar, two hours. Theory and its application to study of educational settings and institutions. Examination of major paradigms, important schools of thought, and particular theoretical areas and theories within field of education, with focus both on conceptually and empirically based works as means for grounding discussions of theory and application. Letter grading.

296J. Introduction to Survey Research Methods. (2) Seminar, two hours. Introduction to conceptual and methodological issues involved in survey-based research in education, offering structured opportunity to practice various practical aspects of survey (instrument) development. Questionnaire design, format, and delivery; question writing, pretesting, and testing; and sample design and considerations, nonresponse, measurement error, and data preparation. Letter grading.

296K. Research Design. (2) Seminar, two hours. Effective educational leaders require ability to accurately diagnose educational problems before jumping to proposed solutions. Study designs must include systematic ways to collect and analyze data, as well as minimize potential threats to validity of data and analysis. Designed to equip students with tools needed to design research studies that address specific real-world educational problems. Basic understanding of research designs as strategies for investigating educational problems, such as types of questions that can be answered appropriately with qualitative and mixed methods studies, design components, planning for fieldwork and data collection, sampling, ethics, and credibility. Letter grading.

M297. Interdisciplinary Relationship Science. (4) (Same as Anthropology M295S, Psychology M236, and Sociology M270.) Lecture, three hours. Limited to graduate students. Diverse approaches to relationship science in fields of anthropology, education, psychology, and sociology. Focus on theme of understanding biological, behavioral, and cultural aspects of relationships through diverse theoretical and meth-

odological approaches. Use of broad definition of interpersonal relationships, including relationships such as parent-child, teacher-student, sibling, peer, kin, romantic relationships, marriages, and friendships. S/U or letter grading.

M298A-M298B-M298C. Relationship Science Forums. (2-2-2). (Same as Anthropology M295A-M295B-M295C, Psychology M237A-M237B-M237C, and Sociology M269A-M269B-M269C.) Seminar, 90 minutes. Limited to graduate students. Current research and theory about personal relationships presented by members of seminar, faculty members, and guest speakers from diverse fields, including anthropology, education, psychology, and sociology. May be repeated for credit. S/U grading.

299A-299B-299C. Research Practicum: Education. (4-4-4) Clinical, to be arranged. May be repeated for credit. Letter grading.

300. Dissertation Writing Workshop: Interdivisional Seminar. (4) Seminar, one hour; discussion, two hours; laboratory, one hour. Limited enrollment. Introduction for doctoral candidates to dissertation writing as genre that can be analyzed or broken down with its constituent parts and, vice versa, which is constructed out of materials that can be identified and analyzed. S/U grading.

301. Introduction to Information and Presentation Tools. (2) Laboratory, two hours. Limited to credential program students. Sequence of laboratory sessions providing preservice teachers with introduction to education technology infrastructure and classroom presentation tools. Introduction to resources and services, e-mail functions and Internet, and presentation software and multimedia elements. S/U grading.

305. Health Education for Teachers. (2) Lecture, two hours. Limited to Teacher Education Program students. Teaching/learning process as applied to personal and community health. Topics include psychoactive drugs (alcohol, tobacco, and narcotics), human sexuality, nutrition, community health resources, and analysis of state's health framework. S/U grading.

309. Methodologies for English Language Learners. (2) Laboratory, two hours. Limited to credential program students. Pedagogy for bilingual and English language learners. Discussion of competencies needed by all content area teachers of English language, including strategies for teaching in and through English. Topics include educational issues, organizational approaches, and communicative approach; strategies and activities. Letter grading.

310. Professional Communication for Graduate Students in Education. (2) Lecture, two hours. Writing workshop on students' papers in progress to ensure professional standards. Analysis and group discussion of rhetorical and stylistic principles. May be repeated once. S/U grading.

311. Principles and Methods of Computer Literacy and Classroom Application—K-12. (2) Lecture, one hour; laboratory, 30 minutes. Introduction to use of computers in educational environment. Discussion of issues on why and how to integrate computers into curriculum and hands-on practice that allows students to demonstrate skills discussed. S/U grading.

312. Basic Principles of Curriculum and Instruction. (4) Lecture, four hours. Analysis and practice of basic principles and concepts for planning, conducting, and evaluating units of curriculum and instruction. Emphasis on study and utilization of variety of instructional strategies and their application in elementary and secondary schools. S/U or letter grading.

314A. Principles and Methods for Curriculum, Instruction, and Leadership in Mathematics. (6 to 12) Lecture, six to 12 hours. Problem solving, curriculum development, implementation of California Mathematics Framework, strategies for encouraging women and minorities into mathematics, and leadership development. S/U grading.

315. Principles and Methods for Teaching Reading for Multiple Subject Instruction. (3) Lecture, three hours. Reading instruction in elementary schools. Analysis of reading problems and programs; study of

relationships between language/culture/cognition and reading. Examination and development of instructional programs; analysis and practice of alternative instructional methods. Observation and participation in schools. Letter grading.

315B. Elementary Literacy Methods. (3) Seminar, three hours. Theoretical principles and pedagogical strategies necessary for developing and maintaining balanced comprehensive literacy program for elementary students. Examination of how children learn to read, write, and use language. Letter grading.

316A-316B. Principles and Methods for Teaching Reading for Single Subject Instruction. (2-2) Lecture, two hours. Course 316A is requisite to 316B. Reading instruction in secondary schools. Analysis of reading problems and programs; study of relationships between language/culture/cognition and reading. Examination and development of instructional programs; analysis and practice of alternative instructional methods. Observation and participation in schools. S/U grading.

318A. Integrated Methods for Elementary Teachers. (3) Lecture, three hours. Examination and development of instructional programs and analyses and practices of instructional methods for teaching K-6 content, with emphasis on interdisciplinary approach that integrates content areas. Aligned with California state frameworks and California content standards for grades K-12 that address needs and interests of diverse students. Letter grading.

318B. Integrated Methods for Elementary Teachers. (4) Lecture, four hours. Examination and development of instructional programs and analyses and practices of instructional methods for teaching K-6 content, with emphasis on interdisciplinary approach that integrates content areas and infuses literacy, technology, and strategies for second language learners. Aligned with California state frameworks and California content standards for grades K-12, including English Language Development Standards—all of which address needs and interests of diverse students. Letter grading.

318C. Integrated Methods for Elementary Teachers. (3) Lecture, three hours. Examination and development of instructional programs and analyses and practices of instructional methods for teaching K-6 content, with emphasis on interdisciplinary approach that integrates content areas and infuses literacy, technology, and strategies for second language learners. Aligned with California state frameworks and California content standards. Letter grading.

319. Mathematics Methods. (3) Lecture, three hours. Details of children's mathematics thinking and use of that information as way to ground learning about teaching of mathematics. Letter grading.

320A-320B-320C. Secondary Content and Literacy Methods. (3-3-3) Lecture, three hours. Examination and development of instructional programs and analyses and practices of instructional methods for teaching content in grades 7-12. Emphasis on interdisciplinary approach that integrates content areas and infuses literacy, technology, and strategies for second language learners. Methods courses are aligned with California state frameworks and California content standards for grades K-12, including English Language Development Standards—all of which address needs and various interests of diverse students. Letter grading.

321. Secondary Content and Literacy Methods in Ethnic Studies. (3) Lecture, three hours. Examination and development of instructional programs, analyses, and practices of instructional methods for teaching ethnic studies in grades 7 through 12, with emphasis on interdisciplinary approach that integrates content areas and infuses literacy, technology, and strategies for second language learners. Methods courses align with California state frameworks and California content standards for grades K through 12, including English Language Development Standards—all of which address needs and various interests of diverse students. Ethnic studies curriculum focuses on Chicano studies, African American/black studies, indigenous studies, Asian American studies,

and gender/sexuality studies and how to develop curriculum focused on local histories in urban classrooms. S/U grading.

327. Principles and Methods for Teaching Spanish Effectively. (2 to 6) Lecture, two to six hours. Emphasis on proficiency-based foreign language teaching methods incorporating language assessment skills, modeling, hands-on experiences, and development of teaching and teacher-training materials. S/U grading.

328. Principles and Methods for Teaching Mandarin Effectively. (2 to 6) Lecture, two to six hours. Emphasis on proficiency-based foreign language teaching methods incorporating language assessment skills, modeling, hands-on experiences, and development of teaching and teacher-training materials. S/U grading.

330A. Observation and Participation. (2 to 6) Site-based fieldwork, 10 to 15 hours. Students are assigned to school sites with racially, culturally, and linguistically diverse student populations. Throughout observation and participation period, students analyze effective strategies for achieving learning for all students, including sociocultural approaches and appropriate use of educational technology. S/U grading.

330B. Student Teaching. (4 to 8) Site-based fieldwork, 10 to 20 hours. Requisite: course 330A. Students are assigned to student teach in designated school sites with racially, culturally, and linguistically diverse student populations. Throughout student teaching period, students as novice teachers plan, implement, and assess daily lessons and units, as well as actively engage in reflecting on issues specific to school/community relations. S/U grading.

330C. Student Teaching. (4 to 8) Site-based fieldwork, 10 to 30 hours. Requisite: course 330A. Students are assigned to student teach in designated school sites with racially, culturally, and linguistically diverse student populations. Throughout student teaching period, students as novice teachers plan, implement, and assess daily lessons and units, as well as actively engage in reflecting on issues specific to school/community relations. Increased daily responsibilities. S/U grading.

330D. Classroom Residency and Teaching. (4) Site-based fieldwork, 40 hours. Students are employed by local school districts to teach as residents in designated school sites with racially, culturally, and linguistically diverse student populations. Students also work in collaborative teams through Teacher Education Program to initiate change project in their local school and/or complete case study on project. S/U grading.

360A-360B-360C. Novice Seminars. (2-2-2) Seminar, two hours. Analysis of basic principles and concepts of planning, conducting, and evaluating units of curriculum and instruction. Emphasis on study and utilization of constructivist strategies and their application in elementary and secondary schools. Examination of different methods of computer literacy and teaching subject matter. Students may conduct ethnographic inquiry of local community of their designated partnership district. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

390A-390B. Colloquium Series: Psychological Studies in Education. (1-1) Seminar, one hour. Required of first- or second-year Psychological Studies in Education (PSE) PhD students. Training to conduct research that has practical implications as well as theoretical significance within field of applied human development. Children's cognitive, language, personality, and social development in educationally relevant settings such as schools and daycare programs. Series unites scholars exploring contemporary issues in applied human development and provides framework to facilitate research and training in human develop-

ment within school and UCLA community, as well as forum to share information with other investigators and institutions. S/U grading.

400. Foundations of Education Policy Analysis. (4) Lecture, four hours. Principles of decision making and policy formation, implementation, and analysis in context of educational system. Critical perspectives include effectiveness and equity of educational delivery systems and programs, and complex nature of educational governance in contemporary America. S/U or letter grading.

401. Structure and Functions of Schools as Complex Organizations. (4) Lecture, four hours. Critical analysis of alternative assumptions about organizations, how they function, and why people in organizations behave as they do. Application to special circumstances of schools and to contemporary issues and problems in school leadership, improvement, and reform. S/U or letter grading.

402. Curriculum Principles and Practices. (4) Lecture, four hours. Critical analysis of major concepts, underlying assumptions, policy issues, and processes in development and implementation of curriculum in educational setting. Problems in formulation of purposes, selection of learning experiences, organization of curriculum, and curriculum evaluation. S/U or letter grading.

403. Infant-Toddler Child Development and Care. (4) Lecture, four hours. Exploration of infant and toddler development (ages 0 to 3) and implications of development on their care and education. Introduction to major theories in child development, developmental milestones, and recent brain development research. Topics include family engagement, inclusion, risk contexts, developmentally appropriate practices, and assessment. S/U or letter grading.

404. Early Childhood Curriculum Approaches. (3) Lecture, three hours. Examination and development of curriculum models and methodological approaches used in early childhood education. Grounded in social justice in early childhood education, with focus on use of developmentally appropriate practices, play- and relationship-based approaches, inclusion, families, English language learners, and anti-bias curricula. S/U or letter grading.

405A-405B-405C. Teaching in Urban Schools. (2-2-2) Seminar, two hours. Limited to credential program students. Letter grading:

405A. Exploring Communities. (2) Seminar, two hours. Limited to credential program students. Learning about urban communities by critically examining students' own beliefs, assumptions, and experiences about them to deepen understanding and appreciation about urban communities. Letter grading.

405B. Exploring Identities. (2) Seminar, two hours. Limited to credential program students. Examination and reflection on student values, beliefs, assumptions, and lives to determine how these factors shape way students view their world and, in particular, teaching, learning, students, their families, and their neighborhoods and communities. Letter grading.

405C. Exploring Family-School Connections. (2) Seminar, two hours. Limited to credential program students. Exploration of interrelationships among families, communities, and school systems, engaging parents, caregivers, guardians, students, and school personnel to develop strategies for working with families and to develop philosophy of education. Letter grading.

406. Social Foundations and Cultural Diversity in American Education. (3) Lecture, three hours. Intensive consideration of American society, particularly its racial and cultural diversity. Topics include historical development of American society, manifestations of cultures, and ways to learn about students' cultures. Examination of issues of racism, ethnic and gender differences, perspectives of cultural diversity, and impact on educational and classroom instruction. Letter grading.

406B. Social Foundations and Cultural Diversity in American Education: Ethnic Studies Emphasis. (3) Lecture, three hours. Historical, social, political, and economic contexts of schooling in U.S., with special emphasis on perspectives and contributions from ethnic studies. Examination of central arguments centered around systemic processes, deficit-framing, meanings produced in cultural contexts, and agency and activism. Letter grading.

407. Psychological Foundations of Education. (3) Lecture, three hours. Analysis of learning processes in school situations. Processes of human motivation, affective, cognitive, social, and personal development of children and adolescents, evaluation of learning, individual differences, and implications of relevant theory and research. Letter grading.

408B-408U. Language and Culture. (2 each) Lecture, two hours. Exploration of complex nature of culture and impact of cultural diversity in urban classroom through class discussions, activities, and reflective expression, allowing novice teachers to understand and participate in rich cultural diversity of urban Los Angeles. By exploring culture as tool and target for increasing understanding of multicultural diversity, teachers may construct meaningful connections to students, communities, and home cultures. Each course may be taken independently for credit. Letter grading. **408B.** Latino/Latina Emphasis; **408C.** Asian American Emphasis; **408D.** African American Emphasis. **408U.** General Topics.

409. Language Structure, Acquisition, and Development. (3) Lecture, three hours. Theoretical foundations of language structure and first and second language acquisition, with focus on major themes of current research that provide framework for schooling of English language learners. Rationale for bilingual/English language acquisition and development programs. Historical and current theories and models of language. Letter grading.

410A-410B. Issues in Higher Education and K-12. (4-4) Lecture, four hours. Two-course sequence providing overview of higher education systems. Letter grading. **410A.** Designed to develop knowledge, understanding, and sensitivity to contemporary critical and emerging issues that impact higher education, with focus on both theory and practice. Study of relationships between issues in K-12 schooling and higher education. **410B.** Exploration of issues that effect both higher education and K-12 schooling, including restructuring and reform, standards, access and accountability, and new technologies. Emphasis on both theory and practice.

411. Procedural Issues in Evaluation. (4) Lecture, four hours. Assessment methodologies appropriate for evaluation problems. Writing evaluation proposals, developing program monitoring procedures, selecting appropriate evaluation design strategies, coping with ethical considerations in evaluation, framing decision context, and reporting evaluation results. Letter grading.

412. Why Research Matters to Student Affairs Practice. (3 or 4) Lecture, three hours. How do researchers study impact of college on students? How can that research be used to improve student affairs practice? Introduction to world of college impact research and orientation to major ongoing studies conducted at UCLA and beyond. Students interact with researchers and provide input on how research results might be utilized to improve work of student affairs. Letter grading.

413A. Language and Culture. (2) Lecture, two hours. Limited to credential program students. Offered and required for Bilingual Authorization Programs. Focus on language of emphasis for bilingual teachers. Practice in listening, reading, speaking, and writing competencies required for bilingual classrooms. Assessment made at end of course to determine proficiency of Bilingual Authorization Program candidates. Letter grading.

413B. Methodology for Primary Language Instruction. (3) Lecture, three hours. Offered and required for Bilingual Authorization Programs. Consideration of models for developing cultural and language skills of

home speakers of language of emphasis; practice in use of activities to develop student ability to use language for real-world and academic purposes in culturally appropriate ways. Consideration of models for teaching academic content in primary language for delivery of core curriculum to bilingual students. Letter grading.

413C. Culture of Emphasis. (3) Lecture, three hours. Offered and required for Bilingual Authorization Programs. Conducted in language of authorization. Discussion of commonalities of culture of emphasis in its home country or countries; major historical periods and events; values, belief systems, and expectations; migration and immigration; historical and contemporary demography. Letter grading.

414A. Student Affairs Practice and Theory. (3) Lecture, two hours; discussion, two hours. Examination of needs for student affairs services, range of services, their philosophical and empirical rationale, and their organization and evaluation to provide knowledge base for developing theories of practice. Ongoing involvement in cooperative learning project to examine these issues both as team members and as individuals. Offered in summer only. Letter grading.

414B. Legal and Ethical Issues in Student Affairs. (4) Lecture, two hours; discussion, two hours. Examination of legal and ethical issues that affect student affairs practices in higher education. Letter grading.

414C. College Student Counseling. (3) Lecture, three hours. Overview of counseling at college counseling centers. Review of historical context, philosophical and practical bases, organization and administration, specific programs, and contemporary issues and trends in college student counseling. Letter grading.

414D. Career Development and Interventions in Colleges. (4) Lecture, two hours; discussion, one hour; laboratory, one hour. Examination of challenges faced by college students of all ages in preparing for careers in dynamic multicultural world economy and interventions for assisting them. Emphasis on understanding development and evaluation of interventions. Letter grading.

414E. Administration of Student Affairs. (3) Lecture, two hours; discussion, two hours. Overview of general knowledge and processes essential to effectively administer programs or services under student affairs. Examination of relationship between environmental factors and strategies for governing, planning, and managing student affairs programs and services. Offered in summer only. Letter grading.

415A. Assessment in Counseling Psychology. (4) Lecture, four hours. Requisites: courses 218, 230A. Overview of rationale for and procedures used by counseling psychologists for assessing individuals in multicultural society. Emphasis on standardized cognitive assessment instruments and specialized techniques for diagnosis, evaluation, and development of counseling strategies for at-risk populations. S/U or letter grading.

415B. Advanced Assessment in Counseling Psychology. (4) Lecture, four hours. Requisite: course 415A. Advanced course in assessment for counseling psychologists. Survey and demonstration of instruments of achievement, affective, and personality appraisal, with emphasis on testing and interplay between assessment and psychological functioning for reducing risks of failure in academic, personal, and social areas. S/U or letter grading.

416. Program Development and Planning in Student Affairs. (4) Lecture, two hours; discussion, two hours. Planning of programs that provide or support learning for individuals and groups in student affairs context. Examination of philosophical foundations of program planning, along with pedagogical and logistical dimensions of program development. Letter grading.

417. Program Evaluation and Assessment in Student Affairs. (4) Lecture, two hours; discussion, two hours. Introduction to assessment and program evaluation in context of student affairs and higher education.

tion. Examination of usefulness and appropriateness of various program evaluation methodologies and theories of assessment practice. Letter grading.

418. Group Dynamics in Student Affairs. (3) Lecture, two hours; discussion, two hours. Group productivity, leadership in groups, social perception, attitude formation, and effect of behavior changes in individuals and groups. Evaluation of social, psychological, and educational principles related to experiences of individuals in small groups. Letter grading.

419. Introduction to Research in Student Affairs. (4) Lecture, two hours; discussion, two hours. Designed to orient students to nature of educational research in context of student affairs. Overview of quantitative, qualitative, and mixed methods to position students as scholar-practitioners. Exposure to these methods supplemented by examination of how they are used in published research relevant to practice of student affairs. Letter grading.

420A. Principles of Curriculum. (4) Lecture, four hours. Critical examination of basic concepts underlying determination of objectives, selection and organization of learning experiences, and evaluation process. S/U or letter grading.

421A. Programs and Research in Early Childhood Education. (4) Lecture, four hours. Preparation: one course from development series. Examination of child care programs and research in early childhood education, including review of relation of research in developmental psychology and education to goals of early childhood education and day care. S/U or letter grading.

421D. Parents and Community Agents in Child Development. (4) Lecture, four hours. Preparation: one course from development series. Critical review of theoretical basis and effectiveness of training programs for parents of young and elementary school-aged children; relation of preschool parent programs to family development and role of programs in community. S/U or letter grading.

421F. Issues in Application of Child Development and Educational Research to Social Policy. (4) Lecture, four hours. Relationships among policymakers and social scientists in development, implementation, and evaluation of policies affecting children and their families. Students learn to design and conduct interviews, analyze legislative documents, and present analyses to policymakers. S/U or letter grading.

422. Inquiry into Schooling: Basic Issues. (4) Lecture, four hours. Critical examination of basic issues and problems in organization and reconstruction of precollegiate schooling. Consideration of historical development and changing functions of schooling in American society; school organization; schooling alternatives; problems in management of educational change. S/U or letter grading.

423. Humanistic Curriculum. (4) Lecture, four hours. Consideration of philosophical and cultural foundations of humanistic curricular strategies. Review of techniques and procedures of affective education with view to their place in overall theory of teaching and learning. S/U or letter grading.

424A. Social Studies in Curriculum. (4) Lecture, four hours. Advanced study in social studies curriculum development; problems in defining objectives and organizing single and multidisciplinary programs; critical review of literature on cognitive and affective learning in social science, with emphasis on experimental study of instructional programs. S/U or letter grading.

424B. Reading in Curriculum. (4) Lecture, four hours. Requisite: course 230A. Study of reading curricula and instructional procedures, with emphasis on rationale and research underlying their development and research comparing their effectiveness. S/U or letter grading.

424G. Curriculum Design for Bilingual Education. (4) Lecture, four hours. Advanced study of curriculum design for bilingual educational programs. Philosophical basis for bilingual programs; theories of learning

and instruction applied to bilingual learner; language assessment; development of instructional component; program evaluation. S/U or letter grading.

425. Principles for Teaching Exceptional Individuals. (3) Lecture, three hours. Approaches for teaching exceptional individuals in special and regular education programs. Principles and assumptions underlying alternative approaches. Emphasis on individualizing curriculum and classroom management. Letter grading.

426A-426B. Program Development and Program Evaluation in Student Affairs. (2-2) Lecture, two hours. Introduction to program development and planning, as well as to assessment and program review. Development of knowledge of and skill in planning educational and training programs that provide support for learning within context of student affairs, as well as knowledge of and skill in developing, implementing, and analyzing assessment projects within student affairs context. Study of basic theoretical perspectives underlying program design/implementation and program review/assessment and application by developing, implementing, and assessing effectiveness of one program. In Progress (426A) and letter (426B) grading.

431A. Administration in Higher Education. (4) Lecture, four hours. Overview of college and university administration and introduction to policy research and analysis in postsecondary institutions. Case studies of administrative problems, policies, and practices. Management information systems, resource allocation, and issues related to responsibility, authority, and participation in administrative decisions. S/U or letter grading.

431B. Curriculum and Instruction in Higher Education. (4) Lecture, four hours. Principles of curriculum and instruction in postsecondary programs. Theory and practices in goal setting, testing, media selection, and related instructional responsibilities. Preparing to teach college-level students. S/U or letter grading.

432. Seminar: Professional Topics in Higher Education. (4) Seminar, four hours. S/U or letter grading.

433A. Design of Learning Environments. (4) Discussion, four hours. Theory and practice of design of technology-supported learning environments. Examination of how theories of learning guide design and enactment of learning environments in classrooms and informal settings and how research on such environments informs theory and design. Letter grading.

433B. Development of Educational Media. (4) Discussion, four hours. Current issues and trends in design of interactive educational media. Design and development of prototype educational media applications, integration plans for established or experimental educational media into formal learning settings, or evaluations of specific learning environments. Letter grading.

440C. Administration of Instructional Programs. (4) Lecture, four hours. Examination of current educational problems in society and strategies of their solution through curriculum policy and practice; instructional design and operation; in-service training of teaching staffs. S/U or letter grading.

441A. Instructional Supervision A. (4) Lecture, four hours. Analysis of teaching in light of research-substantiated elements of instruction: task analysis, appropriate objectives, principles that increase motivation, rate and degree of learning, retention and transfer, monitoring and adjusting instruction to meet needs and capacities of learners. S/U or letter grading.

441B. Instructional Supervision B. (4) Lecture, four hours. Requisite: course 441A. Basic techniques of script-taping instructional episodes, planning teacher conferences through analysis of script-tapes, conducting and analyzing growth-evoking teacher conferences. Conducting mini-lessons to demonstrate elements of good instruction. S/U or letter grading.

442B. Legal Aspects of Educational Management and Practice. (4) Lecture, four hours. Examination of structures and kinds of law governing educational systems in U.S.; constitutional dimensions of church/

state relations; employees' civil rights and legal aspects of hiring, firing, and negotiating procedures; student attendance, control, and civil rights. S/U or letter grading.

443. Policy Analysis in Education. (4) Lecture, four hours. Overview of political, economic, and legal context of educational policy formation. Included in examination are issues that impact on minorities (e.g., bilingual education, desegregation, affirmative action, role of subdominants in policy-making process). S/U or letter grading.

444B. Equality of Educational Opportunity through Desegregation and Finance Case Law. (4) Lecture, four hours. Requisite: course 442B. Concentrated review of definition of equality of educational opportunity as it is being developed by courts in cases concerning desegregation and educational finance. S/U or letter grading.

447. Seminar: Educational Policy and Planning, Special Studies. (1 to 4) Seminar, one to four hours. S/U or letter grading.

448A. Urban School Leadership. (4) Lecture, four hours. Analysis of problems of urban school leadership. Emphasis on changing nature of urban principalship, with considerable attention to role of other school and community agencies that interact with urban school leaders. S/U or letter grading.

448B. Urban Leadership Laboratory. (4) Laboratory, four hours. Analysis of and opportunity to practice human and technical skills requisite for success as urban school leader. Topics include negotiations, conflict resolution, applied computer technology, and effective communication. Activities include gaming, simulation, computer programming, and group dynamics. S/U or letter grading.

450. Leadership Capacity Building. (4) Lecture, one hour; discussion, three hours. Limited to Educational Leadership Program students. Course taken in year three of Educational Leadership Program to help students with their communication and leadership capacities. S/U grading.

451. Foundations of Organizations and Leadership. (4) Lecture, four hours. Limited to Educational Leadership Program students. Promotion of understanding of traditional and contemporary conceptions of leadership and organizational theory, with application of these conceptions to student professional work settings. Letter grading.

452A-452B. Educational Enterprise. (4-4) Lecture, two hours; discussion, two hours. Limited to Educational Leadership Program students. Use of structural, human resource, political, and symbolic frames to study K-16 education. Letter grading. **452A.** Focus on purposes of education governance, finance, access, and equity. **452B.** Requisite: course 452A. Focus on educational environments, organizations, and curriculum and instruction.

453. Technology in Education: Learning and Leading with Technology. (2) Lecture, two hours; discussion, two hours. Limited to Educational Leadership Program students. Examination of roles of technology in educational institutions and leadership issues associated with these roles. Letter grading.

454A. Action Research: Collaboration in Change. (4) Lecture, one hour; discussion, two hours; small group work, one hour. Limited to Educational Leadership Program students. Students carry out full cycle of action research at educational site. Projects done in teams as students hone and assess their collaboration abilities. Exploration of qualitative and quantitative data gathering methods and analyses. Letter grading.

454B. Action Research: Collaboration in Change. (4) Lecture, one hour; discussion, two hours; small group work, one hour. Limited to Educational Leadership Program students. Second course in two-course sequence on learning how to do and use action research. Honing of team processes and team roles while collaborating on data collection and analysis at educational site. Letter grading.

455. Writing and Inquiry. (4) Lecture/workshop, eight hours per month; discussion, one hour; laboratory, one hour. Limited to doctoral students in Educational Leadership Program. Intended to assist students' professional development as writers, addressing style and organization, scholarly genres, modes of discourse, and broader issues of conceptualization and method. Letter grading.

456. Altering Structure and Culture of Schooling. (4) Lecture, four hours; discussion, four hours. Limited to Educational Leadership Program students. Using applied orientation, examination of variety of approaches to organizational change and ways to sustain change. Letter grading.

457. Student Development across K-16 Spectrum. (4) Discussion, four hours. Limited to Educational Leadership Program students. Theories of student development applicable to K-12 and postsecondary education. Focus on educational influences on self and others. Letter grading.

458A-458B-458C. Practicum: Dissertation. (2-2-2) Seminar, two hours; discussion, two hours. Preparation: completion of first- and second-year courses. Limited to Educational Leadership Program students. Development of EdD dissertation and its implementation to improve educational practice. Letter grading.

460. Seminar: Special Issues in Evaluation. (2 or 4) Seminar, one or two hours; discussion, one or two hours. Topics and instructors vary each term. Recent emphases included evaluation utilization and cost-effectiveness evaluation. S/U or letter grading.

462. Seminar: Community College. (4) Seminar, four hours. Topics include problems and practices in community college formation, instruction, student flow, administration, and/or evaluation. S/U or letter grading.

466. Critical Media Literacy: Teaching Youth to Critically Read and Create Media. (4) Lecture, four hours. Preparation for educators to teach K-12 students to explore their relationships with media by critically questioning media representations and creating their own alternative media messages. Critical media literacy combines theoretical foundations of cultural studies and critical pedagogy with practical classroom applications of new digital media as well as traditional print-based means of communication. Exploration of media representations of race, class, gender, sexual orientation, and other identity markers. Educators critically question media and technology, as well as explore new alternatives for creating multimedia messages in their own classrooms. Analysis and creation of media projects related to teaching required. Letter grading.

470A. Seminar: Large Systems and Individual Schools. (4) Seminar, four hours. S/U or letter grading.

470B. Seminar: Educational Government. (4) Seminar, four hours. S/U or letter grading.

481. Knowledge and Inquiry in Classroom. (4) Lecture, four hours. Logical features of instruction and their application to inquiry techniques in teaching and learning. Various conceptions of truth, belief, and fact and opinion, and their application to classroom learning situations. S/U or letter grading.

482A. Instructional Strategies in Urban Education: Technology. (4) Lecture, four hours. Emphasis on instructional practices that integrate use of technology in urban public schools. Study and analysis of comprehensive specialized use of appropriate computer-based technology to facilitate teaching and learning process, and debriefing of field experiences integrating technology-related tools. Letter grading.

482B. Instructional Strategies in Urban Education: English Language Learners. (4) Lecture, four hours. Emphasis on instructional practices that support English language learners in urban public schools. Study and analysis of delivery of comprehensive specialized instruction for English learners and debriefing of field experiences implementing adopted instructional programs for development of academic language, comprehension, and knowledge in core academic curriculum. Letter grading.

482C. Instructional Strategies in Urban Education: Special Populations. (4) Lecture, four hours. Emphasis on instructional practices that support special populations in urban public schools. Continuation of study of statutory provisions, curriculum, instruction, and assessment issues related to teaching students with disabilities, students who are at risk, and students who are gifted and talented. Research opportunities, additional methods in content areas for advanced study, and preparation of MEd inquiry included. Letter grading.

482D. Instructional Strategies in Urban Education: Visual and Performing Arts. (4) Lecture, two hours; discussion, two hours. Emphasis on instructional practices that integrate visual and performing arts into urban classrooms. Debriefing of field experiences implementing subject-centered arts instruction, instruction connecting arts disciplines, and instruction connecting arts and other core disciplines. Advanced exploration of elements of each art form, as well as content and emotional scaffolding strategies and reflection strategies to make learning accessible, engagging, and relevant. Letter grading.

485. Advanced Study of Health Education. (1) Lecture, four hours. Student meetings with instructors, field specialists, and team cohorts to study and analyze delivery of comprehensive support for physical, cognitive, emotional, and social well-being of students in K-12 classrooms. Topics include prevention and intervention strategies, accessing local and community resources, curriculum and instruction, and major state and federal laws related to student health and safety. Letter grading.

489. Instructional Strategies in Education. (4) Lecture, four hours. Methods for academic instruction, including research and active participation in adversary approach, forms of debate, role playing, interaction process analysis, and feedback instruments. Practical emphasis on social sciences and humanities instruction, K-12. S/U or letter grading.

490A. Instructional Decision Making. (4) Lecture, four hours. Analysis of instructional models relevant to public school education. Assumptions, procedures, and constraints of each strategy considered in terms of learner and task variables. Laboratory experiences in classroom settings permit students systematically to apply and evaluate alternative instructional strategies. S/U or letter grading.

491. Curricular Decision Making. (4) Lecture, two hours; discussion, two hours. Examination of alternative solutions for practical problems that classroom teachers face in making curricular decisions. Analysis of influences of psychological, societal, and institutional factors in curricular decisions. Letter grading.

492. Evaluation of Teaching and Learning. (4) Lecture, four hours. Relationship between appraisal instruments and information required for making decisions about teachers, pupils, and materials. Recent developments in evaluation of teaching and learning; use of modern appraisal techniques in classroom settings. S/U or letter grading.

495A-495B-495C. Resident Seminars. (4-4-4) Seminar, two hours; site-based fieldwork, two hours. Students meet in individual sessions with instructors and other field support faculty and in team and cluster cohorts for university-school partnership, in addition to regular seminars to debrief field experiences and continue study of curriculum, instruction, and assessment issues. Research opportunities, additional methods in content areas, and preparation of MEd portfolio included. Letter grading.

498A-498B-498C. Directed Field Experience. (2 to 8 each) Clinical, to be arranged. Field experiences designed to increase understanding of student fields of study. May be repeated for credit. S/U or letter grading.

499A-499B-499C. Advanced Directed Field Experience. (4 to 8 each) Clinical, to be arranged. May be repeated for credit. S/U or letter grading.

501. Cooperative Program in Special Education. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA academic adviser and graduate dean, and host campus instructor, department chair, and graduate

dean. Limited to UCLA doctoral students in special education. Used to record enrollment in practicum courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Independent Study. (1 to 12) Tutorial, to be arranged (one hour per unit). Individual study or research for graduate students. May be repeated for credit. S/U or letter grading.

597. Preparation for Master's Comprehensive Examinations or Doctoral Qualifying Examinations. (1 to 12) Tutorial, to be arranged. Individual study for master's comprehensive examinations or for PhD or EdD qualifying examinations. May be repeated for credit. S/U grading.

598. Thesis Research. (4 to 12) Tutorial, to be arranged (four hours for every 4 units). Research for and preparation of master's thesis. May be taken for maximum of 12 units. S/U grading.

599. Dissertation Research. (4 to 12) Tutorial, to be arranged (four hours for every 4 units). Research for and preparation of doctoral dissertation. May be repeated for credit. S/U grading.

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Scope and Objectives

Electrical engineers are responsible for societal revolutionary inventions such as the electrical grid, telecommunications, and automated computing and control. The profession continues to make vital contributions in many do-

ELECTRICAL ENGINEERING

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Ali Mosleh, PhD
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Thomas S. Otis, PhD
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Gregory J. Pottie, PhD

mans. To further these ends, the Department of Electrical Engineering fosters a dynamic academic environment that is committed to a tradition of excellence in teaching, research, and service and has state-of-the-art research programs and facilities in a variety of fields. Departmental faculty members are engaged in research efforts across several disciplines in order to serve the needs of industry, government, society, and the scientific community. Interactions with other disciplines are strong. Faculty members regularly conduct collaborative research projects with colleagues in the Geffen School of Medicine, Graduate School of Education and Information Studies, School of Theater, Film, and Television, and College of Letters and Science.

There are three primary research areas in the department: circuits and embedded systems, physical and wave electronics, and signals and systems. These areas cover a broad spectrum of specializations in, for example, communications and telecommunications, control systems, electromagnetics, embedded computing systems, engineering optimization, integrated circuits and systems, microelectromechanical systems (MEMS), nanotechnology, photonics and optoelectronics, plasma electronics, signal processing, and solid-state electronics.

The program grants one undergraduate degree (Bachelor of Science in Electrical Engineering) and two graduate degrees (Master of Science and Doctor of Philosophy in Electrical Engineering). The graduate program provides students with an opportunity to pursue advanced coursework, in-depth training, and research investigations in several fields.

Undergraduate Study

The electrical engineering program is accredited by the Engineering Accreditation Commission of ABET. See <http://www.abet.org>.

The Electrical Engineering major is a designated capstone major. Undergraduate students complete a design course in which they integrate their knowledge of the discipline and engage in creative design within realistic and professional constraints. Students apply their knowledge and expertise gained in previous mathematics, science, and engineering coursework. Within a multidisciplinary team structure, students identify, formulate, and solve engineering problems and present their projects to the class.

Electrical Engineering BS

Capstone Major

The undergraduate curriculum provides all Electrical Engineering majors with preparation in the mathematical and scientific disciplines that lead to a set of courses that span the fundamentals of the discipline in the three major departmental areas of signals and systems, circuits and embedded systems, and physical wave electronics. These collectively provide an understanding of inventions of importance to society, such as the electrical grid, integrated circuits, photonic devices, automatic computa-

tion and control, and telecommunication devices and systems.

Students are encouraged to make use of their electrical engineering electives and a two-term capstone design course to pursue deeper knowledge within one of these areas according to their interests, whether for graduate study or preparation for employment. See <http://www.ee.ucla.edu> for examples of specializations.

Preparation for the Major

Required: Chemistry and Biochemistry 20A; Computer Science 31, 32; Electrical Engineering 2, 3, 10, 11L, M16 (or Computer Science M51A); Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL.

The Major

Required: Electrical Engineering 101A, 102, 110, 111L, 113, 131A; six core courses selected from Computer Science 33, Electrical Engineering 101B, 115A, 121B, 132A, 133A, 141, 170A; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; 12 units of major field elective courses, at least 8 of which must be upper division electrical engineering courses—the remaining 4 units may be from upper division electrical engineering courses or from another HSSEAS department; and one two-term electrical engineering capstone design course (8 units).

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Electrical Engineering offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Electrical Engineering.

Electrical Engineering

Lower Division Courses

2. Physics for Electrical Engineers. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Physics 1C. Introduction to concepts of modern physics necessary to understand solid-state devices, including elementary quantum theory, Fermi energies, and concepts of electrons in solids. Discussion of electrical properties of semiconductors leading to operation of junction devices. Letter grading.

2H. Physics for Electrical Engineers (Honors). (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Physics 1C. Honors course parallel to course 2. Letter grading.

3. Introduction to Electrical Engineering. (4) Lecture, two hours; laboratory, two hours; outside study, eight hours. Requisite: Physics 1B. Introduction to field of electrical engineering. Basic circuits tech-

niques with application to explanation of electrical engineering inventions such as telecommunications, electrical grid, automatic computing and control, and enabling device technology. Research frontiers of electrical engineering. Introduction to measurement and design of electrical circuits. Letter grading.

10. Circuit Theory I. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 3 (or Computer Science 1 or Materials Science 10), Mathematics 33A, Physics 1B. Corequisites: course 11L (enforced only for Computer Science and Engineering and Electrical Engineering majors), Mathematics 33B. Introduction to linear circuit analysis. Resistive circuits, capacitors, inductors and ideal transformers, Kirchhoff laws, node and loop analysis, first-order circuits, second-order circuits, Thevenin and Norton theorem, sinusoidal steady state. Letter grading.

10H. Circuit Theory I (Honors). (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 3 (or Computer Science 1 or Materials Science 10), Mathematics 33A, Physics 1B. Corequisites: course 11L (enforced only for Computer Science and Engineering and Electrical Engineering majors), Mathematics 33B. Honors course parallel to course 10. Letter grading.

11L. Circuits Laboratory I. (1) Lecture, one hour; laboratory, one hour; outside study, one hour. Enforced corequisite: course 10. Experiments with basic circuits containing resistors, capacitors, inductors, and transformers. Ohm's law voltage and current division, Thevenin and Norton equivalent circuits, superposition, transient and steady state analysis. Letter grading.

16. Logic Design of Digital Systems. (4) (Same as Computer Science M51A.) Lecture, four hours; discussion, two hours; outside study, six hours. Introduction to digital systems. Specification and implementation of combinational and sequential systems. Standard logic modules and programmable logic arrays. Specification and implementation of algorithmic systems: data and control sections. Number systems and arithmetic algorithms. Error control codes for digital information. Letter grading.

Upper Division Courses

100. Electrical and Electronic Circuits. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: Mathematics 33A, 33B, Physics 1C. Not open for credit to students with credit for course 110. Electrical quantities, linear circuit elements, circuit principles, signal waveforms, transient and steady state circuit behavior, semiconductor diodes and transistors, small signal models, and operational amplifiers. Letter grading.

101A. Engineering Electromagnetics. (4) (Formerly numbered 101.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Mathematics 32A and 32B, or 33A and 33B, Physics 1C. Electromagnetic field concepts, waves and phasors, transmission lines and Smith chart, transient responses, vector analysis, introduction to Maxwell equations, static and quasi-static electric and magnetic fields. Letter grading.

101B. Electromagnetic Waves. (4) (Formerly numbered 161.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 101A. Time-varying fields and Maxwell equations, plane wave propagation and interaction with media, energy flow and Poynting vector, guided waves in waveguides, phase and group velocity, radiation and antennas. Letter grading.

102. Systems and Signals. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: Mathematics 33A. Corequisite: Mathematics 33B. Elements of differential equations, first- and second-order equations, variation of parameters method and method of undetermined coefficients, existence and uniqueness. Systems: input/output description, linearity, time-invariance, and causality. Impulse response functions, superposition and convolution integrals. Laplace transforms and system

functions. Fourier series and transforms. Frequency responses, responses of systems to periodic signals. Sampling theorem. Letter grading.

110. Circuit Theory II. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: courses 10, M16 (or Computer Science M51A), 102. Corequisite: course 111L (enforced only for Computer Science and Engineering and Electrical Engineering majors). Sinusoidal excitation and phasors, AC steady state analysis, AC steady state power, network functions, poles and zeros, frequency response, mutual inductance, ideal transformer, application of Laplace transforms to circuit analysis. Letter grading.

110L. Circuit Measurements Laboratory. (2) Laboratory, four hours; outside study, two hours. Requisite: course 100 or 110. Experiments with basic circuits containing resistors, capacitors, inductors, and op-amps. Ohm's law voltage and current division, Thevenin and Norton equivalent circuits, superposition, transient and steady state analysis, and frequency response principles. Letter grading.

111L. Circuits Laboratory II. (1) Lecture, one hour; laboratory, one hour; outside study, one hour. Enforced requisites: courses 10, 11L. Enforced corequisite: course 110. Experiments with electrical circuits containing resistors, capacitors, inductors, transformers, and op-amps. Steady state power analysis, frequency response principles, op-amp-based circuit synthesis, and two-port network principles. Letter grading.

112. Introduction to Power Systems. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 110. Complete overview of organization and operation of interconnected power systems. Development of appropriate models for interconnected power systems and learning how to perform power flow, economic dispatch, and short circuit analysis. Introduction to power system transient dynamics. Letter grading.

113. Digital Signal Processing. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 102. Relationship between continuous-time and discrete-time signals. Z-transform. Discrete Fourier transform. Fast Fourier transform. Structures for digital filtering. Introduction to digital filter design techniques. Letter grading.

113DA-113DB. Digital Signal Processing Design. (4-4) Real-time implementation of digital signal processing algorithms on digital processor chips. Experiments involving A/D and D/A conversion, aliasing, digital filtering, sinusoidal oscillators, Fourier transforms, and finite wordlength effects. Course project involving original design and implementation of signal processing systems for communications, speech, audio, or video using DSP chip. **113DA.** (Formerly numbered 113D.) Lecture, two hours; laboratory, four hours; outside study, six hours. Enforced requisite: course 113. In progress grading (credit to be given only on completion of course 113DB). **113DB.** Laboratory, four hours; outside study, eight hours. Enforced requisites: courses 113, 113DA. Completion of projects begun in course 113DA. Letter grading.

114. Speech and Image Processing Systems Design. (4) Lecture, three hours; discussion, one hour; laboratory, two hours; outside study, six hours. Enforced requisite: course 113. Design principles of speech and image processing systems. Speech production, analysis, and modeling in first half of course; design techniques for image enhancement, filtering, and transformation in second half. Lectures supplemented by laboratory implementation of speech and image processing tasks. Letter grading.

115A. Analog Electronic Circuits I. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 110. Review of physics and operation of diodes and bipolar and MOS transistors. Equivalent circuits and models of semiconductor devices. Analysis and design of single-stage amplifiers. DC biasing circuits. Small-signal analysis. Operational amplifier systems. Letter grading.

115AL. Analog Electronics Laboratory I. (2) Laboratory, four hours; outside study, two hours. Enforced requisites: courses 110L or 111L, 115A. Experimental determination of device characteristics, resistive diode circuits, single-stage amplifiers, compound transistor stages, effect of feedback on single-stage amplifiers, operational amplifiers, and operational amplifier circuits. Introduction to hands-on design experience based on individual student hardware design and implementation platforms. Letter grading.

115B. Analog Electronic Circuits II. (4) Lecture, four hours; discussion, one hour; outside study, eight hours. Enforced requisite: course 115A. Analysis and design of differential amplifiers in bipolar and CMOS technologies. Current mirrors and active loads. Frequency response of amplifiers. Feedback and its properties. Stability issues and frequency compensation. Letter grading.

115C. Digital Electronic Circuits. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: course 115A, Computer Science M51A. Recommended: course 115B. Transistor-level digital circuit analysis and design. Modern logic families (static CMOS, pass-transistor, dynamic logic), integrated circuit (IC) layout, digital circuits (logic gates, flipflops/latches, counters, etc.), computer-aided simulation of digital circuits. Letter grading.

115E. Design Studies in Electronic Circuits. (4) (Formerly numbered 115D.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 115B. Description of process of circuit design through lectures to complement other laboratory-based design courses. Topics vary by instructor and include communication circuits, power electronics, and instrumentation and measurement and may entail simulation-based design projects. Emphasis throughout on design-oriented analysis and rigorous approach to practical circuit design. Letter grading.

M116C. Computer Systems Architecture. (4) (Same as Computer Science M151B.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: course M16 or Computer Science M51A, Computer Science 33. Recommended: course M116L or Computer Science M152A, Computer Science 111. Computer system organization and design, implementation of CPU datapath and control, instruction set design, memory hierarchy (caches, main memory, virtual memory) organization and management, input/output subsystems (bus structures, interrupts, DMA), performance evaluation, pipelined processors. Letter grading.

M116L. Introductory Digital Design Laboratory. (2) (Same as Computer Science M152A.) Laboratory, four hours; outside study, two hours. Enforced requisite: course M16 or Computer Science M51A. Hands-on design, implementation, and debugging of digital logic circuits, use of computer-aided design tools for schematic capture and simulation, implementation of complex circuits using programmed array logic, design projects. Letter grading.

M117. Computer Networks: Physical Layer. (4) (Same as Computer Science M117.) Lecture, two hours; discussion, two hours; laboratory, two hours; outside study, six hours. Not open to students with credit for course M171L. Introduction to fundamental computer communication concepts underlying and supporting modern networks, with focus on wireless communications and media access layers of network protocol stack. Systems include wireless LANs (IEEE802.11) and ad hoc wireless and personal area networks (e.g., Bluetooth, ZigBee). Experimental project based on mobile radio-equipped devices (smart phones, tablets, etc.) as sensor platforms for personal applications such as wireless health, positioning, and environment awareness, and experimental laboratory sessions included. Letter grading.

121B. Principles of Semiconductor Device Design. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisite: course 2. Introduction to principles of operation of bipolar and MOS transistors, equivalent circuits, high-frequency behavior, voltage limitations. Letter grading.

121DA-121DB. Semiconductor Processing and Device Design. (4-4) Design fabrication and characterization of p-n junction and transistors. Students perform various processing tasks such as wafer preparation, oxidation, diffusion, metallization, and photolithography. Introduction to CAD tools used in integrated circuit processing and device design. Device structure optimization tool based on MEDICI; process integration tool based on SUPREM. Course familiarizes students with those tools. Using CAD tools, CMOS process integration to be designed. **121DA.** (Formerly numbered 121L.) Lecture, four hours; laboratory, four hours; outside study, four hours. Enforced requisite or corequisite: course 121B. In progress grading (credit to be given only on completion of course 121DB). **121DB.** (Formerly numbered 129D.) Lecture, two hours; laboratory, four hours; outside study, six hours. Enforced requisites: courses 121B, 121DA. Letter grading.

123A. Fundamentals of Solid-State I. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 2 or Physics 1C. Limited to junior/senior engineering majors. Fundamentals of solid-state, introduction to quantum mechanics and quantum statistics applied to solid-state. Crystal structure, energy levels in solids, and band theory and semiconductor properties. Letter grading.

123B. Fundamentals of Solid-State II. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 123A. Discussion of solid-state properties, lattice vibrations, thermal properties, dielectric, magnetic, and superconducting properties. Letter grading.

128. Principles of Nanoelectronics. (4) Lecture, four hours; discussion, four hours; outside study, four hours. Requisite: Physics 1C. Introduction to fundamentals of nanoscience for electronics nanosystems. Principles of fundamental quantities: electron charge, effective mass, Bohr magneton, and spin, as well as theoretical approaches. From these nanoscale components, discussion of basic behaviors of nanosystems such as analysis of dynamics, variability, and noise, contrasted with those of scaled CMOS. Incorporation of design project in which students are challenged to design electronics nanosystems. Letter grading.

131A. Probability and Statistics. (4) Lecture, four hours; discussion, one hour; outside study, 10 hours. Requisites: course 102 (enforced), Mathematics 32B, 33B. Introduction to basic concepts of probability, including random variables and vectors, distributions and densities, moments, characteristic functions, and limit theorems. Applications to communication, control, and signal processing. Introduction to computer simulation and generation of random events. Letter grading.

131B. Introduction to Stochastic Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 131A. Introduction to concepts of stochastic processes, emphasizing continuous- and discrete-time stationary processes, correlation function and spectral density, linear transformation, and mean-square estimation. Applications to communication, control, and signal processing. Introduction to computer simulation and analysis of stochastic processes. Letter grading.

132A. Introduction to Communication Systems. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 102, 113, 131A. Review of basic probability, basics of hypothesis testing, sufficient statistics and waveform communication, signal-design tradeoffs for digital communications, basics of error control coding, inter-symbol interference channels and orthogonal frequency division multiplexing (OFDM), basics of wireless communications. Letter grading.

132B. Data Communications and Telecommunication Networks. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 131A. Layered communications architectures. Queueing system modeling and analysis. Error control, flow and congestion control. Packet switching, circuit switching, and routing. Network performance analysis and design. Multiple-access communications: TDMA, FDMA, polling, random access. Local, metropolitan, wide area, integrated services networks. Letter grading.

133A. Applied Numerical Computing. (4) (Formerly numbered 103.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: course 131A, and Civil Engineering M20 or Computer Science 31 or Mechanical and Aerospace Engineering M20. Introduction to numerical computing/analysis; analytic formulations versus numerical solutions; floating-point representations and rounding errors. Review of MATLAB; mathematical software. Linear equations; LU factorization; bounds on error; iterative methods for solving linear equations; conditioning and stability; complexity. Interpolation and approximation; splines. Zeros and roots of nonlinear equations. Linear least squares and orthogonal (QR) factorization; statistical interpretation. Numerical optimization; Newton method; nonlinear least squares. Numerical quadrature. Solving ordinary differential equations. Eigenvalues and singular values; QR algorithm; statistical applications. Letter grading.

133B. Simulation, Optimization, and Data Analysis. (4) (Formerly numbered 136.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 133A. Simulation of dynamical systems. Algorithms for ordinary differential and difference equations. Fourier analysis; fast Fourier transforms. Random number generators. Simulation of stochastic systems, Monte Carlo methods. Constrained optimization; applications of optimization to engineering design, modeling, and data analysis. Introduction to data mining and machine learning. Algorithms and complexity. Integration of mathematical software in applications. Letter grading.

134. Graph Theory in Engineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Basics of graph theory, including trees, bipartite graphs and matching, vertex and edge coloring, planar graphs and networks. Emphasis on reducing real-world engineering problems to graph theory formulations. Letter grading.

141. Principles of Feedback Control. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 102. Mathematical modeling of physical control systems in form of differential equations and transfer functions. Design problems, system performance indices of feedback control systems via classical techniques, root-locus and frequency-domain methods. Computer-aided solution of design problems from real world. Letter grading.

142. Linear Systems: State-Space Approach. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 102. State-space methods of linear system analysis and synthesis, with application to problems in networks, control, and system modeling. Letter grading.

M153. Introduction to Microscale and Nanoscale Manufacturing. (4) (Same as Bioengineering M153, Chemical Engineering M153, and Mechanical and Aerospace Engineering M183B.) Lecture, three hours; laboratory, four hours; outside study, five hours. Enforced requisites: Chemistry 20A, Physics 1A, 1B, 1C, 4AL, 4BL. Introduction to general manufacturing methods, mechanisms, constraints, and microfabrication and nanofabrication. Focus on concepts, physics, and instruments of various microfabrication and nanofabrication techniques that have been broadly applied in industry and academia, including various photolithography technologies, physical and chemical deposition methods, and physical and chemical etching methods. Hands-on experience for fabricating microstructures and nanostructures in modern cleanroom environment. Letter grading.

162A. Wireless Communication Links and Antennas. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 101B. Basic properties of transmitting and receiving antennas and antenna arrays. Array synthesis. Adaptive arrays. Friis transmission formula, radar equations. Cell-site and mobile antennas, bandwidth budget. Noise in communication systems (transmission lines, antennas, atmospheric, etc.). Cell-site and mobile antennas, cell coverage for signal and traffic, interference, multipath fading, ray bending, and other propagation phenomena. Letter grading.

163A. Introductory Microwave Circuits. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 101B. Transmission lines description of waveguides, impedance matching techniques, power dividers, directional couplers, active devices, transistor amplifier design. Letter grading.

163C. Introduction to Microwave Systems. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 101B. Theory and design of modern microwave systems such as satellite communication systems, radar systems, wireless sensors, and biological applications of microwaves. Letter grading.

163DA. Microwave and Wireless Design I. (4) Lecture, one hour; laboratory, three hours; outside study, eight hours. Enforced requisites: courses 101A, 101B. Course 163DA is enforced requisite to 163DB. Limited to senior Electrical Engineering majors. Capstone design course, with emphasis on transmission line-based circuits and components to address need in industry and research community for students with microwave and wireless circuit design experiences. Standard design procedure for waveguide and transmission line-based microwave circuits and systems to gain experience in using Microwave CAD software such as Agilent ADS or HFSS. How to fabricate and test these designs. In Progress grading (credit to be given only on completion of course 163DB).

163DB. Microwave and Wireless Design II. (4) Lecture, one hour; laboratory, three hours; outside study, eight hours. Enforced requisites: courses 101A, 101B, 163DA. Limited to senior Electrical Engineering majors. Design of radio frequency circuits and systems, with emphasis on both theoretical foundations and hands-on experience. Design of radio frequency transceivers and their building blocks according to given specifications or in form of open-ended problems. Introduction to advanced topics related to projects through lecture and laboratories. Creation by students of end-to-end systems in application context, managing trade-offs across subsystems while meeting constraints and optimizing metrics related to cost, performance, ease of use, manufacturability, testing, and other real-world issues. Oral and written presentations of project results required. Letter grading.

164DA-164DB. Radio Frequency Design Project I, II. (4-4) (Formerly numbered 164D.) Lecture, one hour; laboratory, three hours; outside study, eight hours. Enforced requisite: course 115B. Course 164DA is enforced requisite to 164DB. Limited to senior Electrical Engineering majors. Design of radio frequency circuits and systems, with emphasis on both theoretical foundations and hands-on experience. Design of radio frequency transceivers and their building blocks according to given specifications or in form of open-ended problems. Introduction to advanced topics related to projects through lecture and laboratories. Creation by students of end-to-end systems in application context, managing trade-offs across subsystems while meeting constraints and optimizing metrics related to cost, performance, ease of use, manufacturability, testing, and other real-world issues. Oral and written presentations of project results required. In Progress (164DA) and letter (164DB) grading.

170A. Principles of Photonics. (4) Lecture, four hours; recitation, one hour; outside study, seven hours. Enforced requisites: courses 2, 101A. Development of solid foundation on essential principles of photonics from ground up with minimum prior knowledge on this subject. Topics include optical properties of ma-

terials, optical wave propagation and modes, optical interferometers and resonators, optical coupling and modulation, optical absorption and emission, principles of lasers and light-emitting diodes, and optical detection. Letter grading.

170B. Photonic Devices and Circuits. (4) Lecture, four hours; recitation, one hour; outside study, seven hours. Enforced requisite: course 170A. Coverage of core knowledge of practical photonic devices and circuits. Topics include optical waveguides, optical fibers, optical couplers, optical modulators, lasers and light-emitting diodes, optical detectors, and integrated photonic devices and circuits. Letter grading.

170C. Photonic Sensors and Solar Cells. (4) Lecture, four hours; recitation, one hour; outside study, seven hours. Enforced requisite: course 101A. Recommended: courses 2, 170A. Fundamentals of detection of light for communication and sensing, as well as conversion of light to electrical energy in solar cells. Introduction to radiometry, semiconductor photodetectors, noise processes and figures of merit, thermal detectors, and photovoltaic solar cells of various types and materials. Letter grading.

M171L. Data Communication Systems Laboratory. (2 to 4) (Same as Computer Science M171L.) Laboratory, four to eight hours; outside study, two to four hours. Recommended preparation: course M116L. Limited to seniors. Not open to students with credit for course M117. Interpretation of analog-signaling aspects of digital systems and data communications through experience in using contemporary test instruments to generate and display signals in relevant laboratory setups. Use of oscilloscopes, pulse and function generators, baseband spectrum analyzers, desktop computers, terminals, modems, PCs, and workstations in experiments on pulse transmission impairments, waveforms and their spectra, modem and terminal characteristics, and interfaces. Letter grading.

173DA-173DB. Photonics and Communication Design. (4-4) Lecture, one hour; laboratory, three hours; outside study, eight hours. Introduction to measurement of basic photonic devices, including LEDs, lasers, detectors, and amplifiers; fiber-optic fundamentals and measurement of fiber systems. Modulation techniques, including A.M., F.M., phase and suppressed carrier methods. Possible projects include lasers, optical communication, and biomedical imaging and sensing. **173DA.** (Formerly numbered 173D.) Enforced requisite: course 101A. Recommended: course 170A or Bioengineering C170. Choice of project preliminary design. In Progress grading (credit to be given only on completion of course 173DB).

173DB. Enforced requisites: courses 101A, 173DA. Finalization of design and testing of projects begun in course 173DA. Letter grading.

176. Photonics in Biomedical Applications. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisite: course 101A. Study of different types of optical systems and their physics background. Examination of their roles in current and projected biomedical applications. Specific capabilities of photonics to be related to each example. Letter grading.

180DA-180DB. Systems Design. (4-4) Limited to senior Electrical Engineering majors. Advanced systems design integrating communications, control, and signal processing subsystems. Introduction to advanced topics related to projects through lecture and laboratories. Open-ended projects vary each offering. Student teams create high-performance designs that manage trade-offs among subsystem components, including cost, performance, ease of use, and other real-world constraints. Oral and written presentation of project results. **180DA.** (Formerly numbered 180D.) Lecture, two hours; laboratory, four hours; outside study, six hours. In Progress grading (credit to be given only on completion of course 180DB). **180DB.** Laboratory, four hours; outside study, eight hours. Enforced requisite: course 180DA. Completion of projects begun in course 180DA. Letter grading.

CM182. Science, Technology, and Public Policy. (4) (Same as Public Policy CM182.) Lecture, three hours. Recent and continuing advances in science and technology are raising profoundly important public policy issues. Consideration of selection of critical policy issues, each of which has substantial ethical, social, economic, political, scientific, and technological aspects. Concurrently scheduled with course CM282. Letter grading.

183DA-183DB. Design of Specialized Digital Hardware I, II (4-4) Limited to senior Electrical Engineering majors. Design of specialized hardware functions in system-on-chip application processor context with integration of diverse processing technologies such as general-purpose processors, graphics processors, and energy-efficient domain-specific accelerators. Design of logic gates, their size and voltage optimization for energy-delay trade-offs, operation of clocked-storage elements and their timing parameters, timing analysis of digital data-path logic, architecture parallelism and time multiplexing, clock and power. Introduction to advanced project-related topics. Open-ended projects vary annually. Student teams create hardware accelerator engines for various applications. **183DA.** Lecture, one hour; laboratory, four hours; outside study, seven hours. Enforced requisites: courses M16 (or Computer Science M51A), 115A. Recommended: course 115B. In Progress grading (credit to be given only on completion of course 183DB). **183DB.** Laboratory, four hours; outside study, eight hours. Enforced requisite: course 183DA. Recommended: course 115B. Letter grading.

184DA-184DB. Independent Group Project Design. (2-2) Laboratory, five hours; discussion, one hour. Enforced requisites: courses M16, 110, 110L. Course 184DA is enforced requisite to 184DB. Courses centered on group project that runs year long to give students intensive experience on hardware design, microcontroller programming, and project coordination. Several projects based on autonomous robots that traverse small mazes and courses offered yearly and target regional competitions. Students may submit proposals that are evaluated and approved by faculty members. Topics include sensing circuits and amplifier-based design, microcontroller programming, feedback control, actuation, and motor control. In Progress (184DA) and letter (184DB) grading.

M185. Introduction to Plasma Electronics. (4) (Same as Physics M122.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 101A or Physics 110A. Senior-level introductory course on electrodynamics of ionized gases and applications to materials processing, generation of coherent radiation and particle beams, and renewable energy sources. Letter grading.

188. Special Courses in Electrical Engineering. (4) Seminar, four hours; outside study, eight hours. Special topics in electrical engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. Letter grading.

194. Research Group Seminars: Electrical Engineering. (2 to 4) Seminar, four hours; outside study, eight hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field. May be repeated for credit. Letter grading.

199. Directed Research in Electrical Engineering. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

Graduate Courses

201A. VLSI Design Automation. (4) Lecture, four hours; outside study, eight hours. Requisite: course 115C. Fundamentals of design automation of VLSI circuits and systems, including introduction to circuit and system platforms such as field programmable

gate arrays and multicore systems; high-level synthesis, logic synthesis, and technology mapping; physical design; and testing and verification. Letter grading.

201C. Modeling of VLSI Circuits and Systems. (4) Lecture, four hours. Requisite: course 115C. Detailed study of VLSI circuit and system models considering performance, signal integrity, power and thermal effects, reliability, and manufacturability. Discussion of principles of modeling and optimization codevelopment. Letter grading.

201D. Design in Nanoscale Technologies. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 115C. Challenges of digital circuit design and layout in deeply scaled technologies, with focus on design-manufacturing interactions. Summary of large-scale digital design flow; basic manufacturing flow; lithographic patterning, resolution enhancement, and mask preparation; yield and variation modeling; circuit reliability and aging issues; design rules and their origins; layout design for manufacturing; test structures and process control; circuit and architecture methods for variability mitigation. Letter grading.

M202A. Embedded Systems. (4) (Same as Computer Science M213A.) Lecture, four hours; outside study, eight hours. Designed for graduate computer science and electrical engineering students. Methodologies and technologies for design of embedded systems. Topics include hardware and software platforms for embedded systems, techniques for modeling and specification of system behavior, software organization, real-time operating system scheduling, real-time communication and packet scheduling, low-power battery and energy-aware system design, timing synchronization, fault tolerance and debugging, and techniques for hardware and software architecture optimization. Theoretical foundations as well as practical design methods. Letter grading.

M202B. Energy-Aware Computing and Cyber-Physical Systems. (4) (Same as Computer Science M213B.) Lecture, four hours; outside study, eight hours. Requisite: course M16 or Computer Science M51A. Recommended: course M116C or Computer Science M151B, and Computer Science 111. System-level management and cross-layer methods for power and energy consumption in computing and communication at various scales ranging across embedded, mobile, personal, enterprise, and data-center scale. Computing, networking, sensing, and control technologies and algorithms for improving energy sustainability in human-cyber-physical systems. Topics include modeling of energy consumption, energy sources, and energy storage; dynamic power management; power-performance scaling and energy proportionality; duty-cycling; power-aware scheduling; low-power protocols; battery modeling and management; thermal management; sensing of power consumption. Letter grading.

202C. Networked Embedded Systems Design. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Designed for graduate computer science and electrical engineering students. Training in combination of networked embedded systems design combining embedded hardware platform, embedded operating system, and hardware/software interface. Essential graduate student background for research and industry career paths in wireless devices for applications ranging from conventional wireless mobile devices to new area of wireless health. Laboratory design modules and course projects based on state-of-art embedded hardware platform. Letter grading.

205A. Matrix Analysis for Scientists and Engineers. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Preparation: one undergraduate linear algebra course. Designed for first-year graduate students in all branches of engineering, science, and related disciplines. Introduction to matrix theory and linear algebra, language in which virtually all of modern science and engineering is conducted. Review of matrices taught in undergraduate courses and introduction to graduate-level topics. Letter grading.

M206. Machine Perception. (4) (Same as Computer Science M268.) Lecture, four hours; discussion, two hours; outside study, six hours. Designed for graduate students. Computational aspects of processing visual and other sensory information. Unified treatment of early vision in man and machine. Integration of symbolic and iconic representations in process of image segmentation. Computing multimodal sensory information by neural-net architectures. Letter grading.

208A. Analytical Methods of Engineering I. (4) Lecture, four hours; outside study, eight hours. Limited to graduate students. Application of techniques of linear algebra to engineering problems. Vector spaces: scalar products, Cauchy/Schwarz inequality. Gram/Schmidt orthogonalization. Matrices as linear transformations: eigenvalues and spectrum. Self-adjoint and covariance matrices. Square root and factorization, Cholesky decomposition. Determinants, Cayley/Hamilton theorem. Minimal polynomials, Bezout theorem. Polar and singular value decomposition. Sequences, convergence, and matrix exponential. Applications to problems in signal processing, communications, and control. Letter grading.

M208B. Functional Analysis for Applied Mathematics and Engineering. (4) (Same as Mathematics M268A.) Lecture, four hours; outside study, eight hours. Requisites: course 208A (or Mathematics 115A and 115B), Mathematics 131A, 131B, 132. Topics may include L^p spaces, Hilbert, Banach, and separable spaces; Fourier transforms; linear functionals. Riesz representation theory, linear operators and their adjoints; self-adjoint and compact operators. Spectral theory. Differential operators such as Laplacian and eigenvalue problems. Resolvent distributions and Green's functions. Semigroups. Applications. S/U or letter grading.

M208C. Topics in Functional Analysis for Applied Mathematics and Engineering. (4) (Same as Mathematics M268B.) Lecture, four hours; outside study, eight hours. Requisite: course M208B. Semigroups of linear operators over Hilbert spaces; generator and resolvent, generation theorems, Laplace inversion formula. Dissipative operators and contraction semigroups. Analytic semigroups and spectral representation. Semigroups with compact resolvents. Parabolic and hyperbolic systems. Controllability and stabilizability. Spectral theory of differential operators, PDEs, generalized functions. S/U or letter grading.

209AS. Special Topics in Circuits and Embedded Systems. (4) Lecture, four hours; outside study, eight hours. Special topics in one or more aspects of circuits and embedded systems, such as digital, analog, mixed-signal, and radio frequency integrated circuits (RF ICs); electronic design automation; wireless communication circuits and systems; embedded processor architectures; embedded software; distributed sensor and actuator networks; robotics; and embedded security. May be repeated for credit with topic change. S/U or letter grading.

209BS. Seminar: Circuits and Embedded Systems. (2 to 4) Seminar, two to four hours; outside study, four to eight hours. Seminars and discussions on current and advanced topics in one or more aspects of circuits and embedded systems, such as digital, analog, mixed-signal, and radio frequency integrated circuits (RF ICs); electronic design automation; wireless communication circuits and systems; embedded processor architectures; embedded software; distributed sensor and actuator networks; robotics; and embedded security. May be repeated for credit with topic change. S/U grading.

210A. Adaptation and Learning. (4) Lecture, four hours; outside study, eight hours. Preparation: prior training in probability theory, random processes, and linear algebra. Recommended requisites: courses 205A, 241A. Mean-square-error estimation and filters, least-squares estimation and filters, steepest-descent algorithms, stochastic-gradient algorithms, convergence, stability, tracking, and performance, algorithms for adaptation and learning, adaptive filters, learning and classification, optimization. Letter grading.

210B. Inference over Networks. (4) Lecture, four hours; outside study, eight hours. Preparation: prior training in probability theory, random processes, linear algebra, and adaptation. Enforced requisite: course 210A. Adaptation, learning, estimation, and detection over networks. Steepest-descent algorithms, stochastic-gradient algorithms, convergence, stability, tracking, and performance analyses. Distributed optimization. Online and distributed adaptation and learning. Synchronous and asynchronous network behavior. Incremental, consensus, diffusion, and gossip strategies. Letter grading.

211A. Digital Image Processing I. (4) Lecture, three hours; laboratory, four hours; outside study, five hours. Preparation: computer programming experience. Requisite: course 113. Fundamentals of digital image processing theory and techniques. Topics include two-dimensional linear system theory, image transforms, and enhancement. Concepts covered in lecture applied in computer laboratory assignments. Letter grading.

212A. Theory and Design of Digital Filters. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 113. Approximation of filter specifications. Use of design charts. Structures for recursive digital filters. FIR filter design techniques. Comparison of IIR and FIR structures. Implementation of digital filters. Limit cycles. Overflow oscillations. Discrete random signals. Wave digital filters. Letter grading.

212B. Multirate Systems and Filter Banks. (4) Lecture, three hours; outside study, nine hours. Requisite: course 212A. Fundamentals of multirate systems; polyphase representation; multistage implementations; applications of multirate systems; maximally decimated filter banks; perfect reconstruction systems; paraunitary filter banks; wavelet transform and its relation to multirate filter banks. Letter grading.

213A. Advanced Digital Signal Processing Circuit Design. (4) Lecture, three hours; outside study, nine hours. Requisite: course 212A. Digital filter design and optimization tools, architectures for digital signal processing circuits; integrated circuit modules for digital signal processing; programmable signal processors; CAD tools and cell libraries for application-specific integrated circuit design; case studies of speech and image processing circuits. Letter grading.

M214A. Digital Speech Processing. (4) (Same as Bioengineering M214A.) Lecture, three hours; laboratory, two hours; outside study, seven hours. Requisite: course 113. Theory and applications of digital processing of speech signals. Mathematical models of human speech production and perception mechanisms, speech analysis/synthesis. Techniques include linear prediction, filter-bank models, and homomorphic filtering. Applications to speech synthesis, automatic recognition, and hearing aids. Letter grading.

214B. Advanced Topics in Speech Processing. (4) Lecture, three hours; computer assignments, two hours; outside study, seven hours. Requisite: course M214A. Advanced techniques used in various speech-processing applications, with focus on speech recognition by humans and machine. Physiology and psychoacoustics of human perception. Dynamic Time Warping (DTW) and Hidden Markov Models (HMM) for automatic speech recognition systems, pattern classification, and search algorithms. Aids for hearing impaired. Letter grading.

215A. Analog Integrated Circuit Design. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 115B. Analysis and design of analog integrated circuits. MOS and bipolar device structures and models, single-stage and differential amplifiers, noise, feedback, operational amplifiers, offset and distortion, sampling devices and discrete-time circuits, bandgap references. Letter grading.

215B. Advanced Digital Integrated Circuits. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 115C, M216A. Analysis and comparison of modern logic

families. VLSI memories (SRAM, DRAM, and ROMs). Accuracy of various simulation models and simulation methods for digital circuits. Letter grading.

215C. Analysis and Design of RF Circuits and Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 215A. Principles of RF circuit and system design, with emphasis on monolithic implementation in VLSI technologies. Basic concepts, communications background, transceiver architectures, low-noise amplifiers and mixers, oscillators, frequency synthesizers, power amplifiers. Letter grading.

215D. Analog Microsystem Design. (4) Lecture, four hours; outside study, eight hours. Requisite: course 215A. Analysis and design of data conversion interfaces and filters. Sampling circuits and architectures, D/A conversion techniques, A/D converter architectures, building blocks, precision techniques, discrete- and continuous-time filters. Letter grading.

215E. Signaling and Synchronization. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 215A, M216A. Analysis and design of circuits for synchronization and communication for VLSI systems. Use of both digital and analog design techniques to improve data rate of electronics between functional blocks, chips, and systems. Advanced clocking methodologies, phase-locked loop design for clock generation, and high-performance wire-line transmitters, receivers, and timing recovery circuits. Letter grading.

M216A. Design of VLSI Circuits and Systems. (4) (Same as Computer Science M258A.) Lecture, four hours; discussion, two hours; laboratory, four hours; outside study, two hours. Requisites: courses M16 or Computer Science M51A, and 115A. Recommended: course 115C. LSI/VLSI design and application in computer systems. Fundamental design techniques that can be used to implement complex integrated systems on chips. Letter grading.

216B. VLSI Signal Processing. (4) Lecture, four hours; outside study, eight hours. Advanced concepts in VLSI signal processing, with emphasis on architecture design and optimization within block-based description that can be mapped to hardware. Fundamental concepts from digital signal processing (DSP) theory, architecture, and circuit design applied to complex DSP algorithms in emerging applications for personal communications and healthcare. Letter grading.

M216C. LSI in Computer System Design. (4) (Same as Computer Science M258C.) Lecture, four hours; laboratory, four hours; outside study, four hours. Requisite: course M216A. LSI/VLSI design and application in computer systems. In-depth studies of VLSI architectures and VLSI design tools. Letter grading.

M217. Biomedical Imaging. (4) (Same as Bioengineering M217.) Lecture, three hours; outside study, nine hours. Requisite: course 114 or 211A. Optical imaging modalities in biomedicine. Other nonoptical imaging modalities discussed briefly for comparison purposes. Letter grading.

218. Network Economics and Game Theory. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Discussion of how different cooperative and noncooperative games among agents can be constructed to model, analyze, optimize, and shape emerging interactions among users in different networks and system settings. How strategic agents can successfully compete with each other for limited and time-varying resources by optimizing their decision process and learning from their past interaction with other agents. To determine their optimal actions in these distributed, informationally decentralized environments, agents need to learn and model directly or implicitly other agents' responses to their actions. Discussion of existing multiagent learning techniques and learning in games, including adjustment processes for learning equilibria, fictitious play, regret-learning, and more. Letter grading.

221A. Physics of Semiconductor Devices I. (4) Lecture, four hours; outside study, eight hours. Physical principles and design considerations of junction devices. Letter grading.

221B. Physics of Semiconductor Devices II. (4) Lecture, four hours; outside study, eight hours. Principles and design considerations of field effect devices and charge-coupled devices. Letter grading.

221C. Microwave Semiconductor Devices. (4) Lecture, four hours; outside study, eight hours. Physical principles and design considerations of microwave solid-state devices: Schottky barrier mixer diodes, IMPATT diodes, transferred electron devices, tunnel diodes, microwave transistors. Letter grading.

222. Integrated Circuits Fabrication Processes. (4) Lecture, four hours; outside study, eight hours. Requisite: course 2. Principles of integrated circuits fabrication processes. Technological limitations of integrated circuits design. Topics include bulk crystal and epitaxial growth, thermal oxidation, diffusion, ion-implantation, chemical vapor deposition, dry etching, lithography, and metallization. Introduction of advanced process simulation tools. Letter grading.

223. Solid-State Electronics I. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 124, 270. Energy band theory, electronic band structure of various elementary, compound, and alloy semiconductors, defects in semiconductors. Recombination mechanisms, transport properties. Letter grading.

224. Solid-State Electronics II. (4) Lecture, four hours; outside study, eight hours. Requisite: course 223. Techniques to solve Boltzmann transport equation, various scattering mechanisms in semiconductors, high field transport properties in semiconductors, Monte Carlo method in transport. Optical properties. Letter grading.

225. Physics of Semiconductor Nanostructures and Devices. (4) Lecture, four hours; outside study, eight hours. Requisite: course 223. Theoretical methods for circulating electronics and optical properties of semiconductor structures. Quantum size effects and low-dimensional systems. Application to semiconductor nanometer scale devices, including negative resistance diodes, transistors, and detectors. Letter grading.

229. Seminar: Advanced Topics in Solid-State Electronics. (4) Seminar, four hours; outside study, eight hours. Requisites: courses 223, 224. Current research areas, such as radiation effects in semiconductor devices, diffusion in semiconductors, optical and microwave semiconductor devices, nonlinear optics, and electron emission. Letter grading.

229S. Advanced Electrical Engineering Seminar. (2) Seminar, two hours; outside study, six hours. Preparation: successful completion of PhD major field examination. Seminar on current research topics in solid-state and quantum electronics (Section 1) or in electronic circuit theory and applications (Section 2). Students report on tutorial topic and on research topic in their dissertation area. May be repeated for credit. S/U grading.

230A. Detection and Estimation in Communication. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131A. Applications of estimation and detection concepts in communication and signal processing; random signal and noise characterizations by analysis and simulations; mean square (MS) and maximum likelihood (ML) estimations and algorithms; detection under ML, Bayes, and Neyman/Pearson (NP) criteria; signal-to-noise ratio (SNR) and error probability evaluations. Introduction to Monte Carlo simulations. Letter grading.

230B. Digital Communication Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 132A, 230A. Principles and practical techniques for communication at physical and multiple access layers. Review of communications over Gaussian channel. Synchronization and adaptive equalization. Nonlinear impairments in radio transceivers. Wireless channel models, diversity techniques, and link budgets. Modulations for wireless channels. Multi-antenna methods. Wireless multiple access and resource allocation techniques. Scalable approaches to meeting wireless data rate demand. Letter grading.

230C. Signal Processing in Communications. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 230A. Concepts and implementations of signal processing in communication and signal processing systems. Spectral analysis using Fourier transform and windowing, parametric modeling, eigen-decomposition methods, time-frequency analysis, wavelet transform, and sub-band processing. Array processing using beamforming for SNIR enhancement, smart antenna, and source separation and localization. Introduction to compressive sampling and applications. Letter grading.

230D. Algorithms and Processing in Communication Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 230A. Review of computational linear algebra methods on QRD, eigen- and singular-value decompositions, and LS estimation with applications to estimation and detection in communication, radar, speech, image, and array processing systems. Systolic and parallel algorithms and VLSI architectures for high performance and high throughput real-time estimation, detection, decoding, and beamforming applications. Letter grading.

231A. Information Theory: Channel and Source Coding. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 131A. Fundamental limits on compression and transmission of information. Topics include limits and algorithms for lossless data compression, channel capacity, rate versus distortion in lossy compression, and information theory for multiple users. Letter grading.

231E. Channel Coding Theory. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131A. Fundamentals of error control codes and decoding algorithms. Topics include block codes, convolutional codes, trellis codes, and turbo codes. Letter grading.

232A. Stochastic Modeling with Applications to Telecommunication Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131A. Stochastic processes as applied to study of telecommunication systems, traffic engineering, business, and management. Discrete-time and continuous-time Markov chain processes. Renewal processes, regenerative processes, Markov-renewal, semi-Markov and semiregenerative stochastic processes. Decision and reward processes. Applications to traffic and queueing analysis of basic telecommunications and computer communication networks, Internet, and management systems. Letter grading.

232B. Telecommunication Switching and Queueing Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131A. Modeling, analysis, and design of queueing systems with applications to switching systems, communications networks, wireless systems and networks, and business and management systems. Modeling, analysis, and design of Markovian and non-Markovian queueing systems. Priority service systems. Queueing networks with applications to computer communications, Internet, and management networks. Letter grading.

232C. Telecommunication Architecture and Networks. (4) Lecture, four hours; outside study, eight hours. Requisite: course 232B. Analysis and design of integrated-service telecommunication networks and multiple-access procedures. Stochastic analysis of priority-based queueing system models. Queueing networks; network protocol architectures; error control; routing, flow, and access control. Applications to local-area, packet-radio, satellite, and computer communication networks. Letter grading.

232D. Telecommunication Networks and Multiple-Access Communications. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131A. Performance analysis and design of telecommunication networks, mobile wireless networks, and multiple-access communication systems. Network architectures, multiplexing and multiple-access, message delays, error and flow control, switching, routing, layered networking protocols, and Internet. Selected latest network systems such as cellular wireless networks, heterogeneous large/small cell networks, WiFi mesh networks, peer-to-peer mobile ad hoc wireless networks, vehicular highway networks, autonomous

transportation networked systems, smart grid networks, adaptive multimedia streaming over mobile wireless networks, embedded sensor networks, satellite and long-haul networks, energy aware networking, cyber security. Letter grading.

232E. Graphs and Network Flows. (4) Lecture, four hours; recitation, one hour; outside study, seven hours. Solution to analysis and synthesis problems that may be formulated as flow problems in capacity constrained (or cost constrained) networks. Development of tools of network flow theory using graph theoretic methods; application to communication, transportation, and transmission problems. Letter grading.

236A. Linear Programming. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: Mathematics 115A or equivalent knowledge of linear algebra. Basic graduate course in linear optimization. Geometry of linear programming. Duality. Simplex method. Interior-point methods. Decomposition and large-scale linear programming. Quadratic programming and complementary pivot theory. Engineering applications. Introduction to integer linear programming and computational complexity theory. Letter grading.

236B. Convex Optimization. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 236A. Introduction to convex optimization and its applications. Convex sets, functions, and basics of convex analysis. Convex optimization problems (linear and quadratic programming, second-order cone and semidefinite programming, geometric programming). Lagrange duality and optimality conditions. Applications of convex optimization. Unconstrained minimization methods. Interior-point and cutting-plane algorithms. Introduction to nonlinear programming. Letter grading.

236C. Optimization Methods for Large-Scale Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 236B. First-order algorithms for convex optimization: subgradient method, conjugate gradient method, proximal gradient and accelerated proximal gradient methods, block coordinate descent. Decomposition of large-scale optimization problems. Augmented Lagrangian method and alternating direction method of multipliers. Monotone operators and operator-splitting algorithms. Second-order algorithms: inexact Newton methods, interior-point algorithms for conic optimization. Letter grading.

M237. Dynamic Programming. (4) (Same as Mechanical and Aerospace Engineering M276.) Lecture, four hours; outside study, eight hours. Recommended requisite: course 232A or 236A or 236B. Introduction to mathematical analysis of sequential decision processes. Finite horizon model in both deterministic and stochastic cases. Finite-state infinite horizon model. Methods of solution. Examples from inventory theory, finance, optimal control and estimation, Markov decision processes, combinatorial optimization, communications. Letter grading.

238. Multimedia Communications and Processing. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 113, 131A. Key concepts, principles, and algorithms of real-time multimedia communications and processing across heterogeneous Internet and wireless channels. Due to flexible and low-cost infrastructure, new networks and communication channels enable variety of delay-sensitive multimedia transmission applications and provide varying resources with limited support for quality of service required by delay-sensitive, bandwidth-intense, and loss-tolerant multimedia applications. New concepts, principles, theories, and practical solutions for cross-layer design that can provide optimal adaptation for time-varying channel characteristics, adaptive and delay-sensitive applications, and multiuser transmission environments. Discussion of online learning and learning how to make decisions in broad context, including Markov decision processes, optimal stopping, reinforcement learning, structural results for online learning, multiarmed bandits learning, multiagent learning. Letter grading.

239AS. Special Topics in Signals and Systems. (4) Lecture, four hours; outside study, eight hours. Special topics in one or more aspects of signals and systems, such as communications, control, image processing, information theory, multimedia, computer networking, optimization, speech processing, telecommunications, and VLSI signal processing. May be repeated for credit with topic change. S/U or letter grading.

239BS. Seminar: Signals and Systems. (2 to 4) Seminar, two to four hours; outside study, four to eight hours. Seminars and discussions on current and advanced topics in one or more aspects of signals and systems, such as communications, control, image processing, information theory, multimedia, computer networking, optimization, speech processing, telecommunications, and VLSI signal processing. May be repeated for credit with topic change. S/U grading.

M240A. Linear Dynamic Systems. (4) (Same as Chemical Engineering M280A and Mechanical and Aerospace Engineering M270A.) Lecture, four hours; outside study, eight hours. Requisite: course 141 or Mechanical and Aerospace Engineering 171A. State-space description of linear time-invariant (LTI) and time-varying (LTV) systems in continuous and discrete time. Linear algebra concepts such as eigenvalues and eigenvectors, singular values, Cayley/Hamilton theorem, Jordan form; solution of state equations; stability, controllability, observability, realizability, and minimality. Stabilization design via state feedback and observers; separation principle. Connections with transfer function techniques. Letter grading.

240B. Linear Optimal Control. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 141, M240A. Introduction to optimal control, with emphasis on detailed study of LQR, or linear regulators with quadratic cost criteria. Relationships to classical control system design. Letter grading.

M240C. Optimal Control. (4) (Same as Chemical Engineering M280C and Mechanical and Aerospace Engineering M270C.) Lecture, four hours; outside study, eight hours. Requisite: course 240B. Applications of variational methods, Pontryagin maximum principle, Hamilton/Jacobi/Bellman equation (dynamic programming) to optimal control of dynamic systems modeled by nonlinear ordinary differential equations. Letter grading.

241A. Stochastic Processes. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131B. Review of basic probability, axiomatic development, expectation, convergence of random processes: stationarity, power spectral density. Response of linear systems to random inputs. Basics of estimation. Special random processes. Letter grading.

M242A. Nonlinear Dynamic Systems. (4) (Same as Chemical Engineering M282A and Mechanical and Aerospace Engineering M272A.) Lecture, four hours; outside study, eight hours. Requisite: course M240A or Chemical Engineering M280A or Mechanical and Aerospace Engineering M270A. State-space techniques for studying solutions of time-invariant and time-varying nonlinear dynamic systems with emphasis on stability. Lyapunov theory (including converse theorems), invariance, center manifold theorem, input-to-state stability and small-gain theorem. Letter grading.

M248S. Seminar: Systems, Dynamics, and Control Topics. (2) (Same as Chemical Engineering M297 and Mechanical and Aerospace Engineering M299A.) Seminar, two hours; outside study, six hours. Limited to graduate engineering students. Presentations of research topics by leading academic researchers from fields of systems, dynamics, and control. Students who work in these fields present their papers and results. S/U grading.

M250B. Microelectromechanical Systems (MEMS) Fabrication. (4) (Same as Bioengineering M250B and Mechanical and Aerospace Engineering M280B.) Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisite: course M153. Advanced discussion of micromachining processes used to construct MEMS. Coverage of many litho-

graphic, deposition, and etching processes, as well as their combination in process integration. Materials issues such as chemical resistance, corrosion, mechanical properties, and residual/intrinsic stress. Letter grading.

M252. Microelectromechanical Systems (MEMS) Device Physics and Design. (4) (Same as Bioengineering M252 and Mechanical and Aerospace Engineering M282.) Lecture, four hours; outside study, eight hours. Introduction to MEMS design. Design methods, design rules, sensing and actuation mechanisms, microsensors, and microactuators. Designing MEMS to be produced with both foundry and non-foundry processes. Computer-aided design for MEMS. Design project required. Letter grading.

M255. Neuroengineering. (4) (Same as Bioengineering M260 and Neuroscience M206.) Lecture, four hours; laboratory, three hours; outside study, five hours. Requisites: Mathematics 32A, Physics 1B or 6B. Introduction to principles and technologies of bioelectricity and neural signal recording, processing, and stimulation. Topics include bioelectricity, electrophysiology (action potentials, local field potentials, EEG, ECOG), intracellular and extracellular recording, microelectrode technology, neural signal processing (neural signal frequency bands, filtering, spike detection, spike sorting, stimulation artifact removal), brain-computer interfaces, deep-brain stimulation, and prosthetics. Letter grading.

M256A-M256B-M256C. Evaluation of Research Literature in Neuroengineering. (2-2-2) (Same as Bioengineering M261A-M261B-M261C and Neuroscience M212A-M212B-M212C.) Discussion, two hours; outside study, four hours. Critical discussion and analysis of current literature related to neuroengineering research. S/U grading.

M257. Nanoscience and Technology. (4) (Same as Mechanical and Aerospace Engineering M287.) Lecture, four hours; outside study, eight hours. Enforced requisite: course CM250A. Introduction to fundamentals of nanoscale science and technology. Basic physical principles, quantum mechanics, chemical bonding and nanostructures, top-down and bottom-up (self-assembly) nanofabrication; nanocharacterization; nanomaterials, nanoelectronics, and nanobiodection technology. Introduction to new knowledge and techniques in nano areas to understand scientific principles behind nanotechnology and inspire students to create new ideas in multidisciplinary nano areas. Letter grading.

260A. Advanced Engineering Electrodynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 101B, 162A. Advanced treatment of concepts in electrodynamics and their applications to modern engineering problems. Vector calculus in generalized coordinate system. Solutions of wave equation and special functions. Reflection, transmission, and polarization. Vector potential, duality, reciprocity, and equivalence theorems. Scattering from cylinder, half-plane, wedge, and sphere, including radar cross-section characterization. Green's functions in electromagnetics and dyadic calculus. Letter grading.

260B. Advanced Engineering Electrodynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 101B, 162A, 260A. Advanced treatment of concepts and numerical techniques in electrodynamics and their applications to modern engineering problems. Differential geometry of curves and surfaces. Geometrical optics and geometrical theory of diffraction. Physical optics techniques. Asymptotic techniques and uniform theories. Integral equations in electromagnetics. Numerical techniques based on method of moments. Letter grading.

261. Microwave and Millimeter Wave Circuits. (4) Lecture, four hours; outside study, eight hours. Requisite: course 163A. Rectangular and circular waveguides, microstrip, stripline, finline, and dielectric waveguide distributed circuits, with applications in microwave and millimeter wave integrated circuits. Substrate materials, surface wave phenomena. Ana-

lytical methods for discontinuity effects. Design of passive microwave and millimeter wave circuits. Letter grading.

262. Antenna Theory and Design. (4) Lecture, four hours; outside study, eight hours. Requisite: course 162A. Antenna patterns. Sum and difference patterns. Optimum designs for rectangular and circular apertures. Arbitrary side lobe topography. Discrete arrays. Mutual coupling. Design of feeding networks. Letter grading.

263. Reflector Antennas Synthesis, Analysis, and Measurement. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 260A, 260B. Reflector pattern analysis techniques. Single and multi-reflector antenna configurations. Reflector synthesis techniques. Reflector feeds. Reflector tolerance studies, including systematic and random errors. Array-fed reflector antennas. Near-field measurement techniques. Compact range concepts. Microwave diagnostic techniques. Modern satellite and ground antenna applications. Letter grading.

266. Computational Methods for Electromagnetics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 162A, 163A. Computational techniques for partial differential and integral equations: finite-difference, finite-element, method of moments. Applications include transmission lines, resonators, integrated circuits, solid-state device modeling, electromagnetic scattering, and antennas. Letter grading.

270. Applied Quantum Mechanics. (4) Lecture, four hours; outside study, eight hours. Preparation: modern physics (or course 123A), linear algebra, and ordinary differential equations courses. Principles of quantum mechanics for applications in lasers, solid-state physics, and nonlinear optics. Topics include eigenfunction expansions, observables, Schrödinger equation, uncertainty principle, central force problems, Hilbert spaces, WKB approximation, matrix mechanics, density matrix formalism, and radiation theory. Letter grading.

271. Classical Laser Theory. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 170A. Microscopic and macroscopic laser phenomena and propagation of optical pulses using classical formalism. Letter grading.

272. Dynamics of Lasers. (4) Lecture, four hours; outside study, eight hours. Requisite: course 271. Ultrashort laser pulse characteristics, generation, and measurement. Gain switching, Q switching, cavity dumping, active and passive mode locking. Pulse compression and soliton pulse formation. Nonlinear pulse generation: soliton laser, additive-pulse mode locking, and parametric oscillators. Pulse measurement techniques. Letter grading.

273. Nonlinear Photonics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 170A. Recommended: course 271. Nonlinear optical susceptibilities. Coupled-wave and coupled-mode theories. Crystal optics, electro-optics, and magneto-optics. Nonlinear optical interactions, sum- and difference-frequency generation, harmonic and parametric generation, stimulated Raman and Brillouin scattering, field-induced index changes and self-phase modulation. Nonlinear photonic devices. Nonlinear guided-wave photonics and devices. Letter grading.

274. Fiber Optic System Design. (4) Lecture, three hours; outside study, nine hours. Requisites: courses 173D and/or 174. Top-down introduction to physical layer design in fiber optic communication systems, including Telecom, Datacom, and CATV. Fundamentals of digital and analog optical communication systems, fiber transmission characteristics, and optical modulation techniques, including direct and external modulation and computer-aided design. Architectural-level design of fiber optic transceiver circuits, including preamplifier, quantizer, clock and data recovery, laser driver, and predistortion circuits. Letter grading.

279AS. Special Topics in Physical and Wave Electronics. (4) Lecture, four hours; outside study, eight hours. Special topics in one or more aspects of physical and wave electronics, such as electromagnetics, microwave and millimeter wave circuits, photonics and optoelectronics, plasma electronics, microelec-

tromechanical systems, solid state, and nanotechnology. May be repeated for credit with topic change. S/U or letter grading.

279BS. Seminar: Physical and Wave Electronics. (2 to 4) Seminar, two to four hours; outside study, four to eight hours. Seminars and discussions on current and advanced topics in one or more aspects of physical and wave electronics, such as electromagnetics, microwave and millimeter wave circuits, photonics and optoelectronics, plasma electronics, microelectromechanical systems, solid state, and nanotechnology. May be repeated for credit with topic change. S/U grading.

279CS. Clean Green IGERT Brown-Bag Seminar. (1) Seminar, one hour. Required of students in Clean Energy for Green Industry (IGERT) Research. Literature seminar presented by graduate students and experts from around country who conduct research in energy harvest, storage, and conservation. S/U grading.

CM282. Science, Technology, and Public Policy. (4) (Same as Public Policy CM282.) Lecture, three hours. Recent and continuing advances in science and technology are raising profoundly important public policy issues. Consideration of selection of critical policy issues, each of which has substantial ethical, social, economic, political, scientific, and technological aspects. Concurrently scheduled with course CM182. Letter grading.

285A. Plasma Waves and Instabilities. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 101A, and M185 or Physics M122. Wave phenomena in plasmas described by macroscopic fluid equations. Microwave propagation, plasma oscillations, ion acoustic waves, cyclotron waves, hydromagnetic waves, drift waves. Rayleigh/Taylor, Kelvin/Helmholtz, universal, and streaming instabilities. Application to experiments in fully and partially ionized gases. Letter grading.

285B. Advanced Plasma Waves and Instabilities. (4) Lecture, four hours; outside study, eight hours. Requisites: courses M185, and 285A or Physics 222A. Interaction of intense electromagnetic waves with plasmas: waves in inhomogeneous and bounded plasmas, nonlinear wave coupling and damping, parametric instabilities, anomalous resistivity, shock waves, echoes, laser heating. Emphasis on experimental considerations and techniques. Letter grading.

M287. Fusion Plasma Physics and Analysis. (4) (Same as Mechanical and Aerospace Engineering M237B.) Lecture, four hours; outside study, eight hours. Fundamentals of plasmas at thermonuclear burning conditions. Fokker/Planck equation and applications to heating by neutral beams, RF, and fusion reaction products. Bremsstrahlung, synchrotron, and atomic radiation processes. Plasma surface interactions. Fluid description of burning plasma. Dynamics, stability, and control. Applications in tokamaks, tandem mirrors, and alternate concepts. Letter grading.

293. Intellectual Property for Technology Entrepreneurs and Managers. (2) Seminar, two hours; outside study, four hours. Introduction to intellectual property (IP) in context of technology products and markets. Topics include best practices to put in place before product development starts, how to develop high-value patent portfolios, patent licensing, offensive and defensive IP litigation considerations, trade secrets, opportunities and pitfalls of open source software, trademarks, managing copyright in increasingly complex content ecosystems, and adopting IP strategies to globalized marketplaces. Includes case studies inspired by complex IP questions facing technology companies today. S/U or letter grading.

295. Academic Technical Writing for Electrical Engineers. (3) Seminar, three hours. Designed for electrical engineering PhD students who have completed preliminary examinations. Students read models of good writing and learn to make rhetorical observations and writing decisions, improve their academic and technical writing skills by writing and revising conference and journal papers, and practice writing for and speaking to various audiences, including po-

tential students, engineers outside their specific fields, and nonengineers (colleagues outside field, policymakers, etc.). Students write in variety of genres, all related to their professional development as electrical engineers. Emphasis on writing as vital way to communicate precise technical and professional information in distinct contexts, directly resulting in specific outcomes. S/U grading.

296. Seminar: Research Topics in Electrical Engineering. (2) Seminar, two hours; outside study, four hours. Advanced study and analysis of current topics in electrical engineering. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

297. Seminar Series: Electrical Engineering. (1) Seminar, 90 minutes; outside study, 90 minutes. Limited to graduate electrical engineering students. Weekly seminars and discussion by invited speakers on research topics of heightened interest. S/U grading.

298. Seminar: Engineering. (2 to 4) Seminar, to be arranged. Limited to graduate electrical engineering students. Seminars may be organized in advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change. S/U or letter grading.

299. MS Project Seminar. (4) Seminar, to be arranged. Required of all MS students not in thesis option. Supervised research in small groups or individually under guidance of faculty mentor. Regular meetings, culminating report, and presentation required. Individual contract required; enrollment petitions available in Office of Graduate Student Affairs. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

475C. Manufacturing Systems. (4) Lecture, four hours; outside study, eight hours. Modeling and analysis of manufacturing systems. Assembly and transfer lines. Facility layout and design. Group technology and flexible manufacturing systems. Planning and scheduling. Task management, machine setup, and operation sequencing. Manufacturing system models. Manufacturing information systems. Social, economic, environmental, and regulatory issues. Letter grading.

495. Teaching Assistant Training Seminar. (1) Seminar, one hour; outside study, two hours. Limited to graduate electrical engineering students. Required of all departmental teaching assistants (TAs). May be taken concurrently while holding TA appointment. Seminar on departmental TA expectations, responsibilities, basic assignments, ethics, ABET reporting, online resources, and electrical engineering web. S/U grading.

596. Directed Individual or Tutorial Studies. (2 to 8) Tutorial, to be arranged. Limited to graduate electrical engineering students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

597A. Preparation for MS Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate electrical engineering students. Reading and preparation for MS comprehensive examination. S/U grading.

597B. Preparation for PhD Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate electrical engineering students. S/U grading.

597C. Preparation for PhD Oral Qualifying Examination. (2 to 16) Tutorial, to be arranged. Limited to graduate electrical engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

598. Research for and Preparation of MS Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate electrical engineering students. Supervised independent research for MS candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of PhD Dissertation. (2 to 16) Tutorial, to be arranged. Limited to graduate electrical engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

EMERGENCY MEDICINE

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Chair

David L. Schriger, MD, MPH, *Interim Chair*

Scope and Objectives

The Department of Emergency Medicine focuses on the teaching and management of time-sensitive training situations. A three-week subinternship rotation is offered to fourth-year medical students. The residency program is a full four years.

For further details on the Department of Emergency Medicine and a listing of the courses offered, see <http://www.emergencymedicine.ucla.edu>.

ENGINEERING SCHOOLWIDE PROGRAMS

Henry Samueli School of Engineering and Applied Science

UCLA
6426 Boelter Hall
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Los Angeles, CA 90095-1601
310-825-9580
<http://engineer.ucla.edu>

Professors Emeriti

Allen B. Rosenstein, PhD
Bonham Spence-Campbell, EE

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Henry Samueli School of Engineering and Applied Science offers the Master of Engineering (MEngr) degree (through the Engineering Executive Program), Master of Science (MS) online degree in Engineering, and Engineer (Engr) degree as schoolwide degrees. The following area-specific online degrees have also been established: MS in Engineering—Aerospace, MS in Engineering—Computer Networking, MS in Engineering—Electrical, MS in Engineering—Electronic Materials, MS in Engineering—Integrated Circuits, MS in Engineering—Manufacturing and Design, MS in Engineering—Materials Science, MS in Engineering—Mechanical, MS in Engineering—Signal Processing and Communication, and MS in Engineering—Structural Materials.

A certificate of specialization is available in all areas of specialization, except computer science.

Engineering

Lower Division Courses

10A. Introduction to Complex Systems Science. (5) Lecture, four hours; outside study, eight hours. How macroscopic patterns emerge dynamically from local interactions of large number of interdependent (often heterogeneous) entities, without global design or central control. Such emergent order, whose explanation cannot be reduced to explanations at level of individual entities, is ubiquitous in biology and human social collectives, but also exists in certain physical processes such as earthquakes and some chemical reactions. Complexity also deals with how such systems undergo sudden changes, including catastrophic breakdowns, in absence of external force or central influence. Key aspect of biological and social collectives is their nature as complex adaptive systems, where individuals and groups adjust their behavior to external conditions. In biological and social systems, complexity science goes beyond traditional mathematics and statistics in its use of multiagent computational models that better capture these complex, adaptive, and self-organizing phenomena. Letter grading.

20. First-Year Engineering Transition Bridge. (2) Seminar, 32 hours. Designed primarily for new students to help them understand UCLA, its culture, structure, and academic policies and to facilitate their transition from high school to college. Examination of research on first-year experience of college students, studying at UCLA versus high school, policies and procedures, and campus resources. Advanced preparation and early exposure to fall quarter mathematics, chemistry, and computer science curricula. Collaborative learning techniques and community-building activities are integral processes to both day and evening programs. Intensive classroom instruction and collaborative learning workshops. Offered in summer only. P/NP grading.

21. Computing Immersion Summer Experience. (2) Seminar, 32 hours. Designed primarily for new students to help them understand UCLA, its culture, structure, and academic policies and to facilitate their transition from high school to college. Examination of research on first-year experience of college students, studying at UCLA versus high school, policies and procedures, and campus resources. Designed to immerse incoming computing students in foundation concepts and principles of computer science, with focus on fundamental computer programming principles, methodologies, and techniques. Basic concepts of programming and C++ computing language. Offered in summer only. P/NP grading.

22. Summer Bridge Review for Enhancing Engineering Students. (2) Seminar, 32 hours. Designed primarily for new students to help them understand UCLA, its culture, structure, and academic policies and to facilitate their transition from high school to college. Examination of research on first-year experience of college students, studying at UCLA versus high school, policies and procedures, and campus resources. Intensive introduction of advanced topics covered in upper division engineering courses. Offered in summer only. P/NP grading.

87. Introduction to Engineering Disciplines. (4) Lecture, four hours; discussion, four hours; outside study, four hours. Introduction to engineering as professional opportunity for freshman students by exploring difference between engineering disciplines and functions engineers perform. Development of skills and techniques for academic excellence through team process. Investigation of national need underlying current effort to increase participation of historically underrepresented groups in U.S. technological work force. Letter grading.

95. Internship Studies in Engineering. (2 to 4) Tutorial, two to four hours. Limited to freshmen/sophomores. Internship studies course supervised by associate dean or designated faculty members. Further supervision to be provided by organization for which students are doing internship. Students may be required to meet on regular basis with instructor and provide periodic reports of their experience. May not be applied toward major requirements. May be repeated for credit. Individual contract with associate dean required. P/NP grading.

96A. Introduction to Engineering Design. (2) (Formerly numbered 96.) Lecture, one hour; laboratory, one hour; outside study, four hours. Introduction to engineering design while building teamwork and communication skills and examination of engineering majors offered at UCLA and of engineering careers. Completion of hands-on engineering design projects, preparation of short report describing projects, and presentation of results. Specific project details and relevant majors explored vary with instructor. Letter grading.

96B. Introduction to Engineering Design: Digital Imaging. (2) Lecture, one hour; laboratory, one hour; outside study, four hours. Recommended for undergraduate Aerospace Engineering, Bioengineering, Computer Science, Electrical Engineering, and Mechanical Engineering majors. Introduction to engineering design while building teamwork and communication skills and examination of engineering majors offered at UCLA and of engineering careers. Hands-on experience with state-of-art solid-state imaging devices. How to focus, expose, record, and manipulate telescopic images. Development of photographic technology from early chemical experiments to wide spread use of cell phone camera. Completion of hands-on engineering design projects, preparation of short report describing projects, and presentation of results. Letter grading.

96C. Introduction to Engineering Design: Internet of Things. (2) Lecture, one hour; laboratory, one hour; outside study, four hours. Recommended for undergraduate Aerospace Engineering, Bioengineering, Computer Science, Electrical Engineering, and Mechanical Engineering majors. Introduction to engineering design while building teamwork and communication skills and examination of engineering majors offered at UCLA and of engineering careers. Hands-on experience with state-of-art Internet of things (IoT) technology to offer students opportunity to rapidly develop innovative and inspiring systems that provide ideal introduction to computing systems and IoT applications specific to their major field. IoT technology has become one of most important advances in technology history with applications ranging from wearable devices for healthcare to residential monitoring systems, natural resource protection and management, intelligent vehicles and transportation systems, robotics systems, and energy conservation. Completion of hands-on engineering design projects, preparation of short report describing projects, and presentation of results. Letter grading.

Upper Division Courses

M101. Principles of Nanoscience and Nanotechnology. (4) (Same as Materials Science M105.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Chemistry 20A, 20B, Physics 1C. Introduction to underlying science encompassing structure, properties, and fabrication of technologically important nanoscale systems. New phenomena that emerge in very small systems (typically with feature sizes below few hundred nanometers) explained using basic concepts from physics and chemistry. Chemical, optical, and electronic properties, electron transport, structural stability, self-assembly, templated assembly and applications of various nanostructures such as quantum dots, nanoparticles, quantum wires, quantum wells and multilayers, carbon nanotubes. Letter grading.

102. Synthetic Biosystems and Nanosystems Design. (4) Lecture, four hours; outside study, eight hours. Requisites: course M101, Life Sciences 3. Introduction to current progress in engineering to integrate biosciences and nanosciences into synthetic systems, where biological components are reengineered and rewired to perform desirable functions in both intracellular and cell-free environments. Discussion of basic technologies and systems analysis that deal with dynamic behavior, noise, and uncertainties. Design project in which students are challenged to design novel biosystems and nanosystems for non-trivial task required. Letter grading.

M103. Environmental Nanotechnology: Implications and Applications. (4) (Same as Civil Engineering M165.) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisite: course M101. Introduction to potential implications of nanotechnology to environmental systems as well as potential application of nanotechnology to environmental protection. Technical contents include three multidisciplinary areas: (1) physical, chemical, and biological properties of nanomaterials, (2) transport, reactivity, and toxicity of nanoscale materials in natural environmental systems, and (3) use of nanotechnology for energy and water production, plus environmental protection, monitoring, and remediation. Letter grading.

110. Introduction to Technology Management and Economics for Engineers. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Fundamental principles of micro-level (individual, firm, and industry) and macro-level (government, international) economics as they relate to technology management. How individuals, firms, and governments impact successful commercialization of high technology products and services. Letter grading.

111. Introduction to Finance and Marketing for Engineers. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Critical components of finance and marketing research and practice as they impact management of technology commercialization. Internal (within firm) and external (in marketplace) marketing and financing of high-technology innovation. Concepts include present value, future value, discounted cash flow, internal rate of return, return on assets, return on equity, return on investment, interest rates, cost of capital, and product, price, positioning, and promotion. Use of market research, segmentation, and forecasting in management of technological innovation. Letter grading.

112. Laboratory to Market, Entrepreneurship for Engineers. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Critical components of entrepreneurship, finance, marketing, human resources, and accounting disciplines as they impact management of technology commercialization. Topics include intellectual property management, team building, market forecasting, and entrepreneurial finance. Students work in small teams studying technology management plans to bring new technologies to market. Students select from set of available technology concepts, many generated at UCLA, that are in need of plans for movement from laboratory to market. Letter grading.

113. Product Strategy. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Designed for juniors/seniors. Introduction to current management concept of product development. Topics include product strategy, product platform, and product lines; competitive strategy, vectors of differentiation, product pricing, first-to-market versus fast-follower; growth strategy, growth through acquisition, and new ventures; product portfolio management. Case studies, class projects, group discussions, and guest lectures by speakers from industry. Letter grading.

116. Statistics for Management Decisions. (4) Lecture, four hours; outside study, eight hours. Management as well as engineering decisions nearly always take place in environment characterized by uncertainty. Probability provides mathematical framework for understanding how to make rational decisions when outcomes of actions are uncertain. Application of probability to problem of reasoning from sample data, encompassing estimation, hypothesis testing, and regression analysis. Discussion of specific analytical techniques needed in later courses in program. Development of basic understanding of statistical analysis. Letter grading.

120. Entrepreneurship for Scientists and Engineers. (2) Seminar, two hours; outside study, four hours. Designed for seniors and graduate students. Identification of business opportunities and outline of basic requisites for viable business plans, followed by specific topics related to securing basic assets and resources needed to execute those plans. P/NP grading.

180. Engineering of Complex Systems. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Designed for junior/senior engineering majors. Holistic view of engineering discipline, covering life-cycle of engineering, processes, and techniques used in industry today. Multidisciplinary systems engineering perspective in which aspects of electrical, mechanical, material, and software engineering are incorporated. Three specific case studies in communication, sensor, and processing systems included to help students understand these concepts. Special attention paid to link material covered to engineering curriculum offered by UCLA to help students integrate and enhance their understanding of knowledge already acquired. Motivation of students to continue their learning and reinforce lifelong learning habits. Letter grading.

183EW. Engineering and Society. (4) Lecture, four hours; discussion, three hours; outside study, five hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 185EW. Limited to sophomore/junior/senior engineering students. Professional and ethical considerations in practice of engineering. Impact of technology on society and on development of moral and ethical values. Contemporary environmental, biological, legal, and other issues created by new technologies. Emphasis on research and writing within engineering environments. Writing and revision of about 20 pages total, including two individual technical essays and one team-written research report. Readings address technical issues and writing form. Satisfies engineering writing requirement. Letter grading.

185EW. Art of Engineering Endeavors. (4) Lecture, four hours; discussion, three hours; outside study, five hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 183EW. Designed for junior/senior engineering students. Non-technical skills and experiences necessary for engineering career success. Importance of group dynamics in engineering practice. Teamwork and effective group skills in engineering environments. Organization and control of multidisciplinary complex engineering projects. Forms of leadership and qualities and characteristics of effective leaders. How engineering, computer sciences, and technology relate to major ethical and social issues. Societal demands

on practice of engineering. Emphasis on research and writing in engineering environments. Satisfies engineering writing requirement. Letter grading.

188. Special Courses in Engineering. (4) Seminar, four hours; outside study, eight hours. Special topics in engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated for credit with topic or instructor change. Letter grading.

192. Fundamentals of Engineering Mentorship. (2) Seminar, two hours; outside study, four hours. Principles and practical techniques for instruction of hands-on engineering design projects in high school outreach programs. Curriculum planning, project preparation, classroom management, team collaboration, diversity awareness, fostering of group cohesion, and emergency procedures. Preparation of lessons and project for summer outreach program, with practice presentations. P/NP grading.

195. Internship Studies in Engineering. (2 to 4) Tutorial, two to four hours. Limited to juniors/seniors. Internship studies course supervised by associate dean or designated faculty members. Further supervision to be provided by organization for which students are doing internship. Students may be required to meet on regular basis with instructor and provide periodic reports of their experience. May not be applied toward major requirements. May be repeated for credit. Individual contract with associate dean required. P/NP grading.

199. Directed Research in Engineering. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

Graduate Courses

200. Program Management Principles for Engineers and Professionals. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Practical review of necessary processes and procedures to successfully manage technology programs. Review of fundamentals of program planning, organizational structure, implementation, and performance tracking methods to provide program manager with necessary information to support decision-making process that provides high-quality products on time and within budget. Letter grading.

201. Systems Engineering. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Practical review of major elements of system engineering process. Coverage of key elements: system requirements and flow down, product development cycle, functional analysis, system synthesis and trade studies, budget allocations, risk management metrics, review and audit activities and documentation. Letter grading.

202. Reliability, Maintainability, and Supportability. (4) Lecture, four hours; outside study, eight hours. Requisite: course 201. Designed for graduate students with one to two years work experience. Integrated logistic support (ILS) is major driver of system life-cycle cost and one key element of system engineering activities. Overview of engineering disciplines critical to this function—reliability, maintainability, and supportability—and their relationships, taught using probability theory. Topics also include fault detections and isolations and parts obsolescence. Discussion of 6-sigma process, one effective design and manufacturing methodology, to ensure system reliability, maintainability, and supportability. Letter grading.

203. System Architecture. (4) Lecture, four hours; outside study, eight hours. Requisite: course 201. Designed for graduate students with BS degrees in engineering or science and one to two years work experience in selected domain. Art and science of architecting. Introduction to architecting methodology—paradigm and tools. Principles of architecting through analysis of architecture designs of major existing sys-

tems. Discussion of selected elements of architectural practices, such as representation models, design progression, and architecture frameworks. Examination of professionalization of system architecting. Letter grading.

204. Trusted Systems Engineering. (4) Lecture, four hours; outside study, eight hours. Trust is placed in information systems to behave properly, but cyber threats and breaches have become routine, including penetration of financial, medical, government, and national security systems. To build systems that can protect confidentiality, integrity, and availability involves more than composing systems from network security, computer security, data security, cryptography, etc. One can use most secure components, and resulting system could still be vulnerable. Skills learned ensure that systems are architected, designed, implemented, tested, and operated for specific levels of trust. Aspects include assessing vulnerability and risk for systems, establishing protection principles, and using them as guide to formulate system architectures; translating architecture into system design and verifying correctness of design; and constructing and following trusted development and implementation process. Letter grading.

205. Model-Based Systems Engineering. (4) Lecture, four hours; outside study, eight hours. Model-based systems engineering (MBSE) and systems modeling language (SysML) taught through lectures and readings, individual projects, and one group project. Lectures and readings to provide students with conceptual framework and vocabulary. Individual projects enable students to develop basic skills for creating SysML requirements and structural and behavioral diagrams. In group project students learn how to package, compartmentalize, and integrate smaller efforts while being constrained to meet schedules. Industry-recognized credentials may be obtained, as course covers Object Management Group (OMG) Certified Systems Modeling Professional (OCSMP) tests, such as Model User and Model Builder Fundamentals and Model Builder Intermediate. Letter grading.

206. Engineering for Systems Assurance. (4) Lecture, four hours; outside study, eight hours. Recommended requisites: course 204, Computer Science 236. Systems are constructed to perform complex functions and services. How to understand needs of users, analysis of requirements and derived requirements, creation of various system architecture products, and design and integration of various components into systems that perform these functions and services. System assurance addresses confidence that systems meet specified operational requirements based on evidence provided by applying assurance techniques. Introduction, investigation, and analysis of framework of assurance to accomplish total system assurance. Development of secure, reliable, and dependable systems that range from commercial realm such as air traffic control, Supervisory Control and Data Acquisition (SCADA), and autonomous vehicles to military realm such as command, control, communication, intelligence, and cyber. Letter grading.

210. Operations and Supply Chain Management. (4) Lecture, four hours; outside study, eight hours. Introduction to strategic and operating issues and decisions involved in managing enterprises. Operational processes use organization's resources to transform inputs into goods and utilizes them to provide service, or does both. Conceptual framework and set of analytical tools provided to enable students to better understand why processes behave as they do. Given this understanding, students are able to involve themselves in organization's defining strategic decisions, those related to key processes affecting organizational unit's performance. Letter grading.

211. Financial Management. (4) Lecture, four hours; outside study, eight hours. Introduction to concepts reflecting material generally covered in certain MBA core and elective courses. Integration of both theory—to introduce essential conceptual building blocks in accounting and finance—and empirical practice—to emphasize how these theories are actu-

ally implemented in real world. Cases, comprehensive problems, and recent events presented to provide students with as much hands-on experience in applying material presented as possible. Letter grading.

212. Intellectual Property Law and Strategy. (4) Lecture, four hours; outside study, eight hours. Prior knowledge of legal doctrines or materials not required. Intellectual property law is not just topic for lawyers. Engineers who have design responsibilities must understand how legal system in some instances protects their designs and in other instances stands as obstacle to what would otherwise be most efficient design choice. Engineers with management responsibilities must understand intellectual property law implications for everything from pricing to strategic partnerships. Examination of intellectual property law, not only by learning fundamental rules associated with patent, copyright, trademark, and trade secret protection, but by studying business strategies that these rules support. Examples and case studies to be taken from across content, technology, and pharmaceutical industries. Letter grading.

213. Data and Business Analytics. (4) Lecture, four hours; outside study, eight hours. Coverage of wide variety of spreadsheet models that can be used to solve business and engineering problems, with emphasis on mastery of Excel spreadsheet modeling as integral part of analytic decision making. Managerial models include data modeling, regression and forecasting, linear programming, network and distribution models, integer programming, nonlinear programming, and Monte Carlo simulation. Problems from operations, finance, and marketing taught by spreadsheet examples and describe general managerial situations from various industries and disciplines. Development of spreadsheet models to facilitate decision making. Letter grading.

214. Management Communication. (4) Lecture, four hours. Exploration of knowledge, attributes, skills, and strategies necessary to succeed communicatively in workplace, with focus on business presentation skills, visual and verbal persuasion skills, and interpersonal communication skills. Letter grading.

215. Entrepreneurship for Engineers. (4) Lecture, four hours; outside study, eight hours. Limited to graduate engineering students. Topics in starting and developing high-tech enterprises and intended for students who wish to complement their technical education with introduction to entrepreneurship. Letter grading.

299. Capstone Project. (4) Activity, 10 hours. Preparation: completion of minimum of four 200-level courses in online MS program. Project course that satisfies UCLA final comprehensive examination requirement of MS online degree in Engineering. Project is completed under individual guidance from UCLA Engineering faculty member and incorporates advanced knowledge learned in MS program of study. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

470A-470D. Engineer in Technical Environment. (3 each) Lecture, three hours; outside study, six hours. Limited to Engineering Executive Program students. Theory and application of quantitative methods in analysis and synthesis of engineering systems for purpose of making management decisions. Optimization of outputs with respect to dollar costs, time, material, energy, information, and manpower. Case studies and individual projects. S/U or letter grading.

471A-471B-471C. Engineer in General Environment. (3-3-1.5) Lecture, three hours (courses 471A, 471B) and 90 minutes (course 471C). Limited to Engineering Executive Program students. Influences of human relations, laws, social sciences, humanities, and fine arts on development and utilization of natural and human resources. Interaction of technology and

society past, present, and future. Change agents and resistance to change. S/U or letter (471A) grading; In Progress (471B) and S/U or letter (471C) grading.

472A-472D. Engineer in Business Environment. (3-3-1.5) Lecture, three hours (courses 472A, 472B, 472C) and 90 minutes (course 472D). Limited to Engineering Executive Program students. Language of business for engineering executive. Accounting, finance, business economics, business law, and marketing. Laboratory in organization and management problem solving. Analysis of actual business problems of firm, community, and nation, provided through cooperation and participation with California business corporations and government agencies. In Progress (472A, 472C) and S/U or letter grading (credit to be given on completion of courses 472B and 472D).

473A-473B. Analysis and Synthesis of Large-Scale System. (3-3) Lecture, two and one half hours; outside study, six hours. Limited to Engineering Executive Program students. Problem area of modern industry or government is selected as class project, and its solution is synthesized using quantitative tools and methods. Project also serves as laboratory in organization for goal-oriented technical group. In Progress (473A) and S/U (473B) grading.

495A. Teaching Assistant Training Seminar. (4) Seminar, four hours; outside study, eight hours. Preparation: appointment as teaching assistant. Limited to graduate engineering students. Seminar on communication of engineering principles, concepts, and methods, preparation, organization of material, presentation, use of visual aids, grading, advising, and rapport with students. S/U grading.

M495B. Supervised Teaching Preparation. (2) (Same as English Composition M495E.) Seminar, two hours; outside study, four hours. Required of all teaching assistants for Engineering writing courses not exempt by appropriate departmental or program training. Training and mentoring, with focus on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in engineering writing contexts. Practical concerns of preparing students to write course assignments, marking and grading essays, and conducting peer reviews and conferences. S/U grading.

M495C. Supervised Teaching Preparation. (2) (Same as English Composition M495F.) Seminar, one hour; outside study, five hours. Requisite: course M495B. Required of all teaching assistants in their initial term of teaching Engineering writing courses. Mentoring in group and individual meetings. Continued focus on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in engineering writing contexts. Practical concerns of preparing students to write course assignments, marking and grading essays, and conducting peer reviews and conferences. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

ENGLISH

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Carolyn See, PhD, *Emeritus*

Adjunct Associate Professors

Jeffrey L. Decker, PhD
Mitchum A. Huehls, PhD

Scope and Objectives

The Department of English is dedicated to the study of the literatures and cultures of those parts of the world in which English is a primary language. Although committed to no single method or approach, the department requires a knowledge of British, American, and Anglophone literary history and an engagement with a range of methodological approaches that foster intellectual curiosity and critical thinking and encourage its students to be not only expert readers and writers but engaged and ethical citizens.

An understanding and appreciation of literature can furnish lifelong rewards. In addition to offering students such personal benefits, the department seeks to foster critical analysis and lucid writing and to teach them to think about how language and representation function in the world. Such skills are essential to success in a variety of professions for which the major in English can provide excellent preparation, including law, administration, business, teaching, media, and entertainment.

Within the BA degree in English, qualified students may elect a concentration in creative writing. The department also offers a Bachelor of Arts degree in American Literature and Culture.

When selecting courses to fulfill requirements for the majors, students are expected to choose those that best reflect their own interests and simultaneously contribute toward a coherent program in literary studies.

A graduate program leading to the Master of Arts degree is available for students who wish to continue the study of literature at an ad-

vanced level. A parallel program continues to the PhD degree. Because the PhD program may require five years or more, it is intended only for qualified students who are seriously committed to advanced literary scholarship and, in some cases, to a career in college or university teaching.

Undergraduate Study

Students must have completed the Entry-Level Writing requirement before taking any courses in English (other than English Composition A or 2). For further information regarding Entry-Level Writing, see the Undergraduate Study section of this catalog.

The English Department offers a designated capstone program for English and American Literature and Culture majors. Students in both majors have the option of completing a capstone seminar or other culminating work that enables them to use knowledge and skills acquired through previous coursework to engage, under the guidance of a faculty member, in literary research or other creative projects that result in a final paper or other product.

Extra-Departmental Requirement in Foreign Literature or Foreign Language

All English majors must have completed either (1) level five or equivalent in any one foreign language or (2) level three or equivalent in one foreign language and two additional courses in foreign language or foreign literature, including foreign literature in translation (see course listings under Foreign Literature in Translation later in this section). Transfer students who have satisfied the College of Letters and Science foreign language requirement at the high school level through the IGETC program may satisfy the departmental requirement with five foreign literature in translation courses. The courses may be taken on a P/NP grading basis.

English BA

Capstone Program

The Bachelor of Arts degree in English has an optional concentration in creative writing for students who have been admitted to and completed three creative writing workshops in a single genre of either poetry or short story. Students are expected to meet with the undergraduate counselors and undergraduate faculty adviser to plan and follow a course of study that incorporates their interests and goals with the fulfillment of requirements for the degree.

Preparation for the Major

Required: English Composition 3, English 4W or 4HW or 4WS, 10A, 10B, 10C taken in the stated sequence (each course is a requisite for the next course). A grade of C or better is required in each course.

Transfer Students

Transfer applicants to the English major with 90 or more units must complete the following introductory courses prior to admission to

UCLA: one English composition course, one English critical reading and writing course, one year of English literature survey courses, and two years of one foreign language or a combination of foreign language and foreign literature courses.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Ten 4- or 5-unit upper division English courses, including (1) four historical period courses, one from each of the following four periods: (a) *literatures in English to 1500*—course 140A through 148 or indicated sections of 149, (b) *literatures in English, 1500 to 1700*—course 150A through 157, indicated sections of 159 or 159R or 166A, (c) *literatures in English, 1700 to 1850*—course 160A through 165C, 166B through 168, 176, or indicated sections of 169 or 169R, and (d) *literatures in English, 1850 to present*—course M101B, M101C, M102A, M102B, M104A through M104D, M105B through M105E, 116B, 130, 131, 164B, 164C, 164D, 167A, 167B, 168, 170A through 174C, 176, 179, or 179R; (2) three breadth courses, one from each of three of the following four areas: (a) *gender, race, ethnicity, disability, and sexuality studies*—English 100 through 109, M126, 135, 155, 163C, 165B, 166C, or indicated sections of 119, 139, 149, 159, 159R, 169, 169R, 179, or 179R, (b) *imperial, transnational, and postcolonial studies*—course M105A through M105D, 112D, 128, 130 through 135, 154, 157, 163B, 164D, 165A, 166A, 166B, 176, or indicated sections of 149, 159, 159R, 169, 169R, 179, or 179R, (c) *genre studies, interdisciplinary studies, critical theory*—course 111A through 129, 144, 146, 147, 153, 156, 161A, 161B, 161C, 163A, 163C, 164A through 164D, 167A, 167B, 171A through 177, or indicated sections of 149, 159, 159R, 169, 169R, 179, or 179R, and (d) *creative writing*—courses 136, 137, 138; (3) two elective courses (two sections of English 110B may fulfill one elective; English 195CE is not applicable); (4) one seminar from course 180 through 184, or M191A through M191E. Admission to creative writing workshops (courses 136, 137, 138) is by application only. Each course applied toward requirements for the major must be 4 or 5 units and be taken for a letter grade.

Creative Writing Concentration

The creative writing concentration consists of the same requirements as the major, with the exception that one breadth course must be taken from the creative writing area (English 136, 137), and both electives must be creative writing workshops (courses 136, 137). All other requirements remain the same. English 138 cannot satisfy any breadth or workshop requirements in the concentration and may only be applied toward the basic English major. Students may declare creative writing as a concentration only after they have completed three creative writing workshops in a single genre of either poetry or short story. Students may not enroll in more than one workshop

(course 136, 137, or 138) per term or in more than two workshops with the same instructor. No student may take for credit more than three poetry or short story workshops. Students planning to select this program should contact the departmental counselor for further details.

American Literature and Culture BA

Capstone Program

Students are expected to meet with the undergraduate counselors and undergraduate faculty adviser to plan and follow a course of study that incorporates their interests and goals with the fulfillment of requirements for the degree.

Preparation for the Major

Required: English Composition 3, English 4W or 4HW or 4WS, 10A, 10B, 10C taken in the stated sequence (each course is a requisite for the next course). A grade of C or better is required in each course.

Transfer Students

Transfer applicants to the American Literature and Culture major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one English composition course, one English critical reading and writing course, one year of English literature survey courses, and two years of one foreign language or a combination of foreign language and foreign literature courses.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Ten 4- or 5-unit upper division courses, including five in American literature selected from English 166A through 167B, 170A, 170B, 170C, 172C through 177 (or when treating American topics, 169, 169R, 179, or 179R), two of which must be devoted to literature written before 1900 (courses 166A through 167B, 170A, and M104A, 175, 176, 177 when treating a pre-1900 topic); one seminar from M105SL, 183A, 183B, 183C, M191A, M191B, M191C, or when treating American topics, 180, 181A, 181B, 182E, 182F, 184, M191D, M191E; two American gender, race, ethnicity, disability, and sexuality courses from M102A, M102B, M104A through 106 (also 100, M101B, M101C, M101D, M103, M107A, M107B, 108, 109 when treating American topics or figures); and two courses from 100 through 199 (two sections of English 110B may fulfill one elective; English 195CE is not applicable) or from courses pertaining to American culture offered by other departments (of those courses applied toward the major from outside the Department of English, both must usually come from one department or program and appear on a list of approved courses for the major). Each course applied toward requirements for the major must be at least 4 units and be taken for a letter grade.

Honors Program

Admission

The honors program is open to departmental majors with a 3.5 departmental and a 3.25 overall grade-point average. Students with lower GPAs may petition for admission to the program, but these grade-point averages must be achieved before graduation in order to qualify for honors. Students should apply by winter quarter of the junior year. For application forms and further information, contact the departmental counselor.

Requirements

All honors students are required to take one theory course from English 120 through 128 (may fulfill one of three required breadth courses) no later than winter quarter of the junior year. Students in the creative writing concentration are required to have completed or been accepted into their third workshop in a single genre prior to or concurrent with enrollment in course 191H. In spring quarter of the junior year, students must take course 191H (may fulfill one of two electives for the major). During fall and winter quarters of the senior year, they take courses 198A and 198B, in which they write a thesis under the direction of a faculty member (198B may fulfill the second of two electives for the major). The thesis determines whether they receive highest honors, honors, or no honors.

English Minor

The English minor is designed for students who wish to enhance their major program with the benefits of intensive study of English language and literatures, including a better understanding and appreciation of literatures in English and improvement in critical thinking, reading, and writing skills.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed English 10A with a grade of C or better, and have satisfied the English Composition 3 requirement and completed English 4W. Students must file a petition to declare the minor by meeting with a student affairs officer in the Undergraduate Counseling Office, 158/160 Humanities Building, 310-825-1389. For more information, see <http://www.english.ucla.edu/academics/undergraduate-/programs-a-courses-/657-litandenvironment>.

Required Lower Division Courses (10 units): English 10B and 10C, with grades of C or better.

Required Upper Division Courses (25 units): Five courses selected from English 100 through M191E, including one course in literatures in English written before 1700 (see course lists 1a and 1b under English BA, The Major, above) and one other course in literatures in English written before 1850 (see course lists 1a, 1b, and 1c under English BA, The Major, above).

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor. At least 15 upper division units applied

toward the minor must be taken in residence during the regular academic year (excluding Summer Sessions) at UCLA. Transfer credit is subject to department approval; consult the undergraduate counselors before enrolling in any courses for the minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Literature and Environment Minor

The Literature and Environment minor provides both a solid foundation for literary interpretation and a superstructure that integrates those skills and perspectives with the questions about the past, present, and future of the biosphere. It is designed for undergraduate students who wish to enhance their major program with intensive study of literature in its relationship to the natural environment, while improving their skills in reading, writing, creative and critical thinking, and analysis of complex situations in an ethical frame. The minor examines how different cultural forms (for example, fiction, journalism, poetry, film, design, and other arts) represent environmental issues, including biodiversity, animal studies, wilderness, food, urban ecologies, postcolonial ecologies, environmental justice, and climate change.

To enter the minor, students must be in good academic standing with an overall grade-point average of 2.0 or better and have completed English 10A with a grade of C or better. Students must file a petition to declare the minor by meeting with a student affairs officer in the Undergraduate Counseling Office, 158/160 Humanities Building, 310-825-1389. For more information, see <http://www.english.ucla.edu/academics/undergraduate-/programs-a-courses-/657-litandenvironment>.

Required Lower Division Courses (10 units): English 10B and M30 (or M30SL), with grades of C or better.

Required Upper Division Courses (20 to 23 units): (1) English 118E and either course M118F or one additional 118E course on a different topic or one other English course that has a primary focus on environmental issues to be selected from a list available in the Undergraduate Counseling Office prior to the opening of enrollment each term (students may petition to substitute other courses), (2) one course selected from American Indian Studies C178, Anthropology M125A, 133F, 158, 171, Art History 133D, 133E, C145A, Chicana and Chicano Studies M144, M183, Honors Collegium 141, 174, Italian 124, Public Policy C115, Russian 122, Urban Planning 120, or 121, (3) one course selected from Atmospheric and Oceanic Sciences 141, Earth, Planetary, and Space Sciences 101, Ecology and Evolutionary Biology 116, M131, 154, 176, Environment M109, M111, M130, M132, M133, M134, M137, 150, M153, 157, 159, M161, 163, M164, 166, M167, or Environmental Health Sciences

100, (4) one course selected from English 184, 195CE, 197, 198A, 198B, or 199 that culminates in a project focused primarily on literature from an ecocritical or other environmentally focused perspective.

Students may petition to substitute an internship course/independent study/directed research course (195CE, 197, 198, or 199) for an elective course as long as it is clearly and predominantly relevant to the topics covered in the minor and falls within the discipline of the requirement for which it serves as a substitute. No more than one upper division independent study/directed research course (4 or 5 units) may be applied toward the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of English offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in English.

English

Lower Division Courses

4HW. Critical Reading and Writing (Honors). (5) Lecture, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Introduction to literary analysis, with close reading and carefully written exposition of selections from principal modes of literature: poetry, prose fiction, and drama. Minimum of four papers (three to five pages each) and two in-class essays. Satisfies Writing II requirement. Letter grading.

4W. Critical Reading and Writing. (5) Lecture, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Introduction to literary analysis, with close reading and carefully written exposition of selections from principal modes of literature: poetry, prose fiction, and drama. Minimum of 15 to 20 pages of revised writing. Satisfies Writing II requirement. Letter grading.

4WS. Critical Reading and Writing (Service Learning). (5) Lecture, four hours; fieldwork, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Introduction to literary analysis, with close reading and carefully written exposition of selections from principal modes of literature: poetry, prose fiction, and drama. Minimum of 15 to 20 pages of revised writing. Service learning component includes meaningful work with off-campus agency selected by instructor. Satisfies Writing II requirement. Letter grading.

10A. Literatures in English to 1700. (5) Lecture, three hours; discussion, one hour. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW. Survey of major writers and genres, with emphasis on tools for literary analysis such as close reading, argumentation, historical and social context, and critical writing. Minimum of three papers (three to five pages each) or equivalent required. P/NP or letter grading.

10B. Literatures in English, 1700 to 1850. (5) Lecture, three hours; discussion, one hour. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW, 10A. Survey of major writers and genres, with emphasis on tools for literary analysis such as close reading, argumentation, historical and social context, and critical writing. Minimum of three papers (three to five pages each) or equivalent required. P/NP or letter grading.

10C. Literatures in English, 1850 to Present. (5) Lecture, three hours; discussion, one hour. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW, 10A, 10B. Survey of major writers and genres, with emphasis on tools for literary analysis such as close reading, argumentation, historical and social context, and critical writing. Minimum of three papers (three to five pages each) or equivalent required. P/NP or letter grading.

20. Introduction to Creative Writing. (4) Lecture, four hours; discussion, one hour (when scheduled). Preparation: submission of creative or expository writing samples to screening committee. Enforced requisites: satisfaction of Entry-Level Writing requirement, English Composition 3. Not open for credit to students with credit for course 20W. Designed to introduce fundamentals of creative writing. Emphasis either on poetry, fiction, or drama, depending on wishes of instructor(s) during any given term. Readings from assigned texts and weekly writing assignments required. P/NP or letter grading.

20W. Introduction to Creative Writing. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: satisfaction of Entry-Level Writing requirement, English Composition 3. Not open for credit to students with credit for course 20. Designed to introduce fundamentals of creative writing and writing workshop experience. Emphasis on poetry, fiction, drama, or creative nonfiction depending on wishes of instructor(s) during any given term. Readings from assigned texts, weekly writing assignments (multiple drafts and revisions), and final portfolio required. Satisfies Writing II requirement. Letter grading.

M30. Introduction to Environmental Humanities. (5) (Same as Environment M30.) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Introduction to core themes, questions, and methods within interdisciplinary field of environmental humanities. Examination of how different culture forms (e.g., fiction, journalism, poetry, visual art) represent environmental issues. Topics may include biodiversity, wilderness, food, urban ecologies, postcolonial ecologies, environmental justice, and climate change. P/NP or letter grading.

M30SL. Introduction to Environmental Humanities (Service Learning). (5) (Same as Environment M30SL.) Lecture, three hours; discussion, one hour; fieldwork, two hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Introduction to core themes, questions, and methods within interdisciplinary field of environmental humanities. Examination of how different culture forms (e.g., fiction, journalism, poetry, visual art) represent environmental issues. Topics may include biodiversity, wilderness, food, urban ecologies, postcolonial ecologies, environmental justice, and climate change. Service learning component includes meaningful work with off-campus agency/agencies selected by instructor. P/NP or letter grading.

M40. Structure of English Words. (5) (Same as Linguistics M10.) Lecture, four hours; discussion, one hour. Introduction to structure of English words of classical origin, including most common base forms

and rules by which alternate forms are derived. Students may expect to achieve substantial enrichment of their vocabulary while learning about etymology, semantic change, and abstract rules of English word formation. P/NP or letter grading.

M50. Introduction to Visual Culture. (5) (Same as Film and Television M50.) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Study of how visual media, including advertising, still and moving images, and narrative films, influence contemporary aesthetics, politics, and knowledge. P/NP or letter grading.

80. Major American Authors. (5) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to English majors or students with credit for any courses in 170 series. Introduction to chief American authors, with emphasis on poetry, nonnarrative prose, and short fiction of such writers as Poe, Dickinson, Emerson, Whitman, Twain, Frost, and Hemingway. P/NP or letter grading.

85. American Novel. (5) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to English majors or students with credit for any courses in 170 series. Development, with emphasis on form, of American novel from its beginning to present day. Includes works of such novelists as Hawthorne, Fitzgerald, Faulkner, Ellison, and Morrison. P/NP or letter grading.

88A-88Z. Lower Division Seminars: Special Topics in English. (5 each) Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading. **88A.** Medieval Literature; **88B.** Renaissance Literature; **88C.** 17th-Century Literature; **88D.** 18th-Century Literature; **88E.** Romantic Literature; **88F.** Victorian Literature; **88G.** 20th-Century British Literature; **88H.** Colonial American Literature; **88I.** 19th-Century American Literature; **88J.** 20th-Century American Literature; **88K.** History of English Language; **88L.** Folklore and Mythology; **88M.** Literature and Society; **88SL.** Service Learning. Seminar, three hours; fieldwork, three hours. Textual analysis, analytical discussion, and written assignments about works of literature that raise issues relevant to contemporary society. Service learning component includes minimum of 20 hours service with agency involved in issues of public advocacy and social justice.

90. Shakespeare. (5) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to English majors or students with credit for course 150A or 150B. Survey of Shakespeare's plays, including comedies, tragedies, and histories, selected to represent Shakespeare's breadth, artistic progress, and total dramatic achievement. P/NP or letter grading.

91A. Introduction to Poetry. (5) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Recommended for instructional credential candidates. Study of critical issues (metrics, diction, figurative language, symbolism, irony and ambiguity, form and structure) and aesthetic issues, including evaluative criteria, followed by close critical analysis of selection of representative poems. P/NP or letter grading.

91B. Introduction to Drama. (5) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Examination of representative plays; readings may range from Greek to modern drama. Emphasis on critical approaches to dramatic text; study of issues such as plot construction, characterization, special uses of language in drama, methods of evaluation. P/NP or letter grading.

91C. Introduction to Fiction. (5) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Introduction to prose narrative, its techniques and forms. Analysis of short and long narratives and of critical issues such as plot, characterization, setting, narrative voice, realistic and nonrealistic forms. P/NP or letter grading.

97H. Honors Research Seminar for Freshmen and Sophomores. (4) Seminar, three hours. Enforced requisites: English Composition 3, English 4W (or 4HW). Recommended for lower division students who desire familiarity with research methods in literary studies. Areas may include use of archives; locating, reading, and incorporating secondary criticism; critical and textual studies; history of books. Specific literatures vary with instructor. May not be repeated for credit. P/NP or letter grading.

Upper Division Courses

100. Introduction to Ethnic Studies. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Introduction to interdisciplinary study of race and ethnicity, with primary focus on literature. Through examination of institutions that form understanding of race—citizenship, nationalism, class, gender, and labor—interrogation of how we come to think of ourselves and others as having race, and effects of such racialized thinking. Course is not about any particular racial or ethnic group, but highlights creation of ethnic categories and their effects on cultural production. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M101A. Premodern Queer Literatures and Cultures. (5) (Same as Gender Studies M105A and Lesbian, Gay, Bisexual, and Transgender Studies M101A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of discrete period of queer literature from beginning to circa 1850. Works by such writers as Sappho, Plato, Marlowe, Shakespeare, and Thomas Gray may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M101B. Queer Literatures and Cultures, 1850 to 1970. (5) (Same as Gender Studies M105B and Lesbian, Gay, Bisexual, and Transgender Studies M101B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of discrete period of queer literature and culture from circa 1850 to 1970. Works by such authors as Walt Whitman, Radclyffe Hall, Gertrude Stein, Virginia Woolf, Langston Hughes, Tennessee Williams, Henry Blake Fuller, and James Baldwin may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M101C. Queer Literatures and Cultures after 1970. (5) (Same as Gender Studies M105C and Lesbian, Gay, Bisexual, and Transgender Studies M101C.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Examination of cultural production, specifically literature, produced by queers after Stonewall rebellion in New York in 1969, widely regarded as origins or beginning of modern lesbian and gay rights movement in U.S. Writings and films by such authors as Andrew Holleran, Leslie Feinberg, Achy Obejas, Essex Hemphill, Audre Lorde, Cheryl Dunye, and Alison Bechdel may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M101D. Studies in Queer Literatures and Cultures. (5) (Same as Gender Studies M105D and Lesbian, Gay, Bisexual, and Transgender Studies M101D.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in queer literatures and cultures. Topics focus on particular problem or issue in terms of its relationship to queer cultures and writings. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M102A. Historical Survey of Asian American Literature. (5) (Same as Asian American Studies M112A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of Asian American literature either produced from or thematically reflecting pre-1980 period. Issues include immigration, diaspora, generational conflict, appropriation of cultural traditions,

ethnic/gender formation, interethnic dynamics, and social movement. Works by such authors as Edith Eaton, Younghill Kang, Carlos Bulosan, Hisaye Yamamoto, John Okada, Frank Chin, and Maxine Hong Kingston. P/NP or letter grading.

M102B. Contemporary Asian American Literary Issues and Criticism. (5) (Same as Asian American Studies M112B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of post-1980 Asian American literature that explores key literary and critical issues, such as race and geography, aesthetics and activism, cultural work and immigrant labor, kinship and sexuality, model minority and Orientalism, and meat versus rice, in study of novels, poetry, performance, memoirs, and essays. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M103. Studies in Disability Literatures. (5) (Same as Disability Studies M103.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of modes of disability in literature, with specific emphasis on thematic concerns. Topics may include introduction to disability studies; race, gender, and disability; disability narratives; etc. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M104A. Early African American Literature. (5) (Same as African American Studies M104A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introductory survey of African American literature from 18th century through World War I, including oral and written forms (folktales, spirituals, sermons; fiction, poetry, essays), by authors such as Phillis Wheatley, Frances Harper, Frederick Douglass, Harriet Jacobs, Charles Chesnutt, Booker T. Washington, and Pauline Hopkins. P/NP or letter grading.

M104B. African American Literature from Harlem Renaissance to 1960s. (5) (Same as African American Studies M104B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introductory survey of 20th-century African American literature from New Negro Movement of post-World War I period to 1960s, including oral materials (ballads, blues, speeches) and fiction, poetry, and essays by authors such as Jean Toomer, Claude McKay, Langston Hughes, Nella Larsen, Zora Neale Hurston, Richard Wright, Ann Petry, James Baldwin, Gwendolyn Brooks, and Ralph Ellison. P/NP or letter grading.

M104C. African American Literature of 1960s and 1970s. (5) (Same as African American Studies M104C.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introductory survey of African American literary expression from late 1950s through 1970s. Topics include rise of Black Arts Movement of 1960s and emergence of black women's writing in early 1970s, with focus on authors such as Lorraine Hansberry, Amiri Baraka, Nikki Giovanni, Alice Walker, Toni Morrison, Ishmael Reed, Audre Lorde, Paule Marshall, and Ernest Gaines. P/NP or letter grading.

M104D. Contemporary African American Literature. (5) (Same as African American Studies M104D.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introductory survey of African American literature from 1980s to present covering range of genres, with emphasis on diversity of perspectives and styles that have emerged over past 30 years or so. Authors may include Toni Morrison, August Wilson, Octavia Butler, Anna Deavere Smith, June Jordan, Charles Johnson, and Rita Dove. P/NP or letter grading.

M104E. Topics in African American Literature and Culture. (5) (Same as African American Studies M104E.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Variable topics lecture course that provides opportunity to cover African American literature from wide range of theoretical, historical, format, and thematic perspectives. Topics may include African American autobiography, 20th-century African

American literature and film, black diaspora literature, postmodern African American fiction, Afro-Futurism, and African American satire. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M105A. Early Chicana/Chicano Literature, 1400 to 1920. (5) (Same as Chicana and Chicano Studies M105A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of Chicana/Chicano literature from poetry of Triple Alliance and Aztec Empire through end of Mexican Revolution (1920), including oral and written forms (poetry, corridos, testimonios, folklore, novels, short stories, and drama) by writers such as Nezahualcoyotl (Hungry Coyote), Cabaza de Vaca, Lorenzo de Zavala, María Amparo Ruiz de Burton, Eusebio Chacón, Daniel Venegas, and Lorena Villegas de Magón. P/NP or letter grading.

M105B. Chicana/Chicano Literature from Mexican Revolution to el Movimiento, 1920 to 1970s. (5) (Same as Chicana and Chicano Studies M105B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Chicana/Chicano literature from 1920s through Great Depression and World War II, ending with Chicana/Chicano civil rights movement. Oral and written narratives by writers including Conrado Espinoza, Jovita González, Cleofas Jaramillo, Angelico Chávez, Mario Suárez, Oscar Acosta, and Evangelina Vigil. P/NP or letter grading.

M105C. Chicana/Chicano Literature since el Movimiento, 1970s to Present. (5) (Same as Chicana and Chicano Studies M105C.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of Chicana/Chicano literature since 1970s, with particular emphasis on how queer and feminist activism as well as Central and South American migration have shaped 21st-century chicanidad. Oral, written, and graphic fiction, poetry, and drama by writers including John Rechy, Gloria Anzaldúa, Los Bros Hernández, Ana Castillo, and Dagoberto Gil. Guide exploration of queer and feminist studies, Reagan generation, immigration debates, and emerging Latina/Latino majority. P/NP or letter grading.

M105D. Introduction to Latina/Latino Literature. (5) (Same as Chicana and Chicano Studies M105D.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of U.S. Latina/Latino literature and introduction to its major critical trends, with emphasis on groups of Caribbean, Mexican, South American, and Central American origin. Representative works read in relation to such topics as relationship between Latina/Latino populations and U.S. cultural sphere, struggle for self-determination, experiences of exile and migration, border zones, enclaves and language, and *mestizaje* and its impact on cultural production. P/NP or letter grading.

M105E. Studies in Chicana/Chicano and/or Latina/Latino Literature. (5) (Same as Chicana and Chicano Studies M105E.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Variable topics course to give students broad introduction to issues and themes in Chicana/Chicano and/or Latina/Latino literature. Topics include border, immigration, revolution, language, gender, sexuality, and diaspora, among others. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M105SL. Seminar: Chicana/Chicano and/or Latina/Latino Literature—Service Learning. (5) (Same as Chicana and Chicano Studies M105SL.) Seminar, three or four hours; field placement, three or four hours. Enforced requisite: English Composition 3 or 3H. Specialized studies in Chicana/Chicano and/or Latina/Latino literature. In-depth study of various topics related to Chicano/Latino communities in Southern California, including Chicana/Chicano visions of Los Angeles; immigration, migration, and exile; autobiography and historical change; Chicana/Chicano journalism; and labor and literature. Service learning component includes minimum of 20 hours of

meaningful work with agency involved with Chicana/Chicano and/or Latina/Latino community and selected by instructor. P/NP or letter grading.

M106. Studies in Native American and Indigenous Literatures. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of Native American and/or transnational indigenous literary and cultural expression. Topics may include oral traditions and histories, decolonization and sovereignty, identity and place in comparative perspectives, and multiple genres and forms such as novel, poetry, drama, visual arts, dance, song, and film. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M107A. Studies in Women's Writing. (5) (Same as Gender Studies M107A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Focus on women writers that may include historical, regional, national, or thematic emphasis, with possible topics such as authorship, self-writing, sexuality, gender, and genre. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M107B. Studies in Gender and Sexuality. (5) (Same as Gender Studies M107B and Lesbian, Gay, Bisexual, and Transgender Studies M107B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Examination of literary and cultural production through lens of gender and sexuality. Depending on instructor, emphasis may be historical, regional, national, comparative, or thematic and include other intersectional vectors of identity and representation such as race and ethnicity. May be repeated for credit with topic or instructor change. P/NP or letter grading.

108. Interracial Encounters. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: English Composition 3 or 3H. Study of literary, cultural, and/or cinematic texts produced by people from different ethnic and religious backgrounds and providing comparative cultural perspectives on living in multiethnic societies. May be repeated for credit with topic or instructor change. P/NP or letter grading.

109. Topics in Race, Ethnicity, Gender, and Sexuality Studies. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. Depending on instructor, emphasis may be historical, regional, national, comparative, or thematic. May be repeated for credit with topic or instructor change. P/NP or letter grading.

110A. Writing in English Major: Analytical. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 4W (or 4HW), 10A, 10B, 10C, English Composition 3. Open only to English majors. Not open for credit to students with credit for course 110T. Improvement and refinement of writing about literature. Focus on writing as process, rewriting, and argument; minimum 15 to 20 pages of writing required. May not be repeated for credit. P/NP or letter grading.

110B. Writing in English Major: Adjunct. (2) Seminar, two hours. Students must be concurrently enrolled in affiliated English lecture course (consult Schedule of Classes for courses so designated). Improvement and refinement of writing about literature. Brings together students enrolled in base American Literature and Culture or English courses in workshop setting to advance their discipline-specific writing skills, especially art of developing literary critical analysis and argument. May be repeated for credit with topic or instructor or lecture course change. P/NP or letter grading.

110E. Writing in English Major: Advanced Essay. (5) Seminar, three or four hours. Enforced requisites: courses 4W (or 4HW or 4WS), 10A, 10B, 10C, English Composition 3. Limited to American Literature and Culture and English majors. Weekly workshop in writing of advanced literary analyses; study of methods and techniques of developing complex crit-

ical arguments. Minimum 15 to 20 pages of revised writing required. May not be repeated for credit. P/NP or letter grading.

110T. Writing in English Major: Transfer Students. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 4W (or 4HW), 10A, 10B, 10C, English Composition 3. Open only to English major transfer students. Not open for credit to students with credit for course 110A. Improvement and refinement of writing about literature and culture. Focus on writing as process, rewriting, and nuanced argument; minimum 15 to 20 pages of writing required. May not be repeated for credit. P/NP or letter grading.

111A. Hebrew Bible in Translation. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Literary study of Hebrew Bible (Old Testament), with emphasis on literary devices and narrative structures in relation to Judaic historical, political, psychological, philosophical, and theological themes. P/NP or letter grading.

111B. Christian Biblical Texts in Translation. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Literary study of canonical New Testament and other Christian texts (deuterocanonical, apocryphal, gnostic, etc.), with emphasis on literary devices and narrative structures in relation to Judeo-Christian historical, political, psychological, philosophical, and theological themes. P/NP or letter grading.

111C. Topics in Biblical Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Recommended: course 111A or 111B. Study of topics in Hebrew Bible and/or New Testament, with attention to particular literary themes, motifs, genres, and modes of interpretation. Discussion of influence of Bible on discrete periods or individual authors in literatures in English. May be repeated for credit with topic or instructor change. P/NP or letter grading.

112A. Oral Tradition. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of myth, dramatic origins, oral epic, folktale, and ballad. P/NP or letter grading.

112B. Celtic Mythology. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of early textual materials pertaining to Celtic peoples and their stories, with emphasis on techniques of mythological analysis. P/NP or letter grading.

112C. Survey of Medieval Celtic Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Knowledge of Irish or Welsh not required. General course dealing with Celtic literature from earliest times to 14th century. P/NP or letter grading.

112D. Celtic Folklore. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Folkloric traditions of modern Ireland, Scotland, and other Celtic countries, with attention to colonial and postcolonial issues and folkloristic methods. P/NP or letter grading.

112E. Food and Fantasy in Irish Tradition and Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Food, cooking, feeding, eating, and drinking as powerful cultural symbols in Irish oral and literary tradition from medieval to modern times. P/NP or letter grading.

113A. History of English Language. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study directed toward English majors of main features in grammatical, lexical, and phonetic condition of English language from Indo-European time to present. P/NP or letter grading.

113B. Introduction to Structure of Present-Day English. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introduction to techniques of lin-

guistic description as applied to pronunciation, grammar, and vocabulary of modern English. P/NP or letter grading.

114. Lyric Histories. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Exploration of lyric poetry in English across centuries. Topics may include historical evolution of aesthetic forms, changing concepts of dramatic personae, matter of literary influence, and complex relationship of individual lyric speakers with their social and historical contexts. May be repeated for credit with topic or instructor change. P/NP or letter grading.

115A. American Popular Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Examination of such popular styles and genres as sentimental literature, sensation fiction, dime novels, crime stories, pornography, science fiction, supernatural tales, Hollywood novels, and other kinds of mass literary expression. P/NP or letter grading.

115B. British Popular Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Readings in literature of British masses, from 16th-century broadsides to contemporary novels. Examination of social and cultural aspects of literature. P/NP or letter grading.

115C. Literature for Children and Adolescents. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of historical backgrounds and development of types of children's literature, folklore and oral tradition, criticism, illustration, and bibliography and/or analysis and evaluation of literature intended mainly for students in junior and senior high schools. P/NP or letter grading.

115D. Detective Fiction. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of British and American detective fiction and literature of detection. P/NP or letter grading.

115E. Science Fiction. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of science fiction and speculative literatures. P/NP or letter grading.

M115SL. Community-Based Studies of Popular Literature. (5) (Same as Civic Engagement M110SL.) Lecture, four hours; discussion, one hour (when scheduled); fieldwork, two hours. Enforced requisite: English Composition 3. Service-learning course that examines history and development of one or more genres of popular literature, with attention to contemporary communities of readers and writers and formation of civil society. Topics vary and may include children's literature and childhood literacy, mass market fiction and book club culture, or science fiction and science policy. Service-learning component includes meaningful work with local nonprofit organizations selected in advance by instructor. May be repeated for credit with topic change. P/NP or letter grading.

116A. Experimental Fiction. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of novels and short stories that employ playful or experimental practices in language, narrative, hybridity (genre, medium), typography, and other material aspects of text such as binding and book design. Focus generally on texts from 20th century and later, but can include readings dating to beginning of novel. May be repeated for credit with topic or instructor change. P/NP or letter grading.

116B. Introduction to Electronic Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Overview of literatures involving digital technology, such as hypertext fiction, interactive fiction, animated and interactive poetry, multimedia works, video game narrative, and works employing network protocols and print-based works influenced by digital culture. Basic introduction to new media theory. P/NP or letter grading.

117. Literature of California and American West. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of literature in English dealing with exploration, settlement, and emergent cultural awareness of Western U.S. P/NP or letter grading.

118A. Interdisciplinary Studies in Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of literatures in English in relation to other disciplines such as sciences, history, politics, philosophy, music, photography, visual studies, psychology. May be repeated for credit with topic or instructor change. P/NP or letter grading.

118B. Literature and Other Arts. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Investigation of relationship of literature to one or more other arts, including music (opera, musical theater, popular music, jazz), painting, photography, other visual arts, sculpture and other plastic arts, performance art, dance, architecture. Topics vary and may include not only English literature but foreign literature in translation. May be repeated for credit with topic or instructor change. P/NP or letter grading.

118C. Studies in Visual Culture. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of visual images (photography, film, video) and their relation to literary and/or popular culture. Topics include adaptation, visual analysis, word and image, image and culture, film and visual culture. May be repeated for credit with topic or instructor change. P/NP or letter grading.

118E. Literature and Environment. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Study of literature from environmental perspectives, including eco-critical and interdisciplinary consideration of issues such as environmental justice, animal studies, food studies, gender studies, urban and postcolonial ecologies, climate change, cultural biophilia and biophobia, and relationship of literature to sciences. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M118F. Food Cultures and Food Politics. (5) (Same as Society and Genetics M132.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Introduction to interdisciplinary field of food studies, with focus on how literature, art, science writing, and visual culture address political dimensions of food and agriculture in specific contexts. P/NP or letter grading.

119. Literary Cities. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Exploration of place of literary imagination in making of cities, with focus on questions of cultural exchange, development, migration, urban rebellion, and style. Topics may include meaning of urban space and time, city as urban village or cosmopolitan hub, segregated dystopia or postmodern future, and impact of exile, tourism, and migration in making of cities. May be repeated for credit with topic or instructor change. P/NP or letter grading.

119SL. Literary Cities—Service Learning. (5) Lecture, four hours; discussion, one hour (when scheduled); fieldwork, two hours. Enforced requisite: English Composition 3. Exploration of place of literary imagination in making of cities, with focus on questions of cultural exchange, development, migration, urban rebellion, and style. Topics may include meaning of urban space and time, city as urban village or cosmopolitan hub, segregated dystopia or postmodern future, and impact of exile, tourism, and migration in making of cities. Service learning component includes meaningful work with local nonprofit organizations selected in advance by instructor. May be repeated for credit with topic or instructor change. P/NP or letter grading.

120. History of Aesthetics and Critical Theory. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Investigation of texts and ideas in history of aesthetics, critical theory, and interpretation from Greeks through 18th century. Readings may include Gorgias, Plato, Aristotle, Longinus, Biblical hermeneutics, Hume, Descartes, Kant, Schiller, and Hegel. May not be repeated for credit. P/NP or letter grading.

121. Modern and Contemporary Aesthetics and Critical Theory. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Investigation of some dominant trends in 19th- and 20th-century aesthetics, critical theory, and interpretation. Topics may include Marxism, psychanalysis, structuralism, poststructuralism, feminism, and postcolonialism. May not be repeated for credit. P/NP or letter grading.

122. Keywords in Theory. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Recommended: courses 120, 121. Taking its model from Raymond Williams' classic vocabulary of culture and society, investigation of fundamental theoretical concepts, or keywords, that have emerged from variety of intellectual disciplines to shape literary and cultural studies. Consideration of lexical development of such keywords; how they alter and enrich assumptions about textuality, readers, and authorship; and how they engender interpretive paradigms and methodologies for study of literature and culture. May be repeated for credit with topic or instructor change. P/NP or letter grading.

123. Theories of History and Historicism. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Recommended: courses 120, 121. Exploration of theories of history and historicism that offer productive approaches to literary texts. Investigation of how theorists negotiate between abstract concepts of history and situated historical narratives, how histories are constructed, troped, and given authority, how histories constitute past and present in relationship to each other to stabilize tradition or induce change, and complex ways that literary texts operate within and on their historical contexts. May be repeated for credit with topic or instructor change. P/NP or letter grading.

124. Theories of Religion. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Recommended: courses 120, 121. Examination of relationship between literary and religious practices and traditions. Topics may include legacies of monotheisms, theories of sacrifice, sacrament, gift, and mystical traditions, as well as history of allegory and theological approaches to reading. Selected topics may address literary applications of religious categories as treated in cultural anthropology, philosophy, and critical theory. May be repeated for credit with topic or instructor change. P/NP or letter grading.

125. Violence in Cultural Theory and Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Recommended: courses 120, 121. Examination of literary, philosophical, religious, and/or psychological texts that theorize causes, effects, political justifications, cultural sublimations, and literary uses and critiques of violence. P/NP or letter grading.

M126. Feminist and Queer Theory. (5) (Same as Gender Studies M126 and Lesbian, Gay, Bisexual, and Transgender Studies M126.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Recommended: one course from 120, 121, Gender Studies 102, 103, or 104. Investigation of key concepts and debates in study of gender, sexuality, and kinship, with focus on their interrelated significance for making of culture. Readings to be interdisciplinary, with possible emphasis on impact of changing ideas of gender and sexuality on specific historical cultures. May be repeated for credit with topic or instructor change. P/NP or letter grading.

127. Performance, Media, and Cultural Theory. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Recommended: courses 120, 121. Examination of concepts and modes of performance, culture, and/or media, broadly construed. Evaluation of different modes of inquiry around one or more of these concepts, as well as their intersection, in various intellectual traditions, including fields of cultural studies, performance studies, literary analysis, and film theory. May be repeated for credit with topic or instructor change. P/NP or letter grading.

128. Postcolonial and Transnational Theory. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Recommended: courses 130, 131. Exploration of methodological, aesthetic, and theoretical implications of postcolonial and transnational approaches to study of literature and culture. Topics may include theories of subaltern, orientalist, feminist, and/or indigenous representation and histories and may address representational issues of national sovereignty in wake of globalization and neocolonialism. May be repeated for credit with topic or instructor change. P/NP or letter grading.

129. Topics in Genre Studies, Interdisciplinary Studies, and Critical Theory. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Recommended: courses 120, 121. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. Depending on instructor, emphasis may be historical, regional, national, comparative, or thematic. May be repeated for credit with topic or instructor change. P/NP or letter grading.

130. Introduction to Postcolonial Literatures. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Introduction to major themes and issues in postcolonial literature, with focus on contemporary literature and writings produced after decolonization, often engaging history of British or other empires with emphasis on Anglophone writers from Africa, Caribbean, South Asia, and indigenous Pacific. May not be repeated for credit. P/NP or letter grading.

131. Studies in Postcolonial Literatures. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Strongly recommended: course 130. Survey of how colonialism and decolonization have shaped literary and cultural expression, with specific emphasis on regional or thematic concerns. Topics may include literatures of Africa and African diaspora, environment and empire, Caribbean contact zones, or literatures of indigenous Pacific. May be repeated for credit with topic or instructor change. P/NP or letter grading.

132. Culture and Imperialism. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Exploration of relationship between culture and imperialism through lens of literary texts to raise questions about what study of empire tells about relationship between power and knowledge. Discussion of shifting patterns and paradigms of imperial rule, including way both metropolitan and peripheral or colonial spaces were transformed. Emphasis may be on particular historical period or may adopt thematic approach, such as Orientalism. Topics may include construction of gender, race, otherness, nature, religion, and nation. May be repeated for credit with topic or instructor change. P/NP or letter grading.

133. Transatlantic Literatures and Cultures. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Study of literatures of Atlantic to examine cultural, political, and ideological issues that followed from transatlantic movement of people, ideas, commodities, and cultural artifacts. In addition to literatures of Britain and U.S., coverage may include texts from Africa, Caribbean, Mexico, South America, Spain, and other parts of Europe. May be repeated for credit with topic or instructor change. P/NP or letter grading.

134. Nationalism and Transnationalism. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Examination of how critical frameworks of nation and migration, transnationalism and globalization, and tradition and modernity frame analysis of literary texts, particularly relationship between literature and national identity. Other topics include nation building in relationship to regional identities as well as discourses of national expansion, diaspora, resettlement, and exile and foundational narratives of nation in relationship to representations of mobility. Genres may include epic, romance, travel narrative, novel, and autobiography. May be repeated for credit with topic or instructor change. P/NP or letter grading.

135. Literature of Americas. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Survey of literatures of Americas, with emphasis on complex ways in which letters of North America, Central America, South America, and Caribbean forge distinctly American perspective on global affairs. Spans literature from age of encounter to 19th-century U.S. American revolution and Latin American independence movements and beyond, considering such topics as empire, colonialism, slavery, transnational dynamics, and cross-cultural transformations among indigenous, European, and African civilizations. May be repeated for credit with topic or instructor change. P/NP or letter grading.

136. Creative Writing: Poetry. (5) Seminar, three or four hours. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW. Weekly exercises in writing of poetry, with practice in standard forms and meters and study of techniques. Classroom discussion based on student work. Enrollment in more than one section per term not permitted. May be repeated for maximum of 15 units. No more than 10 units may be completed with same instructor. P/NP or letter grading.

137. Creative Writing: Short Story. (5) Seminar, three or four hours. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW. Three average-length stories to be completed each term. Some stories may, with instructor's consent, be substantial revisions of other stories presented. Classroom discussion based on stories presented. Enrollment in more than one section per term not permitted. May be repeated for maximum of 15 units. No more than 10 units may be completed with same instructor. P/NP or letter grading.

138. Topics in Creative Writing. (5) Seminar, three hours. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW. Introductory workshop in genre(s) of instructor choice, that may include mixed genres, playwriting, screenwriting, literary nonfiction, or others. Enrollment in more than one section per term not permitted. May be repeated for maximum of 10 units. May not be used to satisfy workshop requirements for English creative writing concentration. P/NP or letter grading.

139. Individual Authors. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Specialized study of work of one single Anglophone poet, dramatist, prose writer, or novelist. May be repeated for credit with topic or instructor change. P/NP or letter grading.

140A. Chaucer: Canterbury Tales. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Introductory study of Chaucer's language, versification, and historical and literary background, including analysis and discussion of his long major poem, *Canterbury Tales*. P/NP or letter grading.

140B. Chaucer: Troilus and Criseyde and Selected Minor Works. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Intensive study of *Troilus and Criseyde* and selected minor works of Chaucer, such as *Book of the Duchess*, *House of Fame*, *Parliament of Fowls*, etc. P/NP or letter grading.

141. Early Medieval Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Major poetry and prose of early medieval Britain, including epic, romance, history, saints' lives, and travel literature. Texts and topics include *Beowulf*, Vikings, poems on women, Bede, and King Alfred. P/NP or letter grading.

141R. Early Medieval Literature: Research Component. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Major poetry and prose of early medieval Britain, including epic, romance, history, saints' lives, and travel literature. Substantial research component included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

142. Later Medieval Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Reading and historical explication of major writers of later medieval Britain (e.g., Gawain-poet, Langland, Gower, Margery Kempe, Malory, miracle and morality plays, prose, and lyrics). P/NP or letter grading.

142R. Later Medieval Literature: Research Component. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Reading and historical explication of major writers of later medieval Britain (e.g., Gawain-poet, Langland, Gower, Margery Kempe, Malory, miracle and morality plays, prose, and lyrics). Substantial research component included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

143. Drama to 1576. (5) (Formerly numbered 152A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. English drama from its Latin and Anglo-Norman roots to opening of first public playhouse. P/NP or letter grading.

144. Medieval Romance and Literatures of Court. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Investigation of medieval court culture, exploring concepts of nobility, governance, love, loyalty, and power in range of genres: romance, courtly epic, lyric, debate, and satire. Texts may include *Beowulf*, *Lais of Marie de France*, *Sir Gawain and Green Knight*, *Pearl*, and Malory's *Morte Arthure*. May be repeated for credit with topic or instructor change. P/NP or letter grading.

145. Medieval Literatures of Devotion and Dissent. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Exploration of devotional genres and their complex relationships with traditions of dissent in medieval English culture, encompassing hagiography, vision, conversion narrative, interreligious debate, heresy trials, and Lollard manifestos and translations. Texts may include *Dream of Rood*, *South English Legendary*, *Ancrene Wisse*, *Piers Plowman*, Lollard writings, macro-plays, Wakefield cycle, *Showings of Julian of Norwich*, and *Book of Margery Kempe*. May be repeated for credit with topic or instructor change. P/NP or letter grading.

146. Medieval Story Cycles and Collections. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Exploration of medieval story cycles and story collections as narrative forms. Medieval story cycles engage in complex literary conversations across medieval cultures, periods, genres, and languages, while story collections often stage art of storytelling within narrative frame to invite self-consciousness about powers of literary production itself. Texts may include cycles such as texts gathered as *Matter of Britain*, *Matter of Rome*, or *Matter of France*; also *Mabinogi*, manuscript collections such as Auchinleck manuscript or Exeter book, framed narratives such as *Decameron*, *Canterbury Tales*, *1001 Nights*, and Gower's *Confessio Amantis*, or collections of exempla, legends, and dicta. May be repeated for credit with topic or instructor change. P/NP or letter grading.

147. Medieval Histories, Chronicles, and Records. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Investigation of medieval history writing as literary tradition. Medieval histories survive in every language of medieval Britain, including Latin, Old English, Welsh, Irish, Anglo-Norman French, and Middle English. Multilingual ubiquity of history writing points to pressures of history on history writing—histories are always shaped by political, cultural, linguistic, and textual pressures of present tense. Texts may include histories, chronicles, material records, and historiographically engaged texts. May be repeated for credit with topic or instructor change. P/NP or letter grading.

148. Cultures of Middle Ages. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Interdisciplinary survey of particular medieval societies, with special emphasis on complex interactions between different ethnic and cultural traditions of medieval world. Examination of processes of intercultural encounter and transmission: classical or patristic traditions into medieval culture, crusade, travel literature, and literature of contact zones, including interactions between Celtic, Anglo, and Norman societies, and debates between Pagans, Jews, Christians, and Muslims. May be repeated for credit with topic or instructor change. P/NP or letter grading.

149. Medievalisms. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Exploration of postmedieval production of Middle Ages as period for scholarly study, tactical premodern other to modern and contemporary, and commodity continually reinvented by postmedieval writers, artists, and popular media. Topics may include 19th-century production of medieval studies and its links to nationalism, notable medievalists and their work, and uses of Middle Ages in popular culture from Umberto Eco to Tolkien, Robin Hood, Arthur, and Merlin. May be repeated for credit with topic or instructor change. P/NP or letter grading.

150A. Shakespeare: Poems and Early Plays. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Intensive study of selected poems and representative comedies, histories, and tragedies through *Hamlet*. P/NP or letter grading.

150B. Shakespeare: Later Plays. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Intensive study of representative problem plays, major tragedies, Roman plays, and romances. P/NP or letter grading.

150C. Topics in Shakespeare. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Introduction to or advancement of student knowledge of Shakespeare's works through broad or specific topics set by instructor. May be repeated for credit with topic or instructor change. P/NP or letter grading.

151. Milton. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of major works of Milton, with emphasis on *Paradise Lost*. P/NP or letter grading.

152. Literatures of English Renaissance and Early Modern Period. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of major works in their cultural context. May be repeated for credit with topic or instructor change. P/NP or letter grading.

153. Theatrical Renaissance: Early Modern Texts and Performances. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Topics may include professional and amateur performances in court, cities, churches, and countryside of varied sorts of texts—masques, religious drama, secular drama, charivari—alongside examination of texts, performers, and performance spaces from 1509 to 1642. May be repeated for credit with topic or instructor change. P/NP or letter grading.

154. Renaissance Worlds. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Variable topics, including travel literature, exploration and expansion, transnational and transoceanic texts, science and cosmography, conceptual worlds of myth and philosophy, as expressed in literature and other arts. May be repeated for credit with topic or instructor change. P/NP or letter grading.

155. Renaissance Subjects. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Literary representations of personhood in early modern period, with attention to issues such as personal voice, relations of privacy/community, bodies/souls, selves/others, as impacted by quotients such as gender, sexuality, race, and ethnicity as they are understood in period from 1500 to 1700. May be repeated for credit with topic or instructor change. P/NP or letter grading.

156. Devotion and Dissent. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Examination of religious thought and practice associated with Reformation and Counter-Reformation enterprises in early modern period and consideration of how various types of writing—poems, prayer books, sermons, historical chronicles, essays, travel narratives, trial records—reflect and assess religious ferment of era. Coverage of either broad historical range such as from Henry VIII's break with Rome to execution of Charles I or one specific topic such as varieties of martyrdom, art of confession, or conversion narratives. May be repeated for credit with topic or instructor change. P/NP or letter grading.

157. Translation and Innovation in English Renaissance and Early Modern Period. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of major works of English Renaissance literature and culture in relation to literatures of antiquity and continental Renaissance. Topics may include epic tradition, forerunners of novel, Renaissance humanisms, literature of love, monsters and marvels, representing nature, Ovidian transformations. May be repeated for credit with topic or instructor change. P/NP or letter grading.

159. Topics in Literature, circa 1500 to 1700. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Examination of literatures from or about this time period. Consult Schedule of Classes for subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

159R. Topics in Literature, circa 1500 to 1700: Research Component. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of literatures from this time period and conventions of literary research. Substantial research component included. Consult Schedule of Classes for subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

160A. Literature of Restoration and Earlier 18th Century. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of major works as literary documents and as products of Restoration and earlier 18th-century thought. P/NP or letter grading.

160B. Literature of Later 18th Century. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of major works as literary documents and as products of later 18th-century thought. P/NP or letter grading.

161A. Poetry in English to 1850. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Consideration of poetry across genres and throughout period. Topics may include rise of satire, verse forms including Pindaric ode, mock-epic, and verse-epistle, questions of literary imitation and originality, poetry's relationship

to empire, and gendering of authorship. May be repeated for credit with topic or instructor change. P/NP or letter grading.

161B. Drama in English to 1850. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Survey of drama in English until 1850. May be repeated for credit with topic or instructor change. P/NP or letter grading.

161C. Novel in English to 1850. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Survey of major novelists until 1850. May be repeated for credit with topic or instructor change. P/NP or letter grading.

162A. Earlier Romantic Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Intensive study of writings by Blake, Wollstonecraft, W. Wordsworth, Coleridge, and Austen, with collateral readings from such authors as Godwin, Burke, Paine, Radcliffe, Edgeworth, Baillie, C. Smith, Burns, Southey, D. Wordsworth, Lamb, DeQuincey, and Scott. P/NP or letter grading.

162B. Later Romantic Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Intensive study of writings by Byron, Keats, Percy Shelly, and Mary Shelley, with collateral readings from such authors as Hazlitt, Hunt, Landor, Clare, Moore, Peacock, Landon, Aikin, Hernans, and Prince. P/NP or letter grading.

163A. Romanticism and Revolution. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Exploration of relationships among and between different revolutionary currents—political, economic, and aesthetic—in British Romantic period, developing readings of literary texts that situate them in revolutionary context out of which they emerged, and to which they contributed in turn. Recovery of sense of how literary and extra-literary texts emerged in common relationship; development of deeper understanding of nature of Romanticism itself. Readings from work of Blake, Wordsworth, Coleridge, Southey, Austen, Byron, Keats, Wollstonecraft, and others. May not be repeated for credit. P/NP or letter grading.

163B. Transatlantic Romanticism. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Transatlantic studies have been central in generating new conceptual frameworks for thinking through complex issues related to interconnectedness of Atlantic rim cultures. With focus on ways in which cultures, ideologies, and political identities are reworked and reinscribed by transatlantic movement of peoples, ideas, and cultural artifacts, expansion of notions of Romanticism to include transoceanic perspectives that understand early 19th-century Romantic literature as transatlantic phenomenon. May not be repeated for credit. P/NP or letter grading.

163C. Jane Austen and Her Peers. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Coverage of six novels of Jane Austen, as well as literary works that most influenced her: Mary Wollstonecraft's *Vindication of Rights of Woman*, Gothic novel, and Maria Edgeworth's *Belinda*. P/NP or letter grading.

164A. Earlier 19th-Century Poetry. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Developments in English poetic genres from time of Napoleonic Wars to middle decades of 19th century. Readings enable students to understand legacies of 18th-century and Romantic writing and emergence of new forms such as dramatic monologue and novel-in-verse. P/NP or letter grading.

164B. 19th-Century Critical Prose. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of traditions in critical thought from 1800 to 1900 in relation to development of cultural and literary criticism, social thought, and political writing. P/NP or letter grading.

164C. 19th-Century Novel. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of development of

novel from 1800 to 1900, with focus on evolution of genre in relation to cultural, social, and political contexts in which readings were composed, circulated, and received. May be repeated for credit with topic or instructor change. P/NP or letter grading.

164D. Global 19th Century. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Examination of 19th-century literature as global phenomenon. Ways imaginative works engaged with 19th-century global formations, that may include structures and discourses of empire, international law, communication and transport systems, political boundaries and state sovereignty, slave trade, transnational economics, travel and exploration, religious communities, military engagements, and/or cultural conflicts. May not be repeated for credit. P/NP or letter grading.

165A. Imperial Culture, 1700 to 1850. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Exploration of relationship between culture and imperialism in 18th and 19th centuries. Discussion of relationship between literary and extra-literary texts and shifting patterns and paradigms of imperial rule, as metropolitan and peripheral spaces were transformed beyond recognition in this period. Particular attention to representations of otherness both in emergent metropolitan center and in sites of contact and conquest overseas, shifts in forms of Orientalism, developing concepts of race and nation, and ways imperial culture gradually infused almost every aspect of British culture and literature by middle of 19th century. May not be repeated for credit. P/NP or letter grading.

165B. Gender, Sexuality, and Body, 1700 to 1850. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Examination of question of gender in literature of period known for its invention of sex/gender system. Topics may include varying representations of gender and sexuality across period, gender and authorship, and literature of embodiment. May be repeated for credit with topic or instructor change. P/NP or letter grading.

165C. Protestant Dissent and English Literature, 1640 to 1832. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Religious doctrines, political ideologies, cultural practices, and aesthetics of Protestant dissent, with some attention to transatlantic radicalism, but main topic is British dissent. Adaptations of such theologies as Lutheranism, Calvinism, Anabaptism, Unitarianism, and Methodism in Scotland, England, and Wales from English Civil War and Glorious Revolution to Reform Act of 1832. Texts include representative theology and political theory (Luther, Calvin, Locke, Priestley, Paine, Wollstonecraft) and representative poetry and fiction (Milton, Bunyan, Defoe, Blake, Coleridge, Shelley, Byron). P/NP or letter grading.

166A. Colonial Beginnings of American Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Historical survey of American literatures of discovery and exploration, contact, and settlement, with emphasis on genres that express distinctive colonial identities, myths, and religious visions. P/NP or letter grading.

166B. American Literature, 1776 to 1832. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Historical survey of American literatures from Revolution through early republic, with emphasis on genres that reflect systematic attempts to create representative national literature and attention to American ethnic, gender, and postcolonial perspectives. P/NP or letter grading.

166C. American Literature, 1832 to 1865. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Historical survey of American literatures from Jacksonian era to end of Civil War, including emergent tradition of American Romanticism, augmented and challenged

by genres of popular protest urging application of democratic ideals to questions of race, gender, and social equality. P/NP or letter grading.

167A. American Poetry to 1900. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of American poetry from Puritan period through end of 19th century. P/NP or letter grading.

167B. American Fiction to 1900. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of American fiction (both novels and short stories) from its beginning to end of 19th century. P/NP or letter grading.

168. Major American Writers. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Broad survey of representative American writers across several centuries, designed to give concise account of broad narrative of American literary development, from origins through 19th century. Includes mainly works that have traditionally been identified as American classics and asks both what makes American literature distinctive and what its relations are to other literatures in English. P/NP or letter grading.

169. Topics in Literature, circa 1700 to 1850. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Examination of literatures from or about this time period. Consult Schedule of Classes for subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

169R. Topics in Literature, circa 1700 to 1850: Research Component. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of literatures from this time period and conventions of literary research. Substantial research component included. Consult Schedule of Classes and departmental descriptions for subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

170A. American Literature, 1865 to 1900. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Historical survey of American literature from end of Civil War to beginning of 20th century, including writers such as Howells, James, Twain, Norris, Dickinson, Crane, Chesnutt, Gilman, and others working in modes of realist and naturalist novel, regional and vernacular prose, and poetry. P/NP or letter grading.

170B. American Literature, 1900 to 1945. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Historical survey of American literature from turn of century to end of World War II. P/NP or letter grading.

170C. American Literature since 1945. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Historical survey of American literature since end of World War II. P/NP or letter grading.

171A. Later 19th-Century Poetry. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Developments in English poetic genres in relation to significant movements such as aestheticism, decadence, feminism, and imperialism from middle decades of 19th century to turn of 20th century. P/NP or letter grading.

171B. 20th-Century British Poetry. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Survey of major British poets from 1900 to present. P/NP or letter grading.

171C. 20th-Century British Fiction. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Survey of major British novelists and short story writers from 1900 to present. P/NP or letter grading.

172A. Drama, 1850 to 1945. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C (for Theater and Film

and Television majors 10A, 10B, 10C requisites are waived). Survey of drama in English, with its principal continental influences, from 1850 through World War II. P/NP or letter grading.

172B. Drama, 1945 to Present. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Study of drama in English, with its principal continental influences, since World War II. P/NP or letter grading.

172C. American Drama. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Study of American drama from its beginning to present day. Historical period may vary with instructor. May be repeated for credit with topic or instructor change. P/NP or letter grading.

173A. American Poetry, 1900 to 1945. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Study of American poetry from beginning of 20th century to end of World War II. P/NP or letter grading.

173B. American Poetry since 1945. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Study of American poetry since end of World War II. P/NP or letter grading.

173C. Contemporary American Poetry. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Study of American poetry, mostly by living authors, with emphasis on emergent issues and poetic forms. May be repeated for credit with topic or instructor change. P/NP or letter grading.

174A. American Fiction, 1900 to 1945. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Study of American novels and short stories from beginning of 20th century to end of World War II. P/NP or letter grading.

174B. American Fiction since 1945. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Study of American novels and short stories since end of World War II. P/NP or letter grading.

174C. Contemporary American Fiction. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Study of American novels and short stories, mostly by living authors, with emphasis on emergent issues and aesthetics. May be repeated for credit with topic or instructor change. P/NP or letter grading.

175. American Nonfictional Prose. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Study of American nonfictional prose (essays, autobiographies, travel narratives, and other). Particular genre and/or historical period vary with instructor. May be repeated for credit with topic or instructor change. P/NP or letter grading.

176. Hemispheric American Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Examination of primarily North American literature from hemispheric rather than nation-based perspective. Historic breadth in study of American literature while posing such crucial theoretical issues as emergence of U.S. Empire or relationship between North America and global south, including Africa, Latin America, and Caribbean. May be repeated for credit with topic or instructor change. P/NP or letter grading.

177. Interdisciplinary Studies of American Culture. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Interdisciplinary study of American literature in its relationships to other disciplines, including art, architecture, film, history, music, politics, and various social sciences, with emphasis on application of literary methodology to historical survey of American culture. May be repeated for credit with topic or instructor change. P/NP or letter grading.

179. Topics in Literature, circa 1850 to Present. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Examination of literatures from or about this time period. Consult Schedule of Classes for subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

179R. Topics in Literature, circa 1850 to Present: Research Component. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Study of literatures from this time period and conventions of literary research. Substantial research component included. Consult Schedule of Classes and departmental descriptions for subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

180. Topics in Literature and Language. (5) Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

180R. Junior Research Seminar. (5) Seminar, three hours. Enforced requisites: courses 10A, 10B, 10C. Strongly recommended for students who plan to enroll in capstone seminars. Study of range of approaches to literary and cultural research, including archival, literary critical, and theoretical to equip students with skills working with primary sources, secondary criticism, and online databases. Specific literatures vary with instructors. May not be repeated for credit. P/NP or letter grading.

181A. Topics in Genre Studies. (5) Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

181B. Topics in Interdisciplinary Studies. (5) Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

181C. Topics in Critical Theory. (5) Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

181D. Topics in Imperial, Transnational, and Post-colonial Studies. (5) Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

182A. Topics in Medieval Literature. (5) Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

182B. Topics in Renaissance and Early Modern Literature. (5) Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

182C. Topics in 18th-Century Literature. (5) Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

182D. Topics in Romantic Literature. (5) Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author,

period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

182E Topics in 19th-Century Literature. (5) Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

182F. Topics in 20th- and 21st-Century Literature. (5) Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

183A. Topics in Colonial American Literature. (5) Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

183B. Topics in 19th-Century American Literature. (5) Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

183C. Topics in 20th- and 21st-Century American Literature. (5) Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

184. Capstone Seminar: English. (5) Seminar, three hours. Enforced requisites: courses 10A, 10B, 10C, and completion of at least four upper division courses required for major. Limited to senior English or American Literature and Culture majors. Students use knowledge from prior coursework to address current topics in discipline and work with faculty members on focused topic of research. Culminating paper or project and class presentation required. May be repeated once for credit with topic or instructor change. Letter grading.

190H. Honors Research Colloquia in English. (1) Seminar, one hour. Enforced corequisite: course 198A or 198B. Designed to bring together students undertaking supervised tutorial research for departmental honors in seminar setting with one or more faculty members to discuss their own work in progress and critical readings related to honors projects. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

M191A. Topics in African American Literature. (5) (Same as African American Studies M179A.) Seminar, three or four hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in African American literature. Topics may include Harlem Renaissance, African American Literature in Nadir, Black Women's Writing, Contemporary African American Fiction, African American Poetry. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M191B. Topics in Chicana/Chicano and/or Latina/Latino Literature. (5) (Same as Chicana and Chicano Studies M139.) Seminar, three or four hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in Chicana/Chicano and/or Latina/Latino literature. Topics include labor and literature; Chicana/Chicano visions of Los Angeles; immigration, migration, and exile; autobiography and historical change; Chicana/Chicano journalism; literary New Mexico; specific literary genres. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M191C. Topics in Asian American Literature. (5) (Same as Asian American Studies M191F.) Seminar, three or four hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in Asian American literature. Topics may include genres (autobiography, novel, poetry, short fiction, or drama); specific nationalities within Asian American

community; themes of transnational migration; cross-cultural, interdisciplinary, or interracial negotiation; and gender and queer politics. Reading, discussion, and development of culminating project. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M191D. Topics in Queer Literatures and Cultures. (5) (Same as Gender Studies M191D and Lesbian, Gay, Bisexual, and Transgender Studies M191D.) Seminar, three or four hours. Enforced requisite: English Composition 3 or 3H. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M191E. Topics in Gender and Sexuality. (5) (Same as Gender Studies M191E and Lesbian, Gay, Bisexual, and Transgender Studies M191E.) Seminar, three or four hours. Enforced requisite: English Composition 3 or 3H. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

191H. Honors Research Seminars: English. (5) Seminar, three hours. Enforced requisite: one course from 120 through 128. Open only to students who are eligible and apply for honors program in English. Introduction to research techniques and study of various approaches and applications of critical methodology as it relates to interpretation and evaluation of texts. Development and presentation of proposals for honors projects. Consult undergraduate adviser. May be repeated for credit. Letter grading.

192. Undergraduate Practicum in English: Westwind Journal. (2) Seminar, two hours. Training and supervised practicum for undergraduate student editors of *Westwind* literary magazine. May be repeated for credit. P/NP or letter grading.

193. Colloquia and Speakers' Series Undergraduate Seminars: English. (1) Seminar, one hour. Limited to undergraduate students. Discussion of current critical literature and/or creative readings by writers, artists, and scholars. Exploration in greater depth of literary topics and creative work presented through sponsored forums, speakers' series, and colloquia. May be repeated for credit. P/NP grading.

195CE. Community and Corporate Internships in English. (4) Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. May not be applied toward major requirements. May be repeated for credit with consent of Center for Community Learning. Individual contract with supervising faculty member required. P/NP or letter grading.

197. Individual Studies in English. (2 to 5) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198A-198B. Honors Research in English. (5-5) Tutorial, to be arranged. Requisite: course 191H. Limited to juniors/seniors. Development and completion of honors thesis under direct supervision of faculty member. May be repeated for credit. Individual contract required. In Progress (198A) and letter (198B) grading.

199. Directed Research or Senior Project in English. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual literary research and creative projects under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Approaches to Literary Research. (4) Lecture, four hours. Bibliographical tools of English and American literary scholarship; introduction to descriptive bibliography and basic methods of research. Periods covered vary. S/U or letter grading.

201A. Criticism and Interpretation from Classical Era to Renaissance. (4) Lecture, three hours. Examination of major texts in history of critical theory and interpretation from pre-Socratics to Descartes, including classical literary criticism (Plato, Aristotle, Horace, Longinus), biblical hermeneutics (Bible, Midrash, St. Paul, St. Augustine, St. Thomas Aquinas), and medieval and Renaissance theories of interpretation (Dante, Boccaccio, Sidney). S/U or letter grading.

201B. Aesthetics and Criticism from Enlightenment to Decadence. (4) Lecture, three hours. Continuation of course 201A, proceeding from neoclassical and Enlightenment critical theory through Victorian and decadent aesthetic and literary criticism. Readings may include texts by Rousseau, Dryden, Pope, Hume, Kant, Schiller, the Schlegels, Coleridge, Hegel, Schelling, Arnold, Pater, Wilde, and Nietzsche. S/U or letter grading.

201C. Developments and Issues in Modern Critical Thought. (4) Lecture, three hours. Study of major figures and ideas in modern and contemporary critical theory. Readings vary from year to year but may include such figures as Freud, Durkheim, Saussure, Heidegger, Shklovskii, Benjamin, Adorno, Levi-Strauss, Lacan, Barthes, Derrida, Deleuze, Fanon, Foucault, Irigaray, Lyotard, Bourdieu, and Bhabha. S/U or letter grading.

203. Computers and Literary Research. (4) Lecture, four hours. Prior knowledge in this area not required. Practice in writing and using computer programs for analysis of literary style, content, and authorship. S/U or letter grading.

204. History of Rhetoric. (4) Lecture, four hours. Reading of basic texts in history of rhetoric and selections from standard commentaries. Survey of classical period and medieval-to-modern period in alternate years. S/U or letter grading.

M205A. Study of Oral Tradition: History and Methods. (4) (Same as Scandinavian M271.) Seminar, three hours. Exploration of scholarly and literary attempts to study, define, analyze, promote, and/or appropriate oral traditions, from Homer and ancient Greece to origins of vernacular literatures, European romantic (re)discovery of oral tradition, 20th-century heuristic models of oral composition, and modern-day electronic media and popular verbal genres, such as joking and rapping. S/U or letter grading.

M205B. Collecting Oral Tradition. (4) (Same as Scandinavian M272.) Seminar, three hours. Description and evaluation of various modern approaches to collecting and documenting oral tradition as text, performance, and sociocultural event. Consideration of approaches ranging from written transcription and textualization to audio and video presentation. S/U or letter grading.

M205C. Studies in Oral Traditional Genres. (4) (Same as Scandinavian M273.) Seminar, three hours. Exploration in depth of variety and history of, and scholarship on, particular oral traditional genre (e.g., ballad, song, epic, proverb, riddle, folktale, legend) or set of closely related oral traditional genres. S/U or letter grading.

210. History of English Language. (4) Lecture, four hours. Detailed study of history, characteristics, and changing forms of English language from its origin until about 1900. S/U or letter grading.

211. Old English. (4) Lecture, four hours. Study of Old English grammar, lexicon, phonology, and pronunciation to enable students to read literature silently and aloud. Reading of as much of more interesting Old English prose and poetry as can be read in one term. S/U or letter grading.

212. Middle English. (4) Lecture, four hours. Requisite: course 211. Detailed study of linguistic aspects of Middle English and of representative examples of better prose and poetry. S/U or letter grading.

213. Early Modern English. (4) Lecture, four hours. Detailed study of phonology, morphology, syntax, and vocabulary of English between 1450 and 1750. Description and analysis of changes in language in relation to intellectual, political, and social characteristics of period. S/U or letter grading.

214. Modern English. (4) Lecture, four hours. Description and analysis of modern English phonology, grammar, and vocabulary, using theory and techniques of contemporary linguistics. Survey of evolution of American English and account of characteristic phonological and grammatical features of major regional varieties of English around world. S/U or letter grading.

M215. Paleography of Latin and Vernacular Manuscripts, 900 to 1500. (4) (Same as Classics M218, French M210, and History M218.) Lecture, three hours; discussion, two hours. Introduction to history of Latin and vernacular manuscript book from 900 to 1500 to (1) train students to make informed judgments with regard to place and date of origin, (2) provide training in accurate reading and transcription of later medieval scripts, and (3) examine manuscript book as witness to changing society that produced it. Focus on relationship between Latin manuscripts and vernacular manuscripts with regard to their respective presentation of written texts. S/U or letter grading.

216A-216B. Old Irish. (4) Lecture, four hours. Studies in grammar. Readings in glosses and other texts. Comparative considerations. S/U or letter grading.

217A-217B. Medieval Welsh. (4) Lecture, four hours. Studies in grammar. Readings in *Mabinogi* and other texts. Comparative considerations. S/U or letter grading.

218. Celtic Linguistics. (4) Lecture, four hours. Survey of salient features of Celtic linguistic stock in its Gaelic and British branches, with reference to position of Celtic within Indo-European languages. S/U or letter grading.

230. Workshop: Creative Writing. (2 to 4) Lecture, two to four hours. Preparation: submission of writing samples in specified genre (poetry, fiction, or drama). May be repeated but may not satisfy more than one of nine courses required for first qualifying examination nor any of five courses required for second qualifying examination. S/U or letter grading.

240. Studies in History of English Language. (4) Lecture, four hours. Individual seminars dealing with any single historical period from Old English period to present or development of one particular linguistic characteristic (phonology, syntax, semantics, dialectology) through various periods. May be repeated for credit. S/U or letter grading.

241. Studies in Structure of English Language. (4) Lecture, four hours. Topics in various aspects of structure of modern English, especially syntax and semantics. May be repeated for credit. S/U or letter grading.

242. Language and Literature. (4) Lecture, four hours. Application of linguistics to literary analysis. Individual seminars dealing with one historical period (medieval and Renaissance, neoclassical, or 19th century and modern), specific authors, or contributions of specific groups of linguists to literary analysis. May be repeated for credit. S/U or letter grading.

244. Old and Medieval English Literature. (4) Lecture, four hours. Studies in poetry and prose of Old and medieval English literature; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

245. Chaucer. (4) Lecture, four hours. May be repeated for credit. S/U or letter grading.

246. Renaissance Literature. (4) Lecture, four hours. Studies in poetry and prose of Renaissance English literature, exclusive of Shakespeare; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

247. Shakespeare. (4) Lecture, three hours. May be repeated for credit. S/U or letter grading.

248. Earlier 17th-Century Literature. (4) Lecture, three hours. Studies in poetry and prose of 17th-century English literature up to Restoration; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

249. Milton. (4) Lecture, three hours. Studies in poetry and prose of John Milton; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

250. Restoration and 18th-Century Literature. (4) Lecture, three hours. Studies in English poetry and prose, 1660 to 1800; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

251. Romantic Writers. (4) Lecture, three hours. May be repeated for credit. S/U or letter grading.

252. Victorian Literature. (4) Lecture, three hours. Studies in English poetry and prose of Victorian period; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

253. Contemporary British Literature. (4) Lecture, three hours. May be repeated for credit. S/U or letter grading.

254. American Literature to 1900. (4) Lecture, three hours. Studies in Colonial and 19th-century American literature; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

255. Contemporary American Literature. (4) Lecture, three hours. Studies in contemporary American poetry and prose; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

256. Studies in Drama. (4) Lecture, three hours. Studies in drama as genre from its beginning to present; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

257. Studies in Poetry. (4) Lecture, three hours. Studies in various themes and forms of poetry from Old English to present; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

258. Studies in Novel. (4) Lecture, three hours. Studies in evolution of genre from its beginning to present; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

259. Studies in Criticism. (4) Lecture, three hours. May be repeated for credit. S/U or letter grading.

260. Studies in Literature and Its Relationship to Arts and Sciences. (4) Lecture, three hours. Studies in interrelationships of literature, arts, and sciences; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

M260A. Topics in Asian American Literature. (4) (Same as Asian American Studies M260.) Seminar, three hours. Graduate seminar that examines and critically evaluates writings of Asian Americans. May be repeated for credit. S/U or letter grading.

M261. Studies in Chicana/Chicano Literature. (4) (Formerly numbered 261.) (Same as Chicana and Chicano Studies M289.) Seminar, three hours. Intensive research and study of major themes, authors, and issues in Chicana/Chicano literature and culture. Examination of political, aesthetic, economic, and cultural context that emerges in Chicana/Chicano discourse; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

M262. Studies in Afro-American Literature. (4) (Same as African American Studies M200E.) Lecture, four hours. Intensive research and study of major themes, issues, and writers in Afro-American literature. Discussions and research on aesthetic, cultural, and social backgrounds of Afro-American writing. May be repeated for credit. S/U or letter grading.

263. Celtic Literature. (4) Lecture, three hours. Preparation: knowledge of one ancient or modern Celtic language. Studies in poetry and prose of early

and modern Celtic literatures, chiefly Irish and Welsh; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

264. Studies in Rhetoric. (4) Lecture, three hours. Special topics in classical and modern rhetoric, including substantial practice in rhetorical analysis of literary texts. May be repeated for credit. S/U or letter grading.

265. Postcolonial Literatures. (4) Seminar, three hours. Study of aesthetic, historical, and social backgrounds to literatures of former British colonies that became independent after 1947. General issues related to way imperialism, colonialism, and postcolonialism have helped to shape and have been shaped by literature in English. May be repeated for credit. S/U or letter grading.

M266. Cultural World Views of Native America. (4) (Same as American Indian Studies M200B.) Seminar, three hours. Exploration of written literary texts from oral cultures and other expressive cultural forms — dance, art, song, religious and medicinal ritual—in selected Native American societies, as these traditional and tribal contexts have been translated into contemporary literary texts (fiction, poetry, essay, and drama). Survey, from secondary sources, of interdisciplinary methodological approaches taken from literary analysis, structural anthropology, folklore, linguistics, and ethnomusicology. May be repeated for credit with instructor and/or topic change. Letter grading.

M270. Seminar: Literary Theory. (5) (Same as Comparative Literature M294.) Seminar, three hours. Advanced interdisciplinary seminar to explore philosophical, historical, and critical foundations of literary theory as well as current issues in literary and cultural studies. S/U or letter grading.

M298. Interdisciplinary Studies in 17th and 18th Centuries. (4) (Same as History M298.) Discussion, four hours. Topics vary according to participating faculty. May be repeated for credit. S/U or letter grading.

M299. Interdisciplinary American Studies. (6) (Same as History M299.) Discussion, four hours. Readings, discussion, and papers on common theme, team-taught by faculty members from different departments. Topics vary according to participating faculty. May be repeated for credit with consent of instructors. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May not be substituted for any departmental enrollment requirements. May be repeated for credit. S/U grading.

495A. Supervised Teaching Preparation. (3) Seminar, three hours. Required of all applicants for teaching assistantships in English. Introduction to teaching of literature intended to prepare teaching assistants for their first assignments in leading discussion sections. Practical concerns of creating assignments, grading papers, and holding conferences. S/U grading.

495B. Supervised Teaching Preparation. (2) Seminar, two hours. Required of all teaching assistants in their initial quarter of teaching. Mentoring and group teaching assistant/mentor conferences. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study. (2 to 4) Tutorial, to be arranged. Limited to students preparing for first qualifying examination or engaging in intensive directed research project. May not be applied toward any course requirement for degree. Consult graduate counselor to enroll or obtain information. S/U or letter grading.

597. Preparation for PhD Examinations. (4 to 12) Tutorial, to be arranged. Limited to second-stage PhD students preparing for second qualifying examination. S/U grading.

598. MA Research and Thesis Preparation. (4 or 8) Tutorial, to be arranged. Limited to graduate students. May not be applied toward any course requirement for degree. S/U grading.

599. PhD Dissertation Research. (4 or 8) Tutorial, to be arranged. Limited to PhD students unable to enroll in seminars in their fields or to students concurrently enrolled in such seminars. (Exception to this rule must be requested by petition.) S/U grading.

ENGLISH COMPOSITION

See Writing Programs

ENTREPRENEURSHIP

Interdisciplinary Minor

John E. Anderson Graduate School of Management

UCLA

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fax: (310) 267-4339
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http://www.uei.ucla.edu/entrepreneurship_minor.htm

Alfred E. Osborne, Jr., PhD, Chair

Faculty Committee

Andrew G. Atkeson, PhD (Economics)
Carla Hayn, PhD (Management)
Mark J. Garmaise, PhD (Management)
Richard B. Kaner, PhD (Chemistry and Biochemistry)
Alfred E. Osborne, Jr., PhD (Management)
James W. Stigler, PhD (Psychology)
Miguel M. Unzueta, PhD (Management)
Willeke Z. Wendrich, PhD (Near Eastern Languages and Cultures)

Scope and Objectives

The Entrepreneurship minor introduces undergraduate students to the field of entrepreneurship. A key element of entrepreneurship is the concept of opportunity recognition where individuals or teams pursue business concepts without regard to immediate access to resources utilizing lean start-up principles. Faculty members from applied fields in the professional schools and industry collaborate with faculty from academic disciplines across the campus to provide a critical framework for questioning and connecting topics related to entrepreneurship.

Through a carefully developed core curriculum and an integrative capstone experience, students in the minor obtain both breadth and depth in their understanding of the concepts, frameworks, and practical implications of entrepreneurship.

Undergraduate Study

Entrepreneurship Minor

To enter the Entrepreneurship minor, students must (1) have an overall grade-point average of 3.0 or better and (2) submit an application supporting their interest in pursuing the minor. Applications are accepted in fall, winter, and spring quarters. To help plan the course schedule and internship/field experience, students are expected to work closely with the academic adviser. Applications are available at <http://www.uei.ucla.edu/entrepreneurship/minor.htm>.

Required Lower Division Course (4 or 5 units): Communication Studies 1 or any Writing II course.

Required Upper Division Courses (24 or 25 units): Management 160, 161, 199 (4 units minimum), and three elective courses selected from Ancient Near East M105, Communication Studies 109, M117, 133, 156, Dance C184, Digital Humanities 101, 150, Economics 106E, 173A, 173B, Environment 163, Ethnomusicology 105, Management 162, 163, 164, 167, Sociology 172. At least two of the three elective courses must be selected from the management courses listed above.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 3.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

ENVIRONMENTAL HEALTH SCIENCES

Jonathan and Karin Fielding School of Public Health

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Michael L. Jerrett, PhD, Chair

Professors

Richard F. Ambrose, PhD
Michael D. Collins, PhD
Jared M. Diamond, PhD
Hilary A. Godwin, PhD
Oliver Hankinson, PhD
Richard J. Jackson, MD, MPH
Michael L. Jerrett, PhD
Niklas Krause, MD, MPH, PhD
Timothy Malloy, JD
André E. Nel, MBChB, PhD
Shane S. Que Hee, PhD
Beate R. Ritz, MD, PhD
Wendie A. Robbins, RN, PhD, FAAN
Linda Rosenstock, MD, MPH

Robert H. Schiestl, PhD
Irwin H. Suffet, PhD

Professors Emeriti

Arthur K. Cho, PhD
Climis A. Davos, PhD
Curtis D. Eckhert, PhD
John R. Froines, PhD
William C. Hinds, ScD
Robert A. Mah, PhD
Arthur M. Winer, PhD

Associate Professors

Jesus A. Araujo, MD
Jane L. Valentine, PhD
Yifang Zhu, PhD

Assistant Professors

Patrick Allard, PhD

Adjunct Professors

James R. Greenwood, PhD
Thomas H. Hatfield, DrPH, REHS

Adjunct Associate Professor

Daniel Z. Uslan, MD

Adjunct Assistant Professors

Angelo J. Bellomo, MS
Pablo Cicero-Fernández, PhD
Brian L. Cole, DrPH
James H. Gibson, PhD, MPH, REHS
Nicole M. Green, PhD
Tao Huai, PhD
Kevin Y. Njabo, PhD

Scope and Objectives

The Department of Environmental Health Sciences focuses its research and educational activities on the protection of human health from biological, chemical, and physical hazards in the environment. Its graduates are scientists, professionals, and leaders capable of identifying and measuring stressors of environmental concern; evaluating the health, environmental, and all other impacts of such stressors; developing means for their effective management; and evaluating alternative policies directed at improving and protecting health and the environment. Such training is accomplished through several degree programs that offer specialized study in selected academic areas of environmental health sciences such as air pollution, environmental biology, environmental chemistry, environmental policy, toxicology, built environment and health, climate and health, industrial hygiene, and water quality. Graduates of the department pursue careers in the private or public sector as researchers, educators, managers, policymakers, and/or practitioners.

The department offers MS and PhD degrees in Environmental Health Sciences and, through the Fielding School of Public Health, the MPH and DrPH MPH degrees with a specialization in environmental health sciences (see Public Health Schoolwide Programs). A concurrent degree program (Environmental Health Sciences MPH/Urban Planning MURP) is also offered. The interdepartmental Molecular Toxicology Program offers a PhD degree.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many

cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Environmental Health Sciences offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Environmental Health Sciences.

Environmental Health Sciences

Upper Division Courses

100. Introduction to Environmental Health. (4) Lecture, three hours; discussion, one hour. Preparation: one course each in chemistry and biology. Introduction to environmental health, including coverage of sanitary principles and chronic and acute health effects of environmental contaminants. P/NP or letter grading.

101. Fundamentals of Chemistry in Environmental Health. (2) Seminar, one hour; discussion, one hour. Designed for undergraduate students in Public Health minor or master's and doctoral students in Fielding School of Public Health. Ideal for students who feel that their background in chemistry is not strong enough and are planning to take course 100, C200A, C200B, or 200C or are concurrently enrolled in one of those courses. Interactive seminar with focus on critical concepts in chemistry that students need for core environmental health sciences courses. P/NP, S/U, or letter grading.

C125. Atmospheric Transport and Transformations of Airborne Chemicals. (4) Lecture, four hours. Preparation: one year of calculus, one course each in physics, organic chemistry, and physical chemistry. Designed for science, engineering, and public health students. Role of regional or long-range transport, and atmospheric lifetimes and fates of airborne chemicals in phenomena such as photochemical smog, acid deposition, stratospheric ozone depletion, accumulation of greenhouse gases, and regional and global distribution of volatile toxic compounds. Concurrently scheduled with course C225. P/NP or letter grading.

C135. Environmental Policy for Science and Engineering. (4) Lecture, four hours. Limited to senior undergraduate and graduate students. Examination of theoretical underpinnings of several major types of regulatory policy, as well as practical issues involved in implementing and enforcing each. Exploration of selection and impact of regulatory forms from variety of disciplines and viewpoints. Focus on traditional command and control regulation (including self-executing performance standards and permitting), market-based regulation (such as emissions trading), remediation, and emerging regulatory approaches such as management-based regulation and alternatives assessment. Issues of compliance and enforcement. Concurrently scheduled with course C235. P/NP or letter grading.

C140. Fundamentals of Toxicology. (4) Lecture, four hours. Preparation: one course each in biology, organic chemistry, and biochemistry. Essential aspects of toxicology, with emphasis on human species. Absorption, distribution, excretion, biotransformation, as well as basic toxicologic processes and organ systems. Concurrently scheduled with course C240. Letter grading.

C152D. Properties and Measurement of Airborne Particles. (4) Lecture, four hours. Preparation: one year each of chemistry, physics, and calculus. Basic theory and application of aerosol science to environmental health, including properties, behavior, sampling, and measurement of aerosols and quantitative problems. Concurrently scheduled with course C252D. P/NP or letter grading.

C157. Risk Assessment and Standard Setting. (4) Seminar, four hours. Requisites: course C140, Epidemiology 100. Designed to provide students with opportunity to review scientific basis for association of selected occupational and environmental exposures with disease. Special emphasis on critical evaluations of literature. Attention specifically to interface of science and regulatory standards. Concurrently scheduled with course C257. P/NP or letter grading.

C164. Fate and Transport of Organic Chemicals in Aquatic Environment. (4) Lecture, four hours. Recommended requisites: Chemistry 14A and 14B, or 20A and 20B. Evaluation of how and where and in what form and concentration organic pollutants are distributed in aquatic environments. Study of mass transport mechanisms moving organic chemicals between phases, biological degradation and accumulation, and chemical reactions. Effect of humic substances on these processes. Concurrently scheduled with course C264. P/NP or letter grading.

M166. Environmental Microbiology. (4) (Same as Civil Engineering M166.) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisite: Civil Engineering 153. Microbial cell and its metabolic capabilities, microbial genetics and its potentials, growth of microbes and kinetics of growth, microbial ecology and diversity, microbiology of wastewater treatment, probing of microbes, public health microbiology, pathogen control. Letter grading.

M166L. Environmental Microbiology and Biotechnology Laboratory. (1) (Same as Civil Engineering M166L.) Laboratory, two hours; outside study, two hours. Corequisite: course M166. General laboratory practice within environmental microbiology, sampling of environmental samples, classical and modern molecular techniques for enumeration of microbes from environmental samples, techniques for determination of microbial activity in environmental samples, laboratory setups for studying environmental biotechnology. Letter grading.

C180. Principles of Nanobiological Interactions and Nanotoxicology. (4) Lecture, four hours. Preparation: basic understanding of biology and chemistry at level required for admission to University of California at undergraduate level in engineering, physical, or natural sciences. Introduction to commonly used vocabulary in nanoscience required to appreciate biological interactions and potential toxicity of nanomaterials. Discussion of synthesis and physical-chemical characterization of engineered nanomaterials. Development of understanding of unique properties of engineered nanomaterials and how these properties contribute to biological interactions. Relation of properties of engineered nanomaterials to their potential for transport, reactivity, uptake, and toxicity in natural environments and in body. Concurrently scheduled with course C280. P/NP or letter grading.

C185A. Foundations of Environmental Health Sciences. (6) Lecture, six hours. Preparation: one year of undergraduate biology and chemistry. Introduction to field of environmental health sciences designed for students pursuing MS degrees. Examination of series of topics relevant to science of environmental health (e.g., population, agriculture/food, microbiology, energy, climate change, water, waste, air) by introducing scientific basis from ecological perspective and describing how topics relate to health on biochemical and molecular basis. Emphasis on scientific aspects of field, with focus on critique of primary literature and quantitative approaches for examination of topics to provide skills that are critical to perform research. Concurrently scheduled with course C200A. Letter grading.

C185B. Foundations of Environmental Health Sciences for Public Health Professionals. (6) Lecture, six hours. Preparation: one year of undergraduate biology and chemistry. Introduction to field of environmental health sciences designed for students pursuing MPH degree in Environmental Health Sciences. Examination of series of topics that cover scientific principles of field, as well as translation of science to environmental health practice. Topics include physical, chemical, and biological hazards, as well as risk assessment and communication. Acquisition of skills important for public health professionals, such as application of scientific information to real-world problems and ability to communicate effectively with different stakeholders. Concurrently scheduled with course C200B. Letter grading.

important for public health professionals, such as application of scientific information to real-world problems and ability to communicate effectively with different stakeholders. Concurrently scheduled with course C200B. Letter grading.

C185C. Foundations of Environmental Health Sciences. (6) Lecture, four hours; group project, two hours. Enforced requisite: course C185A or C185B. Multidisciplinary aspects of environmental health sciences in context of public health for environmental health majors. Concurrently scheduled with course C200C. Letter grading.

197. Individual Studies in Environmental Health Sciences. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

C200A. Foundations of Environmental Health Sciences. (6) Lecture, six hours. Preparation: one year of undergraduate biology and chemistry. Introduction to field of environmental health sciences designed for students pursuing MS degrees. Examination of series of topics relevant to science of environmental health (e.g., population, agriculture/food, microbiology, energy, climate change, water, waste, air) by introducing scientific basis from ecological perspective and describing how topics relate to health on biochemical and molecular basis. Emphasis on scientific aspects of field, with focus on critique of primary literature and quantitative approaches for examination of topics to provide skills that are critical to perform research. Concurrently scheduled with course C185A. Letter grading.

C200B. Foundations of Environmental Health Sciences for Public Health Professionals. (6) Lecture, six hours. Preparation: one year of undergraduate biology and chemistry. Introduction to field of environmental health sciences designed for students pursuing MPH degree in Environmental Health Sciences. Examination of series of topics that cover scientific principles of field, as well as translation of science to environmental health practice. Topics include physical, chemical, and biological hazards, as well as risk assessment and communication. Acquisition of skills important for public health professionals, such as application of scientific information to real-world problems and ability to communicate effectively with different stakeholders. Concurrently scheduled with course C185B. Letter grading.

C200C. Foundations of Environmental Health Sciences. (6) Lecture, four hours; group project, two hours. Enforced requisite: course C200A or C200B. Multidisciplinary aspects of environmental health sciences in context of public health for environmental health majors. Concurrently scheduled with course C185C. Letter grading.

201. Seminar: Health Effects of Environmental Contaminants. (2) Seminar, two hours. Requisites: courses C200A, C200B. Emphasis on health effects of air, water, environmental pollutants on man and review of research literature. May be repeated for credit. S/U or letter grading.

202. Seminar: Environmental Chemistry. (2) Seminar, one hour. Requisites: courses C200A, C200B, 410A, 410B. Environmental chemistry aspects of environmental health sciences through multimedia analyses and biological and microbiological analyses. May be repeated for credit. Letter grading.

203. Seminar: Ecotoxicology. (2) Seminar, two hours. Discussion of various topics in ecotoxicology. Topics vary from term to term and include aspects of environmental chemistry, toxicology, and ecology. May be repeated for credit. S/U grading.

204. Seminar: Exposure Assessment. (2) Seminar, two hours. Discussion of various topics in exposure assessment. Topics vary by term and include aspects

of population activity, microenvironments, types of monitoring (outdoor, indoor, personal, biomarkers), and multimedia sources of exposure. S/U grading.

205. Environmental Health Sciences Doctoral Seminar. (2) Seminar, two hours. Limited to environmental health sciences doctoral students. Presentation of current research of environmental health sciences doctoral students. May be repeated for credit. S/U grading.

206. Seminar: Applied Coastal Ecology. (2) Seminar, two hours. Discussion of various topics in applied coastal ecology. Topics vary by term and include wetland ecology, restoration ecology, and ecology and management of coastal watersheds. May be repeated for credit. S/U or letter grading.

207. Introduction to Geographic Information Systems. (4) Lecture, two hours; laboratory, two hours. Introduction to geographic information systems (GIS), including use of GIS software, mapping, geocoding, and data analysis. S/U or letter grading.

208. Built Environment and Health. (4) Lecture, three hours; discussion, one hour. Limited to public health and urban planning graduate students. Interdisciplinary course on built environment and health and breaking down silos. U.S. and other developed, as well as developing, countries are facing increasingly lethal and costly epidemics of acute and chronic diseases related to land use and built environment decisions. While hazards presented by air and water pollution are well recognized for acute, infectious, and toxicological illnesses, there is increasing recognition of hazards presented by building and community designs that fail to recognize human health. Land use and built environment decisions impact every age group and social and racial minority. Impacts range from very acute (motor vehicle trauma) to long term (obesity, cancer, heart disease). Decisions have as their bases economic, financial, insurance, housing, and other factors. Analysis of each factor and related disease endpoints. S/U or letter grading.

209. Practical Applications in Environmental Health Sciences. (2) Lecture, two hours. Enforced requisites: courses C200A, C200B. Description of many leading environmental and occupational health problems that environmental health practitioners face today, conducted as series of lectures, assignments, hands-on field exercises, and group projects, to help students develop skills necessary to integrate concepts across disciplines in field of environmental health. May satisfy some requirements needed to qualify for Registered Environmental Health Specialist (REHS) certification. S/U or letter grading.

210. Public Health and Environmental Microbiology. (4) Lecture, three hours. Preparation: one course each in biology, organic chemistry, and biochemistry. Basic principles: cycling of matter, fates of natural and man-made compounds in environment, wastewater and drinking water microorganisms and treatment, and public health microorganisms. S/U or letter grading.

211. Epidemiologic Methods in Violent Injury. (4) (Same as Epidemiology M252.) Lecture, four hours. Requisites: Epidemiology 200A, 200B, and 200C (or 100). Description and critical evaluation of epidemiologic methods in approaches to understanding incidence risk factors and prevention strategies of violence and violence-related injury. Letter grading.

212. Applied Ecology. (4) Lecture, four hours. Preparation: one ecology course. Application of ecological theory and principles to solve environmental problems, including conservation biology, assessment of environmental impacts, and restoration ecology and mitigation of environmental impacts. Letter grading.

213. Seminar: Practical Aspects of Biosafety and Biosecurity. (2) Seminar/discussion, two hours. Preparation: one year of introductory biology. Recommended requisite: Microbiology 101 or 102. Designed for environmental health sciences graduate students and students in UCLA Biosafety Training Program. Interactive seminar with focus on critical concepts in and practical aspects of biosafety, biosecurity, risk assessment, and risk management that are needed

for individuals wishing to serve as interns in UCLA biosafety program and/or become biosafety professionals. S/U or letter grading.

214. Children's Environmental Health: Prenatal and Postnatal. (4) Lecture, four hours. Preparation: one year each of chemistry and biology. Examination of how environmental exposures to chemical, physical, and biological agents during period of maturation (from fertilization to adulthood) cause pathophysiological perturbations in homeostasis at any stage during life. Letter grading.

215. Fundamentals of Health Impact Assessment. (4) Seminar, four hours. Provides students with sound understanding of health impact assessment (HIA) practice, its rationale and underlying principles, and opportunities to develop and apply HIA skills in work with public agencies and community-based organizations. Focus on problem solving around case-study HIAs and student experiences working on HIA-related projects. S/U or letter grading.

C225. Atmospheric Transport and Transformations of Airborne Chemicals. (4) Lecture, four hours. Preparation: one year of calculus, one course each in physics, organic chemistry, and physical chemistry. Designed for science, engineering, and public health students. Role of regional or long-range transport, and atmospheric lifetimes and fates of airborne chemicals in phenomena such as photochemical smog, acid deposition, stratospheric ozone depletion, accumulation of greenhouse gases, and regional and global distribution of volatile toxic compounds. Concurrently scheduled with course C125. S/U or letter grading.

M229. Epidemiology of Foodborne Illnesses. (4) (Same as Epidemiology M229.) Lecture, four hours. Requisites: Biostatistics 100A, Epidemiology 200A, 200B, and 200C (or 100). Food poisoning is significant cause of morbidity and mortality in both developing and developed world. Examination of etiologic agents of food poisoning and factors specific to foods that allow them to become agents of disease transmission. S/U or letter grading.

230A-230B-230C. Interdisciplinary Occupational Health Practice. (2-2-2) Activity, one hour; fieldwork, one hour. Course 230A is enforced requisite to 230B, which is enforced requisite to 230C. Multidisciplinary nature of occupational health practice featured and explored in these varied-activity courses, including material related to recognition, prevention, surveillance, and management of work-related health problems that occupational health and safety researchers and professionals encounter in various work environments. Lectures, seminars, field exercises, workshops, clinical case conferences, and group assignments combined to help students develop skills necessary to integrate and communicate relevant approaches to occupational hazard detection and control, work-related injury and illness surveillance, and disease and disability prevention from different disciplines in field of occupational health and safety. In Progress (230A, 230B) and S/U (230C) grading.

C235. Environmental Policy for Science and Engineering. (4) Lecture, four hours. Limited to senior undergraduate and graduate students. Examination of theoretical underpinnings of several major types of regulatory policy, as well as practical issues involved in implementing and enforcing each. Exploration of selection and impact of regulatory forms from variety of disciplines and viewpoints. Focus on traditional command and control regulation (including self-executing performance standards and permitting), market-based regulation (such as emissions trading), remediation, and emerging regulatory approaches such as management-based regulation and alternatives assessment. Issues of compliance and enforcement. Concurrently scheduled with course C135. Letter grading.

C240. Fundamentals of Toxicology. (4) Lecture, four hours. Preparation: one course each in biology, organic chemistry, and biochemistry. Essential aspects of toxicology, with emphasis on human species. Absorption, distribution, excretion, biotransformation, as

well as basic toxicologic processes and organ systems. Concurrently scheduled with course C140. Letter grading.

M241. Advanced Concepts in Gene-Environment Interactions. (4) (Same as Molecular Toxicology M247.) Lecture, three hours; discussion, one hour. Comprehensive and practical examination of emerging science of gene-environment interaction. Discussion of primary components of field, including role of metabolic pathways in modifying environmental responses and importance of environmental influences in human disease. Exploration of selected hot topics in field, such as importance of epigenetics and of microbiome. S/U or letter grading.

M242. Toxicodynamics. (2) (Same as Molecular Toxicology M242.) Lecture, one hour; discussion, one hour. Preparation: undergraduate biology and chemistry courses. Requisite: course C240. Examination of recent literature on mechanisms of toxicity or toxicodynamics. Student presentation of papers selected by instructor on various aspects of toxic mechanisms, including free radical mechanisms, mechanisms of cell death, metal toxicity/ion homeostasis, intracellular pH and calcium regulation, stress and adaptive pathways, DNA repair/mutagenesis, carcinogenesis, and teratogenesis. Discussion of various papers. S/U or letter grading.

M245. Laboratory in Toxicological Methods. (2) (Same as Molecular Toxicology M245 and Pharmacology M234C.) Lecture, one hour; laboratory, four to five hours. Survey of experimental techniques used in study of toxic substances. Experiments conducted within known toxin to demonstrate its effects at molecular, cellular, and tissue levels. Presentation of principles of techniques and methods of data analysis at discussion session prior to laboratory. Letter grading.

M246. Molecular Toxicology. (4) (Same as Molecular Toxicology M246.) Lecture, four hours. Enforced requisite: course C240. Fundamental aspects of toxicology required for deep understanding of toxicological processes, with research-oriented outlook. Dissemination of information about important molecular toxicological topics to make students think about them from research perspective. Students learn about cutting-edge research areas of molecular toxicology, how to most optimally extract important information from research papers, how to critique papers, how to formulate alternative hypotheses for data in papers, how to formulate ideas for future research, and how to express their ideas effectively in oral settings. Letter grading.

250D. Industrial Hygiene Practice. (2) Seminar, two hours. Requisites: courses C200A, C200B. Presentation of topics that are relevant to current practice of occupational health. Topics include discussions of regulatory framework, risk assessment and risk communication, new legislation, and emergent occupational health issues. S/U grading.

251. Prevention of Disease in Workers and Workplaces. (3) Lecture, three hours. Review of health conditions caused by occupational exposures, worker-oriented preventive methods, and workplace-related approaches to improving general health. Integration of exposure- and clinical-based preventive strategies. Appropriate for students in occupational-environmental medicine, preventive medicine, epidemiology, nursing, and occupational hygiene, and toxicologists interested in human implications. Letter grading.

C252D. Properties and Measurement of Airborne Particles. (4) Lecture, four hours. Preparation: one year each of chemistry, physics, and calculus. Basic theory and application of aerosol science to environmental health, including properties, behavior, sampling, and measurement of aerosols and quantitative problems. Concurrently scheduled with course C152D. S/U or letter grading.

252E. Identification and Measurement of Gases and Vapors. (4) Lecture, three hours; discussion, one hour; outside study, two hours. Preparation: one year each of chemistry, physics, and calculus. Theoretical

and practical aspects of industrial hygiene sampling and measurement of gases and vapors. Letter grading.

252F. Industrial Hygiene Measurements Laboratory. (3) Laboratory, three hours. Corequisites: courses C252D, 252E. Limited to industrial hygiene majors. Laboratory methods for sampling, measurement, and analysis of gases, vapors, and aerosols found in occupational environment. S/U or letter grading.

252G. Industrial and Environmental Hygiene Assessment. (4) Lecture, one hour; discussion, two hours; laboratory, two hours; outside study, four hours. Requisites: courses C200A, C200B, C252D, 252E, 252F. Environmental and industrial hygiene sampling strategies and assessment via walk-through surveys, lectures, group discussion, actual field measurements, laboratory calibrations, and analyses and reports, with emphasis on chemical, physical, and ergonomic hazards. Letter grading.

253. Physical Agents in Work Environment. (2 to 4) Lecture, two hours; laboratory, two hours. Preparation: one year of physics. Physics, measurement methods, health effects, and control methods for radiation (ionizing and nonionizing), noise, and thermal stress in workplace environment. S/U or letter grading.

255. Control of Airborne Contaminants in Industry. (4) Lecture, two hours; laboratory, two hours. Preparation: one year of physics. Requisite: course C252D. Principles and applications of control technology to industrial environments, including general and local exhaust ventilation, air cleaning equipment, and respiratory protection. S/U or letter grading.

256. Biological and Health Surveillance Monitoring in Occupational/Environmental Health. (4) Lecture, three hours; discussion, one hour; assignments, three hours. Principles and applications of biological monitoring and health surveillance to assess occupational and environmental exposures to organic and inorganic chemicals and physical factors. Letter grading.

C257. Risk Assessment and Standard Setting. (4) Seminar, four hours. Requisites: courses C240, 251, Epidemiology 100. Designed to provide students with opportunity to review scientific basis for association of selected occupational and environmental exposures with disease. Special emphasis on critical evaluations of literature. Attention specifically to interface of science and regulatory standards. Concurrently scheduled with course C157. S/U or letter grading.

258. Identification and Analysis of Hazardous Wastes. (4) Lecture, three hours; discussion, one hour; laboratory, one hour; one field trip. Requisites: course 252E, Biostatistics 100A. Designed to define, identify, label, and quantify hazardous wastes and how workers should be protected. Provides critical understanding of all analytical aspects of hazardous wastes, health aspects, and regulation and practice of handling hazardous wastes. Letter grading.

259A. Occupational Safety and Ergonomics. (4) Lecture, four hours. Overview of most frequent and severe occupational injuries and illnesses, their distribution, causes, analysis methods, and control approaches, including low back pain, falls, machine exposures, upper extremity musculoskeletal disorders, fleet safety, and selected ergonomics topics. Letter grading.

259B. Workplace Safety. (2) Lecture, two hours. Introduction to broad range of topics in workplace safety through lectures on safety hazards, their classification, metrics, control philosophy, and control methods. Specific topics include traditional safety rubrics, such as fall hazards, machine safety, and fire hazards. Introduction to concepts of safety culture and philosophy. Review and presentation of peer-reviewed articles on topics relevant to course material. Letter grading.

259C. Seminar Series: Occupational Ergonomics. (2) Seminar, two hours. Requisite: course 259A. Emphasis on research methodology as applied to prevention and control of worker-related musculoskeletal disorders. Topics include applied anthropometry, bio-

mechanical modeling, strength measurement, postural analysis, fatigue, and medical surveillance of cumulative trauma disorders. S/U grading.

259G. Fire Prevention, Protection, and Facility Design. (3) Lecture, three hours. Requisite: course 259A. Introduction to application of fire sciences, engineering, and management principles to prevention, suppression, and control of fires and explosions and protection of persons and property from fire or explosion damage and injury. Letter grading.

M260. Occupational Epidemiology. (4) (Same as Epidemiology M261.) Lecture, three hours. Requisites: Epidemiology 100; for Epidemiology majors, Epidemiology 200A, 200B, 200C. Methodological considerations, approaches, and limitations in epidemiological studies of occupational groups and environments. S/U or letter grading.

261. Chemical Behavior of Aquatic Systems. (4) Lecture, three hours. Requisites: courses C200A, C200B, Chemistry 20A, 20B, Mathematics 3A. Chemistry of ocean waters, rivers, groundwaters, and water treatment systems. Topics include thermodynamics of natural waters, acids and bases, carbon dioxide cycle, solubility reactions, oxidation and reduction, plus applied problems. Letter grading.

C264. Fate and Transport of Organic Chemicals in Aquatic Environment. (4) Lecture, four hours. Preparation: bachelor's degree in science, engineering, geophysics, chemistry, biology, or public health. Evaluation of how and where and in what form and concentration organic pollutants are distributed in aquatic environments. Study of mass transport mechanisms moving organic chemicals between phases, biological degradation and accumulation, and chemical reactions. Effect of humic substances on these processes. Concurrently scheduled with course C164. S/U or letter grading.

M270. Work and Health. (4) (Same as Community Health Sciences M278.) Lecture, three hours; practicum, one hour. Recommended preparation: graduate-level methods/statistics course, basic epidemiology. Designed for graduate students. Exploration of impact of work on physical and psychological health in context of newly emerging discipline. Focus on psychosocial models, measurement (including hands-on experience), contextual factors (gender, ethnicity, social class), and how work stressors can be ameliorated. S/U or letter grading.

C280. Principles of Nanobiological Interactions and Nanotoxicology. (4) Lecture, four hours. Preparation: basic understanding of biology and chemistry at level required for admission to University of California at undergraduate level in engineering, physical, or natural sciences. Introduction to commonly used vocabulary in nanoscience required to appreciate biological interactions and potential toxicity of nanomaterials. Discussion of synthesis and physical-chemical characterization of engineered nanomaterials. Development of understanding of unique properties of engineered nanomaterials and how these properties contribute to biological interactions. Relation of properties of engineered nanomaterials to their potential for transport, reactivity, uptake, and toxicity in natural environments and in body. Concurrently scheduled with course C180. S/U or letter grading.

296A-296N. Research Topics in Environmental Health Sciences. (2 each) Seminar, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading:

296A. Coastal Ecological Processes and Problems.

296B. Teratogenesis.

296C. Toxicology and Environmental Health Policy.

296D. Economic Impacts of Contamination and Remediation of Coastal Waters.

296E. Molecular Topics in Boron Biology.

296F. Toxicology and Exposure Assessment of Toxic Chemicals.

296G. Advances in Aerosol Technology.

296H. Occupational and Environmental Exposure Assessment.

296I. Industrial and Environmental Hygiene.

296J. Germ Cell Cytogenetic/Genetic Biomarkers.

296K. Aquatic Chemistry.

296L. Water Science and Health.

296M. Experimental and Modeling Studies of Atmospheric Pollution.

296N. Genetic Toxicology.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Field Studies in Environmental Health Sciences. (4) Fieldwork, to be arranged. Field observation and studies in selected community environmental health organizations. Students must file field placement and program training documentation on form available from Student Affairs Office. May not be applied toward MS minimum course requirement; 4 units may be applied toward 62-unit minimum total required for MPH degree. Letter grading.

401. Environmental Measurements. (4) Lecture, two hours; laboratory, four hours. Requisites: courses C200A, C200B, Chemistry 20A, 30AL. Instrumental methods for laboratory and field applications to assess quantity of environmental pollutants in air, food, and water, and to assess degree of exposure to such factors as noise and radiation. Letter grading.

405. Operations and Management of Public Health Laboratories. (4) Lecture, four hours. Preparation: bachelor's degree in science, engineering, or public health, at least one microbiology, environmental microbiology, infectious diseases, public health microbiology, or public health laboratory course. Designed for master's and doctoral students. Principles of operations and management of public health laboratories and roles they play in public health infrastructure. Basic knowledge of microbiology assumed. Topics include assays and tests performed by public health laboratories, quality control, and leadership principles. Students perform needs assessment for local public health laboratory. S/U or letter grading.

410A. Instrumental Methods in Environmental Sciences. (4) Lecture, four hours; discussion, two hours; other, two hours. Preparation: one year each of physics, chemistry, and biology. Theory and principles of instrumental methods through lectures and group discussions. Letter grading.

410B. Instrumental Methods Laboratory in Environmental Health Sciences. (4) Lecture, one hour; discussion, one hour; laboratory, four hours; other, two hours. Preparation: one year each of physics, chemistry, and mathematics. Requisites: courses C200A, C200B. Laboratory techniques and instrumentation used in preparation and analysis of biological, environmental, and occupational samples. Letter grading.

411. Environmental Health Sciences Seminar. (2) Seminar, two hours. Required of graduate environmental health sciences students for one term each year. Current topics in environmental health in science, policy, and leadership. Speakers who are leading thinkers at interface of health and environment address important subjects of environmental health. May be repeated for credit. S/U grading.

M412. Effective Technical Writing. (2) (Same as Environment M412.) Seminar, two hours. Essentials of grammar, punctuation, syntax, organization, and format needed to produce well-written journal articles, research reports, memoranda, letters, and résumés. Development of technical writing skills using critique, exercises, and examples. S/U grading.

M413. Advanced Technical Writing. (2) (Same as Environment M413.) Seminar, two hours. Development of advanced technical writing skills, with exercises focused on preparation of manuscripts for publication in peer-reviewed journal. S/U grading.

M414. Effective Oral Presentation. (2) (Same as Environment M414.) Seminar, two hours. Introduction to oral presentations. Development of oral presentation skills, including content structure, visual aids, delivery, and audience interaction. S/U grading.

M415. Advanced Oral Presentation. (2) (Same as Environment M415.) Seminar, two hours. Development of advanced oral presentation skills. Preparation for oral qualifying examination. S/U grading.

454. Health Hazards of Industrial Processes. (4) Lecture, two hours; field trips, four hours. Requisites: course 255. Industrial processes and operations and occupational health hazards that arise from them. Letter grading.

461. Water Quality and Health. (4) Lecture, three hours; discussion, one hour. Requisites: courses C200A, C200B, 401. Introduction to water quality, with coverage of hydrology, water chemistry, and various chemical contaminants that may affect human health. Various treatment methods and health implications. S/U or letter grading.

470. Environmental Hygiene Practices. (2) Lecture, two hours. Requisites: courses C200A, C200B, 401, Epidemiology 100. Field principles and practices of environmental sanitation as applicable to sanitarians. Topics include theory, code enforcement, and inspection procedures for applicable environmental topic areas. S/U or letter grading.

M471. Improving Worker Health: Social Movements, Policy Debates, and Public Health. (4) (Same as Community Health Sciences CM470 and Urban Planning M470.) Lecture, three hours; fieldwork, two hours. Examination of intersection between work, health, and environment, analysis of social causes of health disparities, investigation of historical trends and social movements, interpretation of current policy debates, and development of innovative interventions. S/U or letter grading.

495. Teacher Preparation in Environmental Health Sciences. (2) Seminar, two hours. Preparation: 18 units of cognate courses in area of specialization. May not be applied toward master's degree minimum total course requirement. May be repeated for credit. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward MPH and MS minimum total course requirement. May be repeated for credit. S/U or letter grading.

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations. (2 to 8) Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

598. Master's Thesis Research. (2 to 10) Tutorial, four hours. Only 4 units may be applied toward MPH and MS minimum total course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

599. Doctoral Dissertation Research. (2 to 10) Tutorial, four hours. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

ENVIRONMENTAL SCIENCE AND ENGINEERING

See Institute of the Environment and Sustainability

EPIDEMIOLOGY

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Scope and Objectives

Epidemiology has been defined as the study of the distribution and determinants of disease and injury in human populations. Epidemiologists study variations of disease in relation to such factors as age, sex, race, occupational and social characteristics, place of residence, susceptibility, exposure to specific agents, or other pertinent characteristics. Also of concern are the temporal distribution of disease, examination of trends, cyclical patterns, and intervals between exposure to causative factors and onset of disease. The scope of the field extends from study of the patterns of disease to the causes of disease and to the control or prevention of disease. What distinguishes epidemiology from other clinical sciences is the focus on health problems in population groups rather than in individuals.

Epidemiology is a young field with constantly expanding boundaries. The range of activities that may be at least partly epidemiologic includes determination of the health needs of populations, investigation and control of disease outbreaks, study of environmental and industrial hazards, evaluation of preventive or curative programs or treatments, and evaluation of the effectiveness and efficiency of intervention or control strategies. Many tools of epidemiology are borrowed from other fields such as microbiology, immunology, medicine, statistics, demography, and medical geography.

There is a growing core of purely epidemiologic methodology that includes not only statistical methodology and principles of study design, but a unique way of thinking that is beyond the rote memorization of rules. The contribution of epidemiology to any study involving groups of people is being increasingly recognized and demanded.

Epidemiologists may work in many settings, including international health agencies, state and local health departments, federal government agencies and health programs, health maintenance organizations, colleges and universities, and numerous research projects privately and publicly sponsored.

The objectives of the Department of Epidemiology fall into three broad categories—research, teaching, and community service. Degrees offered include the MS and PhD in Epidemiology and, through the Fielding School of Public Health, the MPH and DrPH with a specialization in epidemiology (see Public Health Schoolwide Programs).

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Epidemiology offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Epidemiology.

Epidemiology

Upper Division Courses

100. Principles of Epidemiology. (4) Lecture, four hours; discussion, two hours. Preparation: one full biological sciences course. Not open for credit to students with credit for course 200A, 200B, or 200C. Introduction to epidemiology, including factors governing health and disease in populations. Letter grading.

CM175. Terrorism, Counterterrorism, and Weapons of Mass Destruction: Practical Approach. (5) (Same as Honors Collegium M175.) Seminar, three hours. Terrorism, its origins, and ways of addressing terrorism at local, national, and global levels. Guest speakers from variety of UCLA departments and from Los Angeles. Concurrently scheduled with course C275. P/NP or letter grading.

197. Individual Studies in Epidemiology. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Methods I: Basic Concepts and Study Designs. (6) Lecture, six hours; discussion, four hours. Enforced requisite or corequisite: Biostatistics 100A. Introduction to basic concepts, principles, and methods of chronic and infectious disease epidemiology. Letter grading.

200B. Methods II: Prediction and Validity. (6) Lecture, six hours; discussion, four hours. Enforced requisites: course 200A, Biostatistics 100A, 100B. Introduction to basic concepts, principles, and methods of chronic and infectious disease epidemiology. Letter grading.

200C. Methods III: Analysis. (6) Lecture, four hours; laboratory, two hours. Enforced requisites: courses 200A, 200B. Introduction to basic concepts, principles, and methods of epidemiologic data analysis. Letter grading.

203. Topics in Theoretical Epidemiology. (2) Lecture, two hours. Selected topics from current research areas in epidemiologic theory and quantitative methods. Topics selected from biologic models, epidemiologic models, problems in inference, model specification problems, design issues, analysis issues, and confounding. May be repeated for credit with consent of instructor. S/U grading.

M204. Logic, Causation, and Probability. (4) (Same as Statistics M243.) Lecture, four hours. Preparation: two terms of statistics or probability and statistics. Recommended requisite: course 200C. Principles of deductive logic and causal logic using counterfactuals. Principles of probability logic and probabilistic induction. Causal probability logic using directed acyclic graphs. S/U or letter grading.

M211. Statistical Methods for Epidemiology. (4) (Same as Biostatistics M211 and Statistics M250.) Lecture, four hours. Preparation: two terms of statistics (such as Biostatistics 100A, 100B). Requisites: courses 200B, 200C. Concepts and methods tailored for analysis of epidemiologic data, with emphasis on tabular and graphical techniques. Expansion of topics introduced in courses 200B and 200C and introduction of new topics, including principles of epidemiologic analysis, trend analysis, smoothing and sensitivity analysis. S/U or letter grading.

M212. Statistical Modeling in Epidemiology. (4) (Same as Biostatistics M209.) Lecture, four hours. Preparation: two terms of statistics (three terms recommended). Recommended: course M204 or M211. Principles of modeling, including meanings of models, a priori model specification, translation of models into explicit population assumptions, model selection, model diagnostics, hierarchical (multilevel) modeling. S/U or letter grading.

M216. Applied Sampling. (4) (Same as Statistics CM248.) Lecture, three hours; discussion, one hour. Designed for upper division and graduate students in social or life sciences and those who plan to major in Statistics. Topics include methods of sampling from finite populations, sources of sampling and estimation bias, and methods of generating efficient and precise estimates of population characteristics. Practical applications of sampling methods via lectures and hands-on laboratory exercises. S/U or letter grading.

M218. Questionnaire Design and Administration. (4) (Same as Community Health Sciences M218.) Lecture, four hours. Requisites: courses 200B and 200C, or Community Health Sciences 211A and 211B. Design, testing, field use, and administration of data collection instruments, with particular emphasis on questionnaires. Letter grading.

220. Principles of Infectious Disease Epidemiology. (4) Lecture, three hours. Requisite: course 100 or 200A. Ascertainment of infection, transmission, and epidemiological parameters rather than clinical and pathological aspects. Specific diseases discussed in depth to illustrate epidemiologic principles. S/U or letter grading.

223. Biology and Ecology of Human Parasitic Diseases. (4) Lecture, four hours. Information on all aspects of parasitic organisms causing human disease, including their morphology, biology, means of diagnosis, and diseases they cause. From epidemiological perspective, special emphasis on way in which parasites maintain themselves in nature and manner in which organisms are transmitted to people. Letter grading.

224. Zoonotic Diseases and Public's Health. (4) Lecture, four hours. Examination of wide variety of infectious disease agents (viruses, bacteria, and protozoan and helminth parasites) causing diseases in individuals and populations. Emphasis on how these diseases exist in natural environment, how they are transmitted from animals to humans, and methods for their prevention and control. Letter grading.

M226. Global Health Measures for Biological Emergencies. (4) (Same as Ecology and Evolutionary Biology M226.) Lecture, four hours. Requisite: course 220. Mitigation of bioterrorism falls outside traditional public health programs and public health graduate education. Because of seriousness of such threats, it is important that individuals trained in public health understand problems and responses. Letter grading.

227. AIDS: Major Public Health Challenge. (4) Lecture, four hours. Requisites: courses 200A, 200B, and 200C (or 100), Biostatistics 100A or 110A. Presentation of epidemiologic, biologic, psychological, and

clinical characteristics of AIDS and HIV-1 infection. Discussion of policy implications and intervention strategies. S/U or letter grading.

228. Biology of HIV. (4) Lecture, three hours. Preparation: two biology courses. Requisites: course 100, Biostatistics 100A. Overview of virologic and immunologic aspects of HIV disease for epidemiology or other health disciplines. Brief discussion of clinical manifestations and biosafety in laboratory. Letter grading.

M229. Epidemiology of Foodborne Illnesses. (4) (Formerly numbered 229.) (Same as Environmental Health Sciences M229.) Lecture, four hours. Requisites: courses 200A, 200B, and 200C (or 100), Biostatistics 100A. Food poisoning is significant cause of morbidity and mortality in both developing and developed world. Examination of etiologic agents of food poisoning and factors specific to foods that allow them to become agents of disease transmission. S/U or letter grading.

230. Epidemiology of Sexually Transmitted Diseases. (4) Lecture, four hours. Requisites: courses 200A, 200B, and 200C (or 100). Sexually transmitted diseases; medical/biological aspects, epidemiology and control in developed and developing countries. S/U or letter grading.

231. Principles of Control of Infectious Diseases. (4) Lecture, three hours. Comprehensive study of tools for control of infectious diseases and application of these tools in public health programs to achieve epidemiologic impact on disease reduction, elimination, or eradication. Letter grading.

232. Methods in Research of Marginalized and Hidden Populations. (2) Lecture, two hours. Requisites: courses 200A, 200B, and 200C (or 100). Introduction to range of different methodologies used to collect data and conduct analysis on reproductive epidemiology topics, including methods that produce quantitative data and methods that produce qualitative data, with emphasis on use of methods appropriate for challenging and sensitive research topics such as sexual behavior, abortion use, and sexual abuse. Letter grading.

233. Communicable Disease Epidemiology in Corrections. (2) Lecture, two hours. Requisites: courses 200A and 200B (or 100). Overview of communicable disease epidemiology, public health program, and research issues specific to correctional population in U.S., including factors that contribute to transmission of communicable pathogens such as mental health, homelessness, and community reintegration. Legal and ethical issues related to healthcare among incarcerated and potential effects on community health. S/U or letter grading.

240. Cardiovascular Epidemiology. (2) Lecture, two hours. Topics include definition, pathogenesis, descriptive epidemiology, magnitude of risk factors, strategies for prevention, lipoprotein metabolism, and epidemiology of diabetes, hypertension, and chronic lung disease. Letter grading.

242. Cancer Epidemiology. (4) Lecture, four hours. Requisites: courses 200A, 200B, and 200C (or 100). Introduction to basic concepts of cancer and molecular and genetic epidemiology. Review of current epidemiologic research in cancer in recent medical and epidemiological literature. Research proposal on cancer-related topic required. S/U or letter grading.

243. Molecular Epidemiology of Cancer. (4) Lecture, four hours. Requisite: course 242 or 295. Introduction to basic concepts and methodology of molecular epidemiology of cancer and review of current molecular epidemiologic research of cancer in recent medical and epidemiological literature. S/U or letter grading.

244. Research Methods in Cancer Epidemiology. (2) Lecture, two hours. Requisites: courses 200A, 200B, and 200C (or 100), Biostatistics 100A. Biologic, quantitative, philosophical, and administrative considerations in epidemiologic cancer research. Hypothesis specification and choice of study design. Uses of descriptive epidemiology, cohort studies, case control studies. Clustering, screening, and cancer control.

Means of identifying subjects and controls. Design of instruments. Sources of bias and confounding. S/U or letter grading.

245. Epidemiology of Infections and Cancer. (2) Lecture, two hours. Enforced requisite: course 100 or 200A. Recommended: courses 220, 242, 243. Introduction to best documented associations between infectious agents and human cancer. Topics include burden of disease, biology and natural history of infectious agents, carcinogenic mechanisms, environmental and genetic cofactors, prevention and methodological issues. S/U or letter grading.

246. Epidemiology of Aging. (2) Lecture, two hours. Epidemiologic methods of estimating present and future burdens of aging: morbidity, disability, and dependency. Epidemiology of major disabling conditions affecting elderly. Evaluation of possible intervention strategies. Methodologic issues in geriatric epidemiology. S/U or letter grading.

247. Epidemiology of Injuries in Elderly. (2) Lecture, two hours. Requisite: course 100. Description of frequency of, risk factors for, and possibilities of preventing injuries in elderly populations. Comparison of injury outcomes (morbidity and mortality) in younger versus older populations. Emphasis on methodologic issues of studying elderly people. S/U or letter grading.

248. Psychiatric Epidemiology. (2) Lecture, two hours. Requisites: courses 200A, 200B, and 200C (or 100). Introduction to basic concepts and research methods in psychiatric epidemiology. Topics include case definition, study design, instrumentation, and epidemiology of selected psychiatric disorders. Letter grading.

249. Genetic Epidemiology I. (2) Lecture, two hours. Preparation: at least one course in epidemiology, biostatistics, and genetics. Basic concepts in emerging field of genetic epidemiology, with principal focus on genetic study of complex diseases, determining genetic contributions to disease, identifying genes, and characterizing their main effects and interactions with environmental factors. S/U or letter grading.

251. Epidemiology of Nonintentional Injuries. (4) Lecture, four hours. Requisites: courses 200A, 200B, and 200C (or 100), Biostatistics 100A. Pertinent epidemiology methods for study of nonintentional trauma, including that from motor vehicle crashes, occupational exposures, falls, and other major external causes, that focus on research approaches, data sources, analytical techniques. Substantive findings on related subproblem areas presented for critical review. Letter grading.

M252. Epidemiologic Methods in Violent Injury. (4) (Same as Environmental Health Sciences M211.) Lecture, four hours. Requisites: courses 200A, 200B, and 200C (or 100). Description and critical evaluation of epidemiologic methods in approaches to understanding incidence risk factors and prevention strategies of violence and violence-related injury. Letter grading.

253. Acute Traumatic and Chronic Repetitive Injuries from Work-Related Exposures. (2) Lecture, two hours; discussion, one hour. Requisites: course 100, Biostatistics 100A. Lectures and discussions on magnitude, scope, research approaches, and intervention strategies for work-related acute traumatic and chronic repetitive (musculoskeletal) injuries. Emphasis on injury research methods for all external causes of injury, utilizing epidemiology for high-risk group and risk-factor identification and injury prevention. S/U or letter grading.

M254. Nutritional Epidemiology I. (4) (Same as Community Health Sciences M251.) Lecture, two hours; discussion/laboratory exercise, one hour. Preparation: introductory biostatistics and epidemiology courses. Review of all aspects of contemporary nutrition sciences that require application of epidemiologic principles and methods, ranging from food-borne outbreak investigation to evidence-based regulatory assessment of health claims for foods. Experience in actual world of collecting, analyzing, and interpreting data related to nutrition and health or disease outcomes. S/U or letter grading.

257. Advanced Nutritional Epidemiology. (2) Lecture, one hour; discussion, one hour. Preparation: introductory biostatistics and epidemiology courses. Requisite: course 254. Intended primarily for doctoral students interested in doing epidemiologic research. Methodological aspects of research in nutritional epidemiology. Topics include why and how to conduct validation studies, adjustment for energy intake, correction of measurement error. Methods related to genetic polymorphism, biochemical markers, gene-nutrient interaction in chronic diseases. Theoretical as well as practical aspects. S/U or letter grading.

M258. Molecular Nutrition and Genetics Epidemiology of Obesity and Diabetes. (4) (Same as Pathology M259.) Lecture, four hours. Preparation: basic biochemistry, epidemiology, molecular biology, physiology, and statistics courses. Survey of entire landscape of nutritional, biochemical, and genetic aspects of obesity and diabetes and their microvascular and macrovascular complications. Review of descriptive and analytical epidemiology of these seemingly distinct yet clearly clustered disorders, including so-called metabolic syndrome. Study of distributions and determinants of these disorders in Westernized populations to appreciate how and why these epidemics occurred. Through case studies students learn process of generating etiologic hypotheses that can be tested using modern molecular epidemiologic methods. Techniques and principals of molecular genetics relevant to epidemiologic studies. Analysis of real data sets that include both genotype and phenotype information, with emphasis on examination of various gene/environment interactions. S/U or letter grading.

259. Disaster Epidemiology. (2) Lecture, two hours. Requisites: courses 200A, 200B, and 200C (or 100), Community Health Sciences 295. Introduction to epidemiologic methodology to study disasters and their health outcomes, including surveillance, loss estimation, risk factor assessment, intervention, and evaluation. Letter grading.

260. Environmental Epidemiology. (2 or 4) Lecture, three hours. Requisites: courses 200A, 200B, and 200C (or 100). Epidemiologic methods applied to evaluation of human health consequences of environmental hazards. Topics include air pollution, pesticides, drinking water contaminants, use of GIS. Review of recently completed environmental studies published in peer-reviewed literature. S/U or letter grading.

M261. Occupational Epidemiology. (4) (Formerly numbered 261.) (Same as Environmental Health Sciences M260.) Lecture, three hours. Requisites for majors: courses 200A, 200B, 200C; for nonmajors: course 100. Methodological considerations, approaches, and limitations in epidemiological studies of occupational groups and environments. S/U or letter grading.

262. Seminar: Environmental and Occupational Cancer Epidemiology. (2) Seminar, two hours. Requisites: courses 200A, 200B, and 200C (or 100). Discussion of examples of recent epidemiologic studies, with focus on environmental and occupational exposures, especially in areas where controversies have arisen such as for electromagnetic fields and childhood leukemia, and bladder cancer and trihalomethanes levels of drinking water. S/U or letter grading.

263. Exposure Assessment in Occupational and Environmental Epidemiology. (2) Lecture, two hours. Requisites: courses 200A, 200B, and 200C (or 100). Exposure assessment is often most challenging aspect of epidemiologic studies of occupational and environmental hazards. Focus on integration of industrial hygiene principles and epidemiologic methods to improve exposure assessment protocols and exposure analyses for occupational/environmental health studies. S/U or letter grading.

265. Epidemiologic Methods in Occupational and Environmental Health. (2) Lecture, two hours. Introduction to epidemiologic methods applied to evaluation of human health consequences of occupational and environmental hazards, including study design, exposure assessment, and statistical techniques

commonly encountered in research focused on assessing adverse health effects resulting from occupational and environmental exposures. Topics include clusters, meta-analysis, risk assessment, and policy development. Illustrated by case studies, with focus on techniques to critically evaluate and interpret current literature. Letter grading.

266. Global Health and Tropical Medicine. (4) Lecture, four hours. Introduction to tropical diseases and global health. How humanitarian health issues, maternal-child health, research in tropics, World Health Organizations, and political/medical constraints all are related with respect to health on worldwide scale. Letter grading.

267. Methodologic Issues in Reproductive Epidemiology. (2) Seminar, two hours. General discussion of methodologic issues important to epidemiologic studies of reproductive outcomes, including fertility, low birth weight, prematurity, birth defects, pregnancy loss, and perinatal mortality. Approaches to study design and exposure assessment and identification of potential sources of bias illustrated through review of recent studies published in literature and with particular focus on occupational and environmental exposures and birth cohorts. S/U or letter grading.

268. Introduction to Pharmacoepidemiology. (2) Lecture, two hours. Requisites: courses 200A, 200B, 200C. Pharmacoepidemiology is application of epidemiologic knowledge, reasoning, and methods to study of effects and uses of drugs. Survey of contemporary roles of pharmacoepidemiology in drug development and public health, with historical background of its evolution and projections of future prospects. S/U or letter grading.

270. Behavioral Epidemiology. (4) Lecture, four hours. Requisite: course 100 or 200A. Introduction to range of different methodologies used to collect data and conduct analyses on behaviors studied in epidemiology research. How to collect, analyze, and interpret data on behaviors that can be associated with disease outcomes, including methods to collect survey data (i.e., design of questionnaires, interviewing techniques, use of technology to collect data) and methods to collect and analyze qualitative data (e.g., ethnographic interviews, focus groups, systematic observations). Overview information on epidemiology of key behavioral factors affecting human health, including sexual risk behaviors, substance use, physical activity, and healthcare utilization. S/U or letter grading.

271. Assessing Validity of Complementary and Alternative Healthcare Procedures. (2) Lecture, two hours. Exploration of validity of alternative and complementary healthcare procedures, with special emphasis on disorders in field of neurology. Focus on methods of analyzing clinical and experimental research published in journals that provide support or refute claims made by practitioners of these procedures. Primary procedures include acupuncture, chiropractic, manipulation, massage, and herbal remedies. Letter grading.

M272. Social Epidemiology. (4) (Same as Community Health Sciences M272.) Lecture, two hours; discussion, one hour. Requisite: course 100. Relationship between sociological, cultural, and psychosocial factors in etiology, occurrence, and distribution of morbidity and mortality. Emphasis on lifestyles and other socioenvironmental factors associated with general susceptibility to disease and subsequent mortality. Letter grading.

M273. Responsible Conduct of Research in Global Health. (2) (Formerly numbered 273.) (Same as Public Health M273.) Lecture, two hours. Requisite: Community Health Sciences 200. Introduction to fundamental principles of public health ethics, current ethical procedures, guidelines, and requirements, and ethical issues facing public health professionals working in developing countries. History of public health issues, unique ethical issues of research in developing countries, analysis of ethical implications of informed consent, responsibility to study community, mechanisms of study approval, role of funders, and role and responsibilities of review boards. S/U or letter grading.

274. Topics in Chronobiology. (2) Lecture, two hours. Introduction to basic concepts and principles of circadian biology and how they relate to chronic disease epidemiology. Circadian disruption and sleep, biomarkers of circadian system, and design, as well as methods to study these principles in modern epidemiology, with emphasis on biologic aspects and relevant disease mechanisms. S/U or letter grading.

C275. Terrorism, Counterterrorism, and Weapons of Mass Destruction: Practical Approach. (5) Seminar, three hours. Terrorism, its origins, and ways of addressing terrorism at local, national, and global levels. Guest speakers from variety of UCLA departments and from Los Angeles. Concurrently scheduled with course CM175. S/U or letter grading.

280. Connecting Epidemiological, Medical, and Mathematical Aspects of Infectious Diseases. (4) Lecture, four hours. Requisites: courses 200A, 200B, 200C, 220. To deepen and further integrate knowledge on infectious diseases, focus on small number of them to enable in-depth study. Each to be presented and discussed from three viewpoints that facilitate greater understanding: epidemiology, immunology and molecular basis, and epidemiologic and mathematical analysis. Letter grading.

291. Seminar: Special Topics in Epidemiology. (2) Seminar, two hours. Requisites: courses 200A, 200B, and 200C (or 100). Review of current epidemiologic research contained in recent medical literature. May be repeated for credit. S/U or letter grading.

292. Advanced Seminar: Epidemiology. (2) Seminar, two hours. Requisites: courses 200A, 200B, 200C. Current research in epidemiology. May be repeated for credit. S/U grading.

293. International HIV/AIDS Seminar. (2) Seminar, two hours. Ongoing discussion of worldwide pandemic of HIV/AIDS, with emphasis on problems of surveillance, reporting, and intervention. Discussion of recent literature. Presentations by fellows from other countries. S/U grading.

294. Epidemiology and Policy of Occupational and Environmental Health Issues. (2) Seminar, two hours. Requisites: courses 200A, 200B, and 200C (or 100) and/or 260. Introduction to demands that go beyond pure science, with focus on issues such as risk communication, potential influence (and ethics) of oversight panels and external review groups on presenting results and conclusions, and interest of government agencies. S/U or letter grading.

295. Seminar: Epidemiology—Cancer. (2) Seminar, two hours. Requisites: courses 200A, 200B, and 200C (or 100). Introduction of basic concepts of cancer epidemiology and review of current epidemiological research in cancer in recent medical and epidemiological literature. May be repeated for credit. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Field Studies in Epidemiology. (4) Fieldwork, to be arranged. Field observation and studies in selected community organizations for health promotion or medical care. Students must file field placement and program training documentation on form available from Student Affairs Office. May not be applied toward MS minimum course requirement; 4 units may be applied toward 44-unit minimum total required for MPH degree. Letter grading.

402. Advanced Data Analysis in Occupational and Environmental Epidemiology. (4) Lecture, four hours. Preparation: one data management course. Requisites: courses 200B and 200C, or 200B and 261. Development of strategies for analyzing data in occupational and environmental settings. Use of multivariate data analysis techniques typically used in occupational cohort studies, nested case-control studies, and ecologic studies in environmental epidemiology. S/U or letter grading.

M403. Computer Management and Analysis of Health Data Using SAS. (4) (Same as Biostatistics M403B.) Lecture, two hours; laboratory, two hours. Requisites: Biostatistics 100A, 100B (100B may be taken concurrently). Introduction to practical issues in management and analysis of health data using SAS programming language. Cross-sectional and longitudinal population-based data sets to be used throughout to illustrate principles of data management and analysis for addressing biomedical and health-related hypotheses. Letter grading.

404. Advanced SAS Techniques for Management and Analysis of Epidemiologic Data. (2) Lecture, three hours. Requisite: course M403 or 410. Hands-on experience with SAS 9.2/9.3, with focus on using SAS data and PROC steps efficiently to manage, clean, analyze, and tabulate epidemiologic data from data collection systems. Common issues and solutions in data management, including lack of documentation, data definitions, unique subject identifiers, and nonstandard data formats. S/U or letter grading.

410. Management of Epidemiologic Data. (2) Lecture, two hours. Data management for various epidemiologic study designs, confidentiality concerns; data management systems; introduction to mainframe computer. S/U or letter grading.

411. Research Resources in Epidemiology. (2) Lecture, one hour; discussion, one hour. Instruction and practical experience in use of varied bibliographic aids and sources of information, building of reference files, and presentation of research findings for publication. Letter grading.

412. Public Health Surveillance. (2) Lecture, two hours. Requisites: courses 200A, 200B, and 200C (or 100), Biostatistics 100A. Overview of public health surveillance methodology, including (1) design, implementation, and evaluation of surveillance systems, (2) analysis and interpretation of surveillance data, and (3) application of surveillance methods to specific health-related outcomes. Letter grading.

413. Methods of Scientific Communication. (2) Lecture, two hours. Requisite: course 100 or 200A. Principles of scientific writing and communication. Approaches to developing effective written, oral, and visual presentations of epidemiologic research findings. Communication issues arising in conduct of research, including informed consent process. S/U or letter grading.

414. Practical Epidemiologic Investigations. (2 or 4) Lecture, one or two hours; laboratory, one or two hours. Requisites: courses 200A, 200B, and 200C (or 100). Practical approaches to epidemic investigations presented through problem sets based on actual outbreaks. Data collection, analysis, and written presentation of findings. Letter grading.

415. Epidemiology for Developing Countries. (4) Lecture, four hours. Requisites: courses 200A, 200B, and 200C (and/or 100), Biostatistics 100A. Practical use of epidemiology, microcomputers, and spreadsheet models for estimating morbidity and mortality, developing intervention or prevention strategies, and setting program priorities in Third World settings. Letter grading.

417. Injury Prevention Strategies and Countermeasures. (2) Lecture, two hours. Requisite: course 100. Lectures with discussion on injury prevention strategies and countermeasures, including critical review of effectiveness in public health context. Emphasis on major public health injury problems from assaultive, self-inflicted, or unintentional causes. S/U or letter grading.

420. Field Trials in Developing Countries. (4) Lecture, four hours. Requisite: course 100 or 200A or 200B. Introduction to practical concepts and issues in conducting epidemiologic field research in developing countries, including formulating research questions, study site selection, ethical considerations, and logistics of data and specimen collection. S/U or letter grading.

495. Teacher Preparation in Epidemiology. (2) Seminar, two hours. Preparation: 18 units of cognate courses in area of specialization. May not be applied toward master's degree minimum total course requirement. May be repeated for credit. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward MPH and MS minimum total course requirement. May be repeated for credit. S/U or letter grading.

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

598. Master's Thesis Research. (2 to 8) Tutorial, to be arranged. Only 4 units may be applied toward MPH and MS minimum total course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

599. Doctoral Dissertation Research. (2 to 12) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

Lecturers

Justo Almario, BA
Teresa Awe, BA
Clayton Cameron, BM
Jesus A. Guzman
Charles A. Harrison, MM
Tamir Hendelman, BM
Alexandro D. Hernandez, PhD
Wolf Marshall, BA
Rahul D. Neuman
Charles Owens, BA
Jesse D. Ruskin, PhD

Adjunct Professors

Amy R. Catlin, PhD
Chi Li, BA
Eddie S. Meadows, PhD
Ankica Petrovic, PhD
Tzvetanka T. Varimezova, BA

Adjunct Associate Professors

Abhiman Kaushal
Roberto Miranda, MM
Barbara Morrison, AA
Ruth Price
Bobby H. Rodriguez, DMA
Ivan Varimezov, BA
Michele A. Weir, MA
I Nyoman Wenten, PhD

Adjunct Assistant Professors

Aaron M. Bittel, MA, MS
George R. Bohanon
James E. Roberson, MBA
Maureen A. Russell, MLS, MA, CPhil

Visiting Assistant Professor

Francis P. Awe, MA

Scope and Objectives

Ethnomusicology involves the study of all kinds of music from all over the world, using a variety of disciplinary perspectives. The Department of Ethnomusicology, the largest and first of its kind in a U.S. university, offers courses that cover the music of virtually every region of the world and of many ethnic groups in the U.S., as well as courses on jazz, popular music, and film music. Most courses combine an interest in music as an art form with questions about how musical art and practice relate to other aspects of culture, society, politics, and economics. Courses are also given on the philosophy and aesthetics of music and the study of music perception and cognition using experimental methods. In addition to academic courses, the department offers performance ensemble courses in jazz and several world and American music traditions. At the undergraduate level most of the performance courses are open to nonmajors, and many academic courses target nonmajors; prior knowledge of music is not expected or required. The Department of Ethnomusicology is aligned with the Departments of Music and Musicology and aspires to promote productive collaboration between performance and scholarship, a cross-cultural global understanding of the art of music, and preparatory training for a broad range of careers in music after students graduate.

The undergraduate major in Ethnomusicology is offered with two concentrations: one in jazz studies and one in world music with emphases in general world music, performance/composition, public ethnomusicology, and scholarly research. Admission requires an audition/interview.

ETHNOMUSICOLOGY

Herb Alpert School of Music

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Steven J. Loza, PhD, Chair

Professors

Rosina M. Béccerra, PhD
Tara C. Browner, PhD
Kenneth E. Burrell, BA
Cheryl L. Keyes, PhD
Mark L. Kligman, PhD (*Mickey Katz Endowed Professor of Jewish Music*)
Steven J. Loza, PhD
Daniel M. Neuman, PhD (*Mohindar Brar Sambhi Endowed Professor of Indian Music*)
James W. Newton, BM
A.J. Racy, PhD
Helen M. Rees, PhD
Timothy Rice, PhD
Roger Savage, PhD
Timothy D. Taylor, PhD

Professors Emeriti

Jacqueline Cogdell DjeDje, PhD
Charlotte A. Heth, PhD
William R. Hutchinson, PhD
Roger A. Kendall, PhD
J.H.K. Nketia, BA
James W. Porter, MA
Hiromi Lorraine Sakata, PhD
Anthony Seeger, PhD

Assistant Professor

Münir N. Beken, PhD

view. The major provides students with a wide-ranging liberal arts education in music. At its core, this includes (1) comprehensive knowledge of music cultures of the world, (2) understanding of the interrelationship of music, society, and culture, (3) grounding in the basics of Western music theory and musicianship, and (4) the experience of playing in one or several musical ensembles from various traditions around the world.

The concentration in jazz studies seeks to produce students who emerge as outstanding and well-rounded jazz musicians with a strong academic foundation, and to prepare students to enter professional careers in the music world, as well as graduate study in various aspects of music such as composition, arranging, film scoring, jazz performance, research, and teaching.

Beyond the core and emphasis requirements, students in the world music concentration may, through elective courses, prepare for a variety of career goals, including the study of ethnomusicology in graduate school, composing and performing music, working in the music industry, serving society in the nonprofit sector, or becoming a K through 12 music teacher.

At the graduate level, the department offers MA and PhD degrees in Ethnomusicology, with a specialization in systematic musicology. Both degree programs train students for future university teaching careers, as well as careers in library science and archiving, the music industry, public service, and music technology. The department provides fellowships, teaching assistantships, and research assistantships for qualified students.

Undergraduate Study

The Ethnomusicology major is a designated capstone major. The capstone project is individualized to each student and requires a creative process either through music performance/composition, a research project, or an internship with a self-reflective journal detailing the process. Through that process, students are expected to demonstrate a broad knowledge base and competency in performance, writing, and/or composition and ability to apply knowledge and experience to the specific requirements of the capstone; conceive and successfully complete a project that is expressive of their specific interests and acquired expertise; and display, through written documentation or live presentation, the requisite communication and, in some cases, teamwork required by work in this field.

Ethnomusicology B.A.

Capstone Major

Admission

Applicants are reviewed individually, based on a questionnaire, grade-point average, two letters of recommendation, test scores, a personal statement of purpose, and an interview/audition. Applicants who are unable to travel to UCLA have the option of submitting a videotape of musical performance, following departmental guidelines.

Preparation for the Major

All entering freshmen are required to take the Music Theory Assessment Examination either during New Student Orientation or during zero week of fall quarter. The examination score is used to determine eligibility and placement in first-year music core courses (Ethnomusicology M6A, M6B, M6C for jazz studies and world music concentrations and Music 20A, 20B, 20C for world music concentration only). Examination results may require enrollment in Music 3 as a requisite to both Ethnomusicology M6A and Music 20A. Entering transfer students with fewer than 15 units of prior music theory must take the Music Theory Assessment Examination.

Jazz Studies Concentration

Required: Ethnomusicology M6A, M6B, M6C, with grades of C- or better, 12 units of instruction in jazz performance (courses 71A through 71I), and 12 units of ethnomusicology world music performance organizations and/or jazz performance ensembles (courses 91A through 91Z).

World Music Concentration

Required: Ethnomusicology M6A, M6B, M6C, with grades of C- or better, 20A, 20B, 20C, with grades of C or better, Music 20A, 20B, 20C, with grades of C or better, and 12 units of ethnomusicology world music performance organizations and/or private instruction in music (courses 91A through 91Z or 92).

The Major

Jazz Studies Concentration

Required: Ethnomusicology M110A, M110B, M111, C122A, C122B, C122C, 127A, 127B, 127C, 129A, 129B, 129C; 12 units of course 161T and/or 177; 12 units of courses 171A through 171I; one 4-unit upper division elective course selected from ethnomusicology; and one capstone senior recital or project (course 186).

World Music Concentration

Required: Ethnomusicology 175 or 181, 183; 12 units from courses 161A through 161Z and/or 162; a minimum of eight upper division ethnomusicology courses (32 to 36 units); and a capstone project in either (1) performance/composition, (2) public ethnomusicology, (3) scholarly research, or (4) other potential emphasis concepts in consultation with a faculty adviser.

Performance/Composition Capstone: Students must fulfill the capstone final project requirement (4 units) through a public recital (performance). Students must enroll in Ethnomusicology 199 (2 units) and pass a recital permission jury. Instrumental and vocal performers must present a portion of their recital performance, and composers must present excerpts from their recital scores in front of two faculty members. Students also enroll in Ethnomusicology 186 (2 units) during the term in which they perform their recital or their composition(s) are performed.

Public Ethnomusicology Capstone: Students must fulfill the capstone internship require-

ment, which consists of 8 units of Ethnomusicology 195B, in an institution approved by the faculty sponsor. Students must write a final research paper (at least 10 pages) at the completion of each internship.

Scholarly Research Capstone: Students must write a capstone thesis (25 to 30 pages) and enroll in Ethnomusicology 199 (2 units minimum) for at least one term while writing the thesis.

Independent Capstone: In consultation with a faculty adviser, students can propose capstone projects in other potential emphasis concepts such as technologies, film scoring, interactive arts, dance, and more.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Ethnomusicology offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Ethnomusicology.

Ethnomusicology

Lower Division Courses

5. Music Around World. (5) Lecture, four hours; discussion, one hour; outside study, 10 hours. Overview of world's musical traditions by selecting one or two case studies from each of nine musical world regions: Pacific, East Asia, Southeast Asia, South Asia, Middle East, Africa, Europe, Latin America, and U.S. and Canada. P/NP or letter grading.

M6A-M6B-M6C. Introduction to Musicianship. (2-2) (Same as Music M6A-M6B-M6C and Music History M6A-M6B-M6C.) Laboratory, four hours. Preparation: placement examination. Course M6A is enforced requisite to M6B, which is enforced requisite to M6C. Students must receive grade of C- or better to proceed to next course in sequence. Introduction to musicianship through in-depth exploration of basic common musical elements and training in aural recognition, sight singing, dictation, and keyboard skills. Focus on topics such as tonal and modal harmony, rhythm, improvisation, composition, notation, and ear training to prepare students for later theory courses, participation in music ensembles, advanced study in music, and professional careers. Letter grading.

M7A-M7B-M7C. Introduction to Music: History, Culture, Creativity. (4-4-4) (Same as Music M10A-M10B-M10C and Music History M10A-M10B-M10C.) Lecture, two hours; laboratory, four hours. Preparation: placement examination. Course M7A is enforced requisite to M7B, which is enforced requisite to M7C. Students must receive grade of C- or better to proceed to next course in sequence. Introduction to study of music from three complimentary perspectives: its history, relation to culture, and creative structuring. Lectures from musicologists, ethnomusicologists, and composers/theorists combined with small sections in which students develop wide range of musicianship skills. Organized around broad ideas (performance, simultaneity, time, place, and more) where creative and cultural implications are explored through analysis and discussion of broad repertoire of musical works spanning historical eras and global

cultures. Compositional exercises, production of short compositions, and short papers dealing with historical and cultural issues required. Letter grading.

10A-10B-10C. World Music Theory and Musicianship. (5-5-5) Lecture, two hours; discussion, four hours; laboratory, two hours; outside study, seven hours. Course 10A is requisite to 10B, which is requisite to 10C. Limited to Ethnomusicology and World Arts and Cultures majors. Introduction to and participation in musical systems of selected world cultures through aural and written notations, vocal and instrumental skills, melodic and rhythmic dictation, improvisation, and composition. Letter grading.

11A-11B-11C. World Music Systems and Structures. (5-5-5) Lecture, four hours; discussion, four hours; outside study, seven hours. Requisite: course 10C. Course 11A is requisite to 11B, which is requisite to 11C. Limited to Ethnomusicology majors. Students must receive grade of C or better to proceed to next course. Advanced study and analysis of musical systems and aesthetic concepts from selected world cultures through aural and written notations, vocal and instrumental skills, melodic and rhythmic dictation, improvisation, and composition. Letter grading.

15. American Life in Music. (4) Lecture, three hours. Impact of ethnicity, race, gender, and other social processes on American music in late 20th century; use of and creativity in music to respond to and shape contemporary social processes. P/NP or letter grading.

20A-20B-20C. Musical Cultures of World. (5-5-5) Lecture, four hours; discussion, one hour; outside study, 10 hours. Enforced requisite: Music 20C with grade of C or better. Traditional and popular musics from many different countries, with introduction to basic ethnomusicological concepts and development of listening and analytical skills. Each course may be taken independently for credit. Letter grading.

20A. Europe and Americas; 20B. Africa and Near East; 20C. Asia.

25. Global Pop. (5) Lecture, four hours; discussion, one hour. Development of world music or world beat, including its meaning and importance to contemporary culture as well as its history and impact. P/NP or letter grading.

30. Music and Media. (5) Lecture, four hours; discussion, one hour. Exploration of ways music is mediated to people by industry, technologies, and corporations. Survey of leading theorists of media and exploration of case studies. P/NP or letter grading.

35. Blues, Society, and American Culture. (5) Lecture, four hours; discussion, one hour. Sociocultural history and survey of blues music tradition from its roots in West Africa to its emergence in African American oral culture, with emphasis on philosophical underpinnings and social and political impact of blues and its influence on development of country, jazz, gospel, rhythm and blues, rock, hip-hop music, and other mediums. P/NP or letter grading.

40. Music and Religion. (5) Lecture, four hours; discussion, one hour. Survey of nature, role, and power of music in religious rituals around world, covering music and ritual of Hinduism, Buddhism, Judaism, Christianity, and Islam, as well as religious traditions of Native Americans and syncretic religious practices in Americas such as African American gospel music, Brazilian Candomble, Cuban Santería, and Haitian vodoun. Letter grading.

45. Music of Bollywood and Beyond. (5) Lecture, four hours; discussion, one hour; outside study, 10 hours. History and development of South Asian film scores in their filmic context, especially omnipresent songs that most distinctively characterize this genre. P/NP or letter grading.

50A-50B. Jazz in American Culture. (5-5) Lecture, four hours; discussion, one hour. Course 50A is not requisite to 50B. Survey of development of jazz in American culture. Discussion of different compositional/performance techniques and approaches that distinguish different sub-styles of jazz from one another, as well as key historical figures that shaped development of jazz from its early years through modern jazz. Important historical social issues (segregation, Depression, World War II, Civil Rights Movement) that

intersect with history of U.S. and jazz music. P/NP or letter grading. **50A.** Late 19th Century through 1940s; **50B.** 1940s to Present.

60. J.S. Bach in His World and Ours. (5) Lecture, four hours; discussion, one hour. Examination of life and music of J.S. Bach in historical and cultural context of his era through its musical manifestations in present, including changes in performance styles, scholarly studies, reception, and contemporary fan culture. P/NP or letter grading.

71A-71I. Instruction in Jazz Performance. (2 each) (Formerly numbered 71.) Studio, one hour of individual instruction. Limited to Ethnomusicology jazz studies majors. Knowledge of jazz repertoire, concepts, and techniques gained through private lessons on specific instruments and voice. Students meet weekly with instructor to demonstrate their performance skills and receive assessment of their progress in learning material. May be repeated for maximum of 12 units. Letter grading. **71A.** Guitar; **71B.** Percussion; **71C.** Piano; **71D.** Saxophone; **71E.** Strong Bass; **71F.** Trombone; **71G.** Trumpet; **71I.** Voice.

M87. Special Courses in Music. (5) (Same as Music M87 and Music History M87.) Lecture, four hours; discussion, four hours. Limited to undergraduate Ethnomusicology, Music, and Music History majors. Study and analysis of current and/or special topics in ethnomusicology, music, and music history taught by resident and visiting faculty members. May be repeated for credit with topic and instructor change. Letter grading.

91A-91Z. World Music Performance Organizations. (2 each) Activity, three hours. Group performance of traditional vocal and instrumental music of world cultures. May be repeated for credit without limitation. P/NP or letter grading. **91A.** Music and Dance of American Indians; **91B.** Music of Bali; **91C.** Music and Dance of Balkans; **91D.** Music of China; **91E.** Music and Dance of Ghana; **91F.** Music of India; **91G.** Music of Japan; **91H.** Music of Java; **91J.** Music of Korea; **91K.** Music of Mexico; **91L.** Music of Persia; **91N.** Music of Near East; **91P.** Music of African Americans; **91T.** Jazz Orchestra. Preparation: audition. Large group jazz ensemble that performs big band jazz repertoire. Emphasis on improvisational and solo performance skills in traditional big band, Latin jazz, and contemporary jazz genres. Letter grading: **91Z.** Open Ensemble.

92. Private Instruction in Music. (2) Studio, one hour. Limited to Ethnomusicology majors. Private or semi-private music instruction with distinguished community-based musician, that must be arranged by students and approved by course instructor. May be repeated for credit without limitation. Letter grading.

Upper Division Courses

C100. Audiovisual Archiving in 21st Century. (4) Seminar, three hours. Designed for Ethnomusicology majors. Examination of history, present state, and future of audiovisual archives, with specific focus on ethics, copyright, contracts, fieldwork, preservation, and access and issues related to technology, space, budgets, and staffing. Concurrently scheduled with course C200. P/NP or letter grading.

105. Music Business. (4) Lecture, four hours; outside study, eight hours. Designed for junior/senior Ethnomusicology majors in public ethnomusicology emphasis. How music industry functions and how products are created, marketed, and consumed. Basic information on production of recordings and legal issues faced by musicians, students, and scholars who use music in their work. P/NP or letter grading.

106A. Traditional North American Indian Music. (4) Lecture, four hours. Native North American traditional music and its role in tribal societies. California, Southwest, Pacific Northwest, Northern and Southern Plains, Great Lakes/Eastern Woodlands, and Southeastern culture areas included. P/NP or letter grading.

106B. Contemporary North American Indian Music. (4) Lecture, three hours; discussion, one hour. Contemporary Native North American musical expression, including popular styles (folk, country, rock),

intertribal Indian musical genres (powwow), syncretic religious music, and traditional/historic Pan-Indian music. P/NP or letter grading.

107. South American Indian Music. (4) Lecture, four hours; outside study, eight hours. Native South American traditional music and its role in indigenous societies. Topics include relationship between speech and song, use of music by shamans, musical structures, and use of indigenous music in creating nationalist and popular music styles. Letter grading.

M108A-108B. Music of Latin America. (5-5) Lecture, four hours; discussion, one hour. Course M108A is not requisite to 108B. Survey of traditional and contemporary musical culture. P/NP or letter grading. **M108A.** Mexico, Central America, and Caribbean Isles. (Same as Chicana and Chicano Studies M108A.); **108B.** Latin South America.

M109. Women in Jazz. (4) (Same as African American Studies M109 and Gender Studies M109.) Lecture, four hours; discussion, one hour. Sociocultural history of women in jazz and allied musical traditions from 1880s to present. Survey of women vocalists, instrumentalists, composers/arrangers, and producers and their impact on development of jazz. P/NP or letter grading.

M110A-M110B. African American Musical Heritage. (5-5) (Same as African American Studies M110A-M110B.) Lecture, four hours; discussion, one hour. P/NP or letter grading. **M110A.** Sociocultural history and survey of African American music covering Africa and its impact on Americas; music of 17th through 19th centuries; minstrelsy and its impact on representation of blacks in film, television, and theater; religious music, including hymns, spirituals, and gospel; black music of Caribbean and Central and South America; and music of black Los Angeles. **M110B.** Sociocultural history and survey of African American music covering blues, pre-1947 jazz styles, rhythm 'n' blues, soul, funk, disco, hip-hop, and symbiotic relationship between recording industry and effects of cultural politics on black popular music productions.

M111. Ellingtonia. (4) (Same as African American Studies M111.) Lecture, three hours. Music of Duke Ellington, his life, and far-reaching influence of his efforts. Ellington's music, known as Ellingtonia, is one of largest and perhaps most important bodies of music ever produced in U.S. Covers many contributions of other artists who worked with Ellington, such as composer Billy Strayhorn and musicians Johnny Hodges, Cootie Williams, and Mercer Ellington. P/NP or letter grading.

CM112. African American Music in California. (4) (Same as African American Studies CM112A.) Lecture, four hours. Historical and analytical examination of African American music in California, including history, migration patterns, and urbanism to determine their impact on development of African American music in California. Concurrently scheduled with course CM212. P/NP or letter grading.

113. Music of Brazil. (4) Lecture, three hours. History of ethnic and art music in Brazil, with some reference to Portuguese antecedents. P/NP or letter grading.

M115. Musical Aesthetics in Los Angeles. (4) (Same as Chicana and Chicano Studies M115.) Lecture, three hours. Confronting aesthetics from classical perspective of art as intuition, examination on cross-cultural basis of diverse musical contexts within vast multicultural metropolis of Los Angeles, with focus on various musical networks and specific experiences of Chicano/Latino, African American, American Indian, Asian, rock culture, Western art music tradition, and commercial music industry. P/NP or letter grading.

M116. Chicano/Latino Music in U.S. (5) (Same as Chicana and Chicano Studies M116.) Lecture, four hours; discussion, one hour. Historical and analytical examination of musical expression of Latino peoples who have inhabited present geographical boundaries of U.S. P/NP or letter grading.

117. American Popular Music. (4) Lecture, four hours; discussion, one hour. Survey of history and characteristics of American popular music and its relationship

to American culture, with emphasis on 20th-century popular music and its major composers, including comparison between traditional pre-1950 popular music and trends in post-1950 popular music. P/NP or letter grading.

118. Development of Rock. (5) Lecture, four hours. Examination of historical and stylistic development of rock from 1950s to present, with attention to its socio-cultural and political impact on American society and beyond. P/NP or letter grading.

M119. Cultural History of Rap. (5) (Same as African American Studies M107.) Lecture, four hours; discussion, one hour. Introduction to development of rap music and hip-hop culture, with emphasis on musical and verbal qualities, philosophical and political ideologies, gender representation, and influences on cinema and popular culture. P/NP or letter grading.

120A-120B. Development of Jazz. (4-4) Lecture, four hours; discussion, one hour. Introduction to jazz; its historical background and its development in U.S. P/NP or letter grading.

121. Cross-Cultural Perspectives in Jazz. (4) Lecture, four hours. Exploration of assimilation and retention of jazz from U.S. in various countries, with particular emphasis on cultural and social features that form basis for new jazz-ethnic music blends. P/NP or letter grading.

C122A-C122B-C122C. Jazz Styles and Analysis. (4-4-4) Lecture, four hours; outside study, eight hours. Designed for Ethnomusicology, Music, and Music History majors. In-depth analysis of jazz styles and repertoire intended for students with music backgrounds. Concurrently scheduled with courses C222A-C222B-C222C. Letter grading. **C122A.** Early Jazz to Swing Era; **C122B.** Bebop to Avant-garde; **C122C.** Jazz since Sixties.

123. Music of Bebop. (4) Lecture, three hours. Study of jazz bebop tradition, including analysis of compositions and song forms, styles of improvisation, and developments from 1940 to present. P/NP or letter grading.

C124. Electric Music of Miles Davis. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 11C. Careful examination of artistic body of Miles Davis' electric music (1967 to 1991). Influences and impetus that fueled his daring move from acoustic jazz to electric music. Examination of Davis' complex and challenging relationship with music industry as his art moved through periods of multidimensional growth and evolutionary development. Much detail to his use of contemporary jazz, funk, rhythm and blues, rock, southern and west African, Brazilian, European avant-garde, Cuban, Indian, flamenco, and ambient music. Concurrently scheduled with course C224. Letter grading.

125A-125B-125C. Jazz Composition and Arranging. (2-2-2) Lecture, two hours; outside study, four hours. Examination of various aspects of jazz composition. Differentiation between improvisation and notated composition, as well as between composition and arranging, and introduction to basic arranging concepts. Letter grading. **125A.** Early Jazz to Swing Era; **125B.** Bebop to Avant-garde; **125C.** Jazz since Sixties.

126A. Introduction to Jazz Arranging and Orchestration. (2) Seminar, two hours. Requisite: course 129C. Study and practice of skills used in arranging and orchestrating music in jazz idiom. Students create and orchestrate their own arrangements. Study of specific instruments and their unique use and application in jazz (jazz notation and terminology, transposition, woodwind doublings, brass mutes, etc.). Writing for smaller ensembles, culminating with arrangements to be read by one UCLA Jazz Combo. Letter grading.

126B. Jazz Arranging and Orchestration. (2) Seminar, two hours. Enforced requisites: courses 126A, 129C. Continuation of concepts from course 126A, with focus on full sectional writing and in-depth score analysis. Culminates with arrangements to be read by UCLA Jazz Orchestra I. Letter grading.

126C. Advanced Jazz Arranging and Orchestration. (2) Seminar, two hours. Enforced requisites: courses 126A, 126B, 129C. Continuation of concepts from course 126B, with focus on contributions of noteworthy arrangers/orchestrators. Culminates with arrangements to be read by UCLA Jazz Orchestra I. Letter grading.

127A-127B-127C. Jazz Keyboard Harmony I, II, III. (2-2-2) Laboratory, two hours; outside study, four hours. Enforced requisites: courses 11A, 11B, 11C. Course 127A with grade of C or better is enforced requisite to 127B; course 127B with grade of C or better is enforced requisite to 127C. Study of jazz harmony through use of piano keyboard. Letter grading.

129A-129B-129C. Jazz Theory and Improvisation. (2-2-2) Lecture, four hours; outside study, eight hours. Elements of jazz theory and improvisation. Letter grading. **129A.** Basic jazz harmonic constructions, as well as melodic, rhythmic, and harmonic concepts, and how to apply those elements to personal efforts in improvisations. **129B.** Requisite: course 129A with grade of C or better. Medium-level jazz harmonic constructions. **129C.** Requisite: course 129B with grade of C or better. Advanced-level jazz harmonic constructions.

M130. Culture of Jazz Aesthetics. (4) (Same as Anthropology M142R and World Arts and Cultures M136.) Lecture, three hours. Requisite: course 20A or 20B or 20C or Anthropology 9 or 33 or World Arts and Cultures 20. Aesthetics of jazz from point of view of musicians who shaped jazz as art form in 20th century. Listening to and interacting with professional jazz musicians who answer questions and give musical demonstrations. Analytical resources and historical knowledge of musicians and ethnomusicologists combined with those interested in jazz as cultural tradition. P/NP or letter grading.

M131. Development of Latin Jazz. (4) (Same as Music M131.) Lecture, four hours; discussion, one hour. Survey of historical and stylistic development of musical style referred to today as Latin jazz. P/NP or letter grading.

133. European Musics: Politics, Identities, Nationalisms. (5) Lecture, four hours; outside study, 12 hours. Limited to Ethnomusicology, Music, Musicology, Music History, and European Studies majors. European folk, popular, and classical music as practice that shapes ideas about national, ethnic, class, and religious identity and as tool of political domination and resistance. Letter grading.

M134. Introduction to Armenian Music. (4) (Same as Armenian M134 and Music M134.) Lecture, three hours. Some amount of formal music study and experience as vocalist or instrumentalist desirable but not essential. Introduction to history, tradition, and scope of music of Armenia. Focus on number of different genres and approaches, and interactions between music and culture, society, and history. P/NP or letter grading.

136A. Music of Africa. (5) Lecture, four hours; discussion, one hour; outside study, 10 hours. Introduction to music of Africa through general discussion of select topics such as continent and its peoples, function, musician, instruments, musical structure and related arts, and contemporary music. P/NP or letter grading.

C136B. Music of Africa. (4) Lecture, four hours; outside study, eight hours. Introduction to music of various African cultures and regions. Through readings, lectures, viewing of films, and analysis of music, students gain greater understanding of diverse musical traditions found on African continent and become more cognizant of contributions that people of Africa have made to world music. Concurrently scheduled with course C236B. Letter grading.

C140. Music of Arab World. (4) Seminar, three hours. Limited to junior/senior Ethnomusicology majors. Investigation of historical and cultural backgrounds, main musical styles, relationship between theory and practice and emphasis on mode and improvisation, and 20th- and 21st-century trends in music of Arabic-speaking Near East. Concurrent participation in Near

East performance ensemble (course 91N or 161N) required. Concurrently scheduled with course C240. Letter grading.

C141. Music of Turkey and Iran. (4) Seminar, three hours. Limited to junior/senior Ethnomusicology majors. Comparative study of music of Iran and other related areas, including Turkey, with particular reference to their historical and cultural background, sources on music theory and aesthetics, instruments, style, technique of improvisation, and contemporary practice. Concurrent participation in Near East performance ensemble (course 91N or 161N) required. Concurrently scheduled with course C241. Letter grading.

146. Folk Music of South Asia. (4) Lecture, three hours; laboratory, one hour. Illustrated survey of some regional genres, styles, and musical instruments found in India and Pakistan, with special reference to religious, social, economic, and cultural context of their occurrence. P/NP or letter grading.

147. Survey of Classical Music in India. (4) Lecture, four hours. Examination of melodic, metric, and formal structures of Indian classical music in context of religious, sociocultural, and historical background of country. P/NP or letter grading.

C150. Music and Politics in East Asia. (4) Lecture, four hours. Limited to Ethnomusicology, Music, Music History, World Arts and Cultures, Chinese, Japanese, Korean, and East Asian Studies majors. Political imperatives have long had direct and often explicit impact on music sound and context in East Asia. Examination of interaction of ideology and musical practice in medieval Korea and in contemporary Korea, Japan, Taiwan, and China. Concurrently scheduled with course C250. Letter grading.

C155. Intangible Cultural Heritage Worldwide. (4) Lecture, three hours. Designed for Ethnomusicology, Music History, and World Arts and Cultures majors. Through critical reading of publications by scholars, officials, and culture-bearers involved in intangible cultural heritage policy and practice, examination of history of heritage conservation; concepts of tangible and intangible heritage; pioneering roles of Japan, South Korea, and UNESCO in making intangible cultural heritage focal point of much cultural policy worldwide; tensions among international ideals, nation-state nationalisms, regionalism, ethnicity, and indigeneity in creating intangible cultural heritage policies in different settings; U.S. equivalents to intangible cultural heritage policies and practices in other countries; roles of private individuals, community initiative, and professional organizations in cultural preservation schemes; and related concept of sustainability. Concurrently scheduled with course C255. Letter grading.

C156A-156B. Music in China. (4-4) Letter grading. **C156A.** Lecture, four hours. Requisite: course 20C. Limited to Ethnomusicology majors. Survey of traditional, popular, and Western-influenced musics currently widespread in China, including musical analysis of different genres; examination of contexts in which they exist. Investigation of profound effect of Confucian and Communist ideologies on music. Concurrently scheduled with course C256A. **156B.** Lecture, three hours; laboratory, two hours. Requisite: course C156A. Introduction to various notational systems. Analysis of representative styles.

157. History of Chinese Opera. (4) Lecture, four hours. Survey of dramatic elements in Chinese operas, incorporating singing, dance, and acrobatics. Emphasis on traditional and modern Peking opera and its relation to Cantonese and other genres. P/NP or letter grading.

158A-158B-158C. Studies in Chinese Instrumental Music. (4-4-4) Lecture, three hours; laboratory, one hour. P/NP or letter grading. **158A.** Study of literature, major sources, paleography, theory, and philosophy of Ch'in, including transcription and analysis. **158B.** Study of literature, major sources, paleography, theory, and philosophy of P'i P'a, including transcription and analysis. **158C.** Comprehensive study of Chinese musical instruments, classification system, specific musical notation, and use in context of Chinese society.

C159. Music on China's Periphery. (4) Lecture, four hours; outside study, eight hours. Designed for undergraduate Ethnomusicology, Music, Music History, and World Arts and Cultures majors. Survey of musics from China's border regions and neighboring countries: technical musical characteristics and important contextual issues related to traditional and modern styles from Mongolia, Uighurs of Xinjiang, Tibet, Tibeto-Burman peoples, Hmong, and indigenous peoples of Taiwan. Concurrently scheduled with course C259. P/NP or letter grading.

160. Survey of Music in Japan. (4) Lecture, three hours. Survey of main genres of Japanese traditional music, including Gagaku, Buddhist chant, Biwa music, Koto music, Shamisen music, and music used in various theatrical forms. P/NP or letter grading.

161A-161Z. Advanced World Music Performance Organizations. (2 each) Activity, three hours; outside practice, three hours. Limited to Ethnomusicology majors. Advanced study of traditional vocal and instrumental world music. May be repeated for credit without limitation. Letter grading. **161A.** Music and Dance of American Indians; **161B.** Music of Bali; **161C.** Music and Dance of Balkans; **161D.** Music of China; **161E.** Music and Dance of Ghana; **161F.** Music of India; **161G.** Music of Japan; **161H.** Music of Java; **161J.** Music of Korea; **161K.** Music of Mexico; **161L.** Music of Persia; **161M.** Music of Thailand; **161N.** Music of Near East; **161P.** Music of African Americans; **161T.** Jazz Orchestra. Preparation: audition. Advanced rehearsal and performance of jazz big band repertoire in traditional jazz ensemble, Latin jazz ensemble, and contemporary jazz ensemble; **161Z.** Open Ensemble.

162. Advanced Private Instruction in Music. (2) Studio, one hour; outside practice, five hours. Preparation: two years of courses 91A through 91Z or 92. Limited to Ethnomusicology majors. Advanced private or semiprivate music instruction with distinguished community-based musician, that must be arranged by students and approved by course instructor. May be repeated for credit without limitation. Letter grading.

163. Pathways to Composition. (4) Lecture, four hours. Enforced requisite: course 11C. Fresh new approaches to composing music for both beginning and experienced composers, while looking at pieces from jazz, classical, and film music repertoire for inspiration and study. Group composition exercises, with improvisation as potent composition tool. Exploration of compositions in myriad of styles to see how different composers develop melodic phrases into musical statements. Observation of how composers create sense of dramatic flow, with composition of student pieces based on these concepts. Study of various composers' use of rhythmic phrases and call and response, and element of surprise to keep student compositions fresh and dynamic. Writing of compositions based on programmatic storylines and specific images by interweaving musical ideas with concepts from visual art, drama, and film. Letter grading.

164. World Music Composition. (4) Lecture, three hours; laboratory, three hours; outside study, six hours. Requisites: courses 11A, 11B, 11C. Limited to Ethnomusicology majors. Examination in composition using variety of Western and non-Western musical systems. Final project required. Letter grading.

C165. Selected Topics in Composition. (4) Lecture, four hours; outside study, eight hours. Evaluation of important musical concepts and approaches to enable students to develop greater compositional technique and understanding. Ways composers of jazz, European classical, and other musical genres have successfully approached use of extended compositional forms. Examination of way in which world music traditions have interfaced with jazz and other types of music to create new musical languages. Use of concepts, structural paradigms, and inspiration from literature, visual arts, and other sources to develop student compositions. May be repeated once for credit. Concurrently scheduled with course C270. Letter grading.

C169. Music, Science, and Technology. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Designed for Ethnomusicology, Music, and Music History majors. Application of science and technology for both creation and dissemination of music. Introduction to tools and techniques such as CD mastering, digital sampling, recording, and music synthesis, as well as scientific principles underlying such technologies. Concurrently scheduled with course C269. Letter grading.

170. Acoustics. (4) Lecture, four hours; discussion, one hour. Interrelationship of acoustical and musical phenomena. Tuning systems, consonance and dissonance, tone quality. Lecture, demonstration, and discussion; tours of instrumental collections and acoustical research facilities. P/NP or letter grading.

171A-171I. Instruction in Advanced Jazz Performance. (2 each) (Formerly numbered 171.) Studio, one hour of individual instruction. Preparation: advanced performance ability as demonstrated by audition. Study of jazz repertoire and techniques for specific instruments and voice. May be repeated for maximum of 12 units. Letter grading. **171A.** Guitar; **171B.** Percussion; **171C.** Piano; **171D.** Saxophone; **171E.** Strong Bass; **171F.** Trombone; **171G.** Trumpet; **171I.** Voice.

172A. Cognitive Psychology of Music. (4) Lecture, four hours; discussion, one hour. Designed for nonmajors. Introduction to psychology of music; historical background and broad field of study, including use of music as stimulus, tests and measurements, and related modes of musical behavior. P/NP or letter grading.

174. Aesthetics of Music. (5) Lecture, four hours; discussion, one hour. Designed for nonmajors. Historical survey of musical aesthetic thought and practice. Selected readings and musical examples. P/NP or letter grading.

175. Sociology of Music. (4) Lecture, four hours. Designed for Ethnomusicology, Music History, and Music majors. Introduction to sociology of music, its principles and basic concepts, and its critical significance for sociomusicological inquiry, including study of popular music, ethnomusicology, and cultural politics of music. P/NP or letter grading.

C176. Psychology of Film Music. (4) Lecture, four hours; outside study, eight hours. Exploration of music in film, animation, and dance through lens of cognitive psychology, with focus on interpretation of film music relative to model of musical meaning. Concurrently scheduled with course C276. Letter grading.

177. Jazz Combo. (2) Activity, two hours; laboratory, four hours. Small group performance of various styles in ensembles of three to 10 musicians. Minimum of 12 units required for jazz studies concentration students. May be repeated for maximum of 18 units. Letter grading.

C178. Aesthetic and Philosophical Foundations in Systematic Musicology. (4) Seminar, three hours; outside study, nine hours. Limited to Ethnomusicology majors. Comprehensive overview of critical approaches to aesthetics in systematic musicology. Exploration of aesthetics and philosophy of music, sociology of music, critical theory, hermeneutics, and music criticism. Concurrently scheduled with course C204. Letter grading.

C179. Empirical Foundations in Systematic Musicology. (4) Seminar, three hours; outside study, nine hours. Limited to Ethnomusicology majors. Comprehensive overview of empirical approaches in systematic musicology. Exploration of theory and philosophy of science and empiricism, experimental semiotics and aesthetics, acoustics, musical learning theory, psychology of music, psycholinguistics, and related disciplines as applied to musical scholarship based on theory and model building. Concurrently scheduled with course C203. Letter grading.

180. Analysis of Traditional Music. (4) Lecture, four hours. Designed for Ethnomusicology, Music History, and Folklore majors. Intensive study of methods and techniques necessary to understand traditional music. P/NP or letter grading.

181. Anthropology of Music. (4) Lecture, four hours. Designed for Ethnomusicology, Music History, and Anthropology majors. Cross-cultural examination of music in context of social behavior and how musical patterns reflect patterns exhibited in other cultural systems, including economic, political, religious, and social structure. P/NP or letter grading.

CM182. Music Industry. (4) (Same as Music CM182, Music History CM186, and Music Industry M182.) Lecture, four hours; discussion, one hour; outside study, seven hours. Limited to Ethnomusicology, Music, and Music History majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course CM288. Letter grading.

183. Study of Ethnomusicology. (4) Lecture, three hours; outside study, nine hours. Requisites: courses 10A, 10B, 10C, 20A, 20B, 20C. Designed for Ethnomusicology majors. Introduction to history of field, basic fieldwork and analysis methods, and current issues in research. Letter grading.

C184. Public Ethnomusicology. (4) Lecture, four hours; outside study, eight hours. Designed for Ethnomusicology majors. How music industry functions and how products are created, marketed, and consumed. Techniques of pure research, basic and theoretical in nature, contrasted with those of applied research, practical and policy-oriented in approach. Concurrently scheduled with course C286. Letter grading.

185. Information Literacy and Research Skills. (1) Tutorial, one hour. Limited to Ethnomusicology majors. Designed to assist students with becoming information literate. How to locate, identify, and critically evaluate and use print and electronic information effectively and ethically. P/NP grading.

186. Senior Recital or Project. (2) Tutorial, one hour. Limited to seniors. Final project for students who, with approval from their faculty advisers, perform one-hour recital or have their compositions performed in one-hour recital. Organization and arrangement of rehearsal schedule with appropriate accompaniment and preparation of program for performance. Grades are assigned in term recital is performed or composition is completed and performed. P/NP grading.

188. Special Courses in Ethnomusicology. (4) Lecture, four hours; outside study, eight hours. Selected topics in ethnomusicology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. P/NP or letter grading.

193. Journal Club Seminars: Ethnomusicology. (2) Seminar, two hours; outside study, four hours. Limited to undergraduate students. Reading and discussion of writings on subjects in ethnomusicology. May be repeated for credit. P/NP grading.

195A. Community or Corporate Internships in Ethnomusicology. (2 to 4) Tutorial, six to 12 hours. Limited to juniors/seniors with minimum cumulative 3.0 grade-point average. Internship in supervised setting in community agency or private business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

195B. Community or Corporate Internships in Public Ethnomusicology. (2 to 4) Tutorial, six to 12 hours. Limited to seniors in public ethnomusicology emphasis. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide weekly reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

196. World Music Teaching Practicum. (4) Seminar, two hours; fieldwork, three hours; outside study, seven hours. Limited to junior/senior Ethnomusicology majors. Integration of academic work and hands-on training. Participation in theoretical discus-

sions of world music education and application of these theories in elementary and secondary music and social studies classrooms. P/NP or letter grading.

197E. Individual Studies in Ethnomusicology. (2 to 4) Tutorial, one hour; outside study, five to 11 hours. Preparation: 3.0 grade-point average. Limited to seniors. Individual intensive study in ethnomusicology, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter resulting in final research project required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

197S. Individual Studies in Systematic Musicology. (2 to 4) Tutorial, one hour; outside study, five to 11 hours. Preparation: 3.0 grade-point average. Limited to seniors. Individual intensive study in systematic musicology, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter resulting in final research project required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Ethnomusicology. (2 to 4) Tutorial, to be arranged. Limited to junior/senior Ethnomusicology majors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for maximum of 8 units. Individual contract required. Letter grading.

Graduate Courses

C200. Audiovisual Archiving in 21st Century. (4) Seminar, three hours. Designed for Ethnomusicology majors. Examination of history, present state, and future of audiovisual archives, with specific focus on ethics, copyright, contracts, fieldwork, preservation, and access and issues related to technology, space, budgets, and staffing. Concurrently scheduled with course C100. S/U or letter grading.

201. History of Ethnomusicology. (4) Seminar, three hours; outside study, nine hours. Limited to graduate ethnomusicology students. Basic literature and schools of thought in field of ethnomusicology from late 19th century to 1980s. Letter grading.

202. Current Issues in Ethnomusicology. (4) Seminar, three hours; outside study, nine hours. Limited to graduate ethnomusicology students. Current issues, basic literature, and schools of thought in field of ethnomusicology from 1980s to present. Letter grading.

C203. Empirical Foundations in Systematic Musicology. (4) Seminar, three hours; outside study, nine hours. Limited to Ethnomusicology majors. Comprehensive overview of empirical approaches in systematic musicology. Exploration of theory and philosophy of science and empiricism, experimental semiotics and aesthetics, acoustics, musical learning theory, psychology of music, psycholinguistics, and related disciplines as applied to musical scholarship based on theory and model building. Concurrently scheduled with course C179. Letter grading.

C204. Aesthetic and Philosophical Foundations in Systematic Musicology. (4) Seminar, three hours; outside study, nine hours. Limited to Ethnomusicology majors. Comprehensive overview of critical approaches to aesthetics in systematic musicology. Exploration of aesthetics and philosophy of music, sociology of music, critical theory, hermeneutics, and music criticism. Concurrently scheduled with course C178. Letter grading.

205. Seminar: Information Technology and Research Skills. (4) Seminar, three hours. Limited to graduate ethnomusicology students. Lecture, demonstration, and practice. Basic skills for research on and about music that is essential to student careers as ethnomusicologists, specifically information technology skills, acoustics, and representational tools for nonlinguistic acoustic phenomena. Basic understanding of acoustics, ability to represent sounds in various graphic forms appropriate to them, and ability to locate and organize information sources related to field of ethnomusicology. Letter grading.

206. Integrating Theory with Ethnography. (4) Seminar, three hours. Designed to show how theory and primary research cannot exist without each other, and how various authors have integrated theoretical writings and ideas with their ethnographic or historical data. Reading of several recent ethnographies, mostly about music and possibly historical studies, in tandem with theoretical writings that inform arguments of these books. Letter grading.

207. Seminar: North American Indian Music. (4) Seminar, three hours. Requisite: course 106A or 106B. Survey of representative musical styles of Native North American Indians, including problems of transcription, methods of analysis, symbolic implications of song texts. Emphasis on interrelationship between music and cultural context. Influence of Western music in acculturative contexts. S/U or letter grading.

208. Seminar: Latin American Music. (4) Seminar, three hours. Review of bibliographic, methodological, and philosophical bases of musical research in Latin America, working from both general and specific perspectives. Exploration of research problems and investigations on specific musical cultures and distinct genres of musical expression. S/U or letter grading.

M211. Seminar: African American Music. (4) (Same as African American Studies M211.) Seminar, three hours. Requisites: courses M110A, M110B. Designed for graduate students. In-depth examination of intellectual history of African American music scholarship. Intensive investigation of problems, theories, interdisciplinary methods/schools of research, and bibliography related to study of African American music. Letter grading.

CM212. African American Music in California. (4) (Same as African American Studies CM212A.) Lecture, four hours. Historical and analytical examination of African American music in California, including history, migration patterns, and urbanism to determine their impact on development of African American music in California. Concurrently scheduled with course CM112. S/U or letter grading.

C222A-C222B-C222C. Jazz Styles and Analysis. (4-4-4) Lecture, four hours; outside study, eight hours. Designed for Ethnomusicology, Music, and Musicology majors. In-depth analysis of jazz styles and repertoire intended for students with music backgrounds. Concurrently scheduled with courses C122A-C122B-C122C. Letter grading. **C222A.** Early Jazz to Swing Era; **C222B.** Bebop to Avant-garde; **C222C.** Jazz since Sixties.

C224. Electric Music of Miles Davis. (4) Lecture, four hours; outside study, eight hours. Limited to graduate students. Careful examination of artistic body of Miles Davis' electric music (1967 to 1991). Influences and impetus that fueled his daring move from acoustic jazz to electric music. Examination of Davis' complex and challenging relationship with music industry as his art moved through periods of multidimensional growth and evolutionary development. Much detail to his use of contemporary jazz, funk, rhythm and blues, rock, southern and west African, Brazilian, European avant-garde, Cuban, Indian, flamenco, and ambient music. Concurrently scheduled with course C124. Letter grading.

228. Seminar: Balkan Music. (4) Seminar, three hours. Major issues in study of Balkan music, including song text analysis, music instruments, dance music, rituals and customs, minorities, and ideology. S/U or letter grading.

230. European Musics: Politics, Identities, Nationalisms. (4) Seminar, three hours; outside study, nine hours. Designed for graduate students. European classical, popular, and traditional musics, with particular attention to way in which music mirrors, negotiates, and contests ideas about and practices of national and other forms of identity, ideas developed in other domains of discourse and practice such as philosophy, history, literature, art, and folklore. Examination of way musicians, ordinary people, and politicians have used music to affect political processes involved in contesting and resolving tensions created between and among these identity formations. Histor-

ical period coverage primarily from 19th and 20th centuries, with examples from all over European continent. Letter grading.

233A-233B-233C. European Traditional and Popular Music. (0-0-4) Discussion, one hour. Review of literature on European traditional and popular music, with special attention to modern issues and processes. May be repeated for credit. In Progress (233A, 233B) and letter (233C) grading.

C236B. Music of Africa. (4) Lecture, four hours; outside study, eight hours. Introduction to music of various African cultures and regions. Through readings, lectures, viewing of films, and analysis of music, students gain greater understanding of diverse musical traditions found on African continent and become more cognizant of contributions that people of Africa have made to world music. Concurrently scheduled with course C136B. Letter grading.

237. Seminar: African Music. (4) Seminar, three hours. Requisite: course 136A or C136B. Analysis of literature and schools of thought in African music scholarship from late 19th century to present, including some analysis of musical, historical, social, and cultural aspects of indigenous and contemporary art forms. S/U or letter grading.

C240. Music of Arab World. (4) (Formerly numbered 240.) Seminar, three hours. Limited to graduate ethnomusicology students. Investigation of historical and cultural backgrounds, main musical styles, relationship between theory and practice and emphasis on mode and improvisation, and 20th- and 21st-century trends in music of Arabic-speaking Near East. Concurrent participation in Near East performance ensemble (course 91N or 161N) required. Concurrently scheduled with course C140. S/U or letter grading.

C241. Music of Turkey and Iran. (4) (Formerly numbered 241.) Seminar, three hours. Limited to graduate ethnomusicology students. Comparative study of music of Iran and other related areas, including Turkey, with particular reference to their historical and cultural background, sources on music theory and aesthetics, instruments, style, technique of improvisation, and contemporary practice. Concurrent participation in Near East performance ensemble (course 91N or 161N) required. Concurrently scheduled with course C141. S/U or letter grading.

248. Classical Music of India. (4) Lecture, three hours; outside study, nine hours. Requisite: course 146 or 147. Study of history, theory, and practice of north and south Indian classical music. Emphasis on music history and traditional theory and analysis of present-day forms, styles, techniques, and musical instruments. Concurrent participation in Indian performance group (course 91F) required. S/U or letter grading.

C250. Music and Politics in East Asia. (4) Lecture, four hours. Designed for graduate students. Political imperatives have long had direct and often explicit impact on music sound and context in East Asia. Examination of interaction of ideology and musical practice in medieval Korea and in contemporary Korea, Japan, Taiwan, and China. Concurrently scheduled with course C150. Letter grading.

251. Music of Indonesia. (4) Lecture, three hours; outside study, nine hours. Requisite: course 20C. Emphasis on music and related performing arts of Java, Bali, and other Indonesian islands. Concurrent participation in one Indonesian performance group (course 91B or 91H) required. S/U or letter grading.

252. Seminar: Music of Mainland Southeast Asia. (4) Seminar, three hours. Requisite: course 20C. Presentation of materials concerning musical performance traditions of Laos, Cambodia, Vietnam, Thailand, and Burma, both in mainland Southeast Asia and in American context, with perspectives from archaeology, history, performance theory, applied anthropology, and ethnomusicology. S/U or letter grading.

C255. Intangible Cultural Heritage Worldwide. (4) Lecture, three hours. Designed for ethnomusicology, music history, and world arts and cultures graduate students. Through critical reading of publications by scholars, officials, and culture-bearers involved in in-

tangible cultural heritage policy and practice, examination of history of heritage conservation; concepts of tangible and intangible heritage; pioneering roles of Japan, South Korea, and UNESCO in making intangible cultural heritage focal point of much cultural policy worldwide; tensions among international ideals, nation-state nationalisms, regionalism, ethnicity, and indigeneity in creating intangible cultural heritage policies in different settings; U.S. equivalents to intangible cultural heritage policies and practices in other countries; roles of private individuals, community initiative, and professional organizations in cultural preservation schemes; and related concept of sustainability. Concurrently scheduled with course C155. Letter grading.

C256A. Music in China. (4) Lecture, four hours. Requisite: course 20C. Limited to Ethnomusicology majors. Survey of traditional, popular, and Western-influenced musics currently widespread in China, including musical analysis of different genres; examination of contexts in which they exist. Investigation of profound effect of Confucian and Communist ideologies on music. Concurrently scheduled with course C156A. Letter grading.

C259. Music on China's Periphery. (4) Lecture, four hours; outside study, eight hours. Designed for graduate Ethnomusicology, Music, Musicology, and World Arts and Cultures majors. Survey of musics from China's border regions and neighboring countries: technical musical characteristics and important contextual issues related to traditional and modern styles from Mongolia, Uighurs of Xinjiang, Tibet, Tibeto-Burman peoples, Hmong, and indigenous peoples of Taiwan. Concurrently scheduled with course C159. S/U or letter grading.

M261. Gender and Music in Cross-Cultural Perspective. (4) (Same as Gender Studies M261.) Seminar, three hours. Designed to foster in-depth understanding of gender in study of music as culture. Topics range from ethnography of gender and sexuality, (de)codification of messages of resistance, and gender representation to gendered politics via musical production. S/U or letter grading.

262. Musical Ethnography. (4) Seminar, three hours; outside study, nine hours. Examination of selected book-length ethnographies, most published in last 10 years, as both literary genre and research procedure. S/U or letter grading.

263. Perspectives in Popular Music Research. (4) Seminar, three hours. Investigation of theoretical paradigms, issues, and research models of popular music, with emphasis on world music genres, local/global markets, mass mediation, appropriation and aesthetics of style, ethnographic methods, and impact of popular music studies on ethnomusicology. Letter grading.

264. Urbanism and Music. (4) Seminar, three hours; outside study, nine hours. Theoretical and methodological issues in study of city as cultural entity that affects and is affected by music making. S/U or letter grading.

265. Religion and Music. (4) Seminar, three hours; outside study, nine hours. Cross-cultural examination of role of musical expression as spiritual medium and as artistic expression in world's religions. S/U or letter grading.

266. Charles Seeger's Life and Thought. (4) Seminar, three hours; outside study, nine hours. Charles Seeger's (1886 to 1979) major writings and influence on three fields he helped to found (ethnomusicology, systematic musicology, historical musicology), as well as his interest in applied musicology and American composition in 20th century. S/U or letter grading.

267. Music and Ecstasy. (4) Seminar, three hours; outside study, nine hours. Relationship between music and consciousness in different world cultures and role music plays in ecstatic experiences. Phenomena include trance, spirit possession, shamanism, religious ecstasy, mysticism, and artistic inspiration. S/U or letter grading.

268. Modernity and Musical Experience. (4) Seminar, three hours; outside study, 10 hours. Limited to graduate students. Examination of possibilities for

subject-centered musical ethnography to account for fragmented musical experience in modern world. Consideration of local and world musics in relation to modernity, postmodernity, globality, notions of self and subject, power, and media images. Letter grading.

C269. Music, Science, and Technology. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Designed for Ethnomusicology, Music, and Musicology majors. Application of science and technology for both creation and dissemination of music. Introduction to tools and techniques such as CD mastering, digital sampling, recording, and music synthesis, as well as scientific principles underlying such technologies. Concurrently scheduled with course C169. Letter grading.

C270. Selected Topics in Composition. (4) Lecture, four hours; outside study, eight hours. Limited to graduate students. Evaluation of important musical concepts and approaches to enable students to develop greater compositional technique and understanding. Ways composers of jazz, European classical, and other musical genres have successfully approached use of extended compositional forms. Examination of way in which world music traditions have interfaced with jazz and other types of music to create new musical languages. Use of concepts, structural paradigms, and inspiration from literature, visual arts, and other sources to develop student compositions. May be repeated once for credit. Concurrently scheduled with course C165. Letter grading.

271. Seminar: Acoustics of Music. (6) Seminar, three hours. Requisite: course 170. Selected topics in acoustics, including laboratory methodologies and practical applications. Topics include Western and non-Western instruments, tuning systems, psychoacoustics, and methods of spectral analysis. May be repeated once for credit. S/U or letter grading.

273. Seminar: Psychology of Music. (6) Seminar, three hours. Selected topics in psychology of music, including recent findings in brain research, musical perception, learning, cognition, memory, therapy, affect, meaning, and measurement. May be repeated once for credit. S/U or letter grading.

275. Seminar: Aesthetics of Music. (6) Seminar, three hours. Specific topics in Western and non-Western aesthetic thought, including value, meaning (semiotics), historical development of theoretical perspectives and critical theory, and interpretation. May be repeated once for credit. S/U or letter grading.

C276. Psychology of Film Music. (4) Lecture, four hours; outside study, eight hours. Exploration of music in film, animation, and dance through lens of cognitive psychology, with focus on interpretation of film music relative to model of musical meaning. Concurrently scheduled with course C176. Letter grading.

279. Seminar: Systematic Musicology. (4) Seminar, three hours. Requisite: course 170. Exploration of specific topics in general field of systematic musicology covering disciplines such as anthropology, acoustics, aesthetics, music perception, philosophy, organology, sociology, and experimental approaches. May be repeated for credit. S/U or letter grading.

280. Teaching World Music and Music Appreciation. (4) Seminar, three hours. Preparation: two ethnomusicology courses or concurrent enrollment in course 20A, 20B, or 20C. Designed for ethnomusicology and musicology graduate students. Practical overview of current pedagogical philosophies and texts used in teaching introductory music survey courses, specifically music appreciation and general world music. Letter grading.

281A-281B. Seminars: Field and Laboratory Methods in Ethnomusicology. (6-6) Seminar, three hours; laboratory, two hours. Requisites: courses 201, 202. Fieldwork concepts and methods using technical equipment, conducting interviews, dealing with ethical issues, and designing research projects. S/U or letter grading.

282. Seminar: Analysis. (6) Seminar, three hours. Requisite: course 180. Designed for graduate ethnomusicology students. Intensive discussion of techniques used in ethnomusicological analysis, including

transcription and notation, with emphasis on analysis of musical performance and music events. S/U or letter grading.

283. Seminar: Study of Musical Instruments (Organology). (6) Seminar, three hours. Requisites: courses 201, 202. Musical instruments studied in terms of their structures, performance contexts, cultural significance, and patterns of change. S/U or letter grading.

284. Seminar: Anthropology of Music. (4) Seminar, three hours. Requisites: courses 201, 202. Analysis of current anthropological paradigms and issues that have major impact on ethnomusicology. S/U or letter grading.

285. Seminar: Comparative Music Theory. (6) Seminar, three hours. Comparative study of codified music theories of select cultures—Western and non-Western—considered in themselves and as expressions of their societies. Theory considered as science of music; its place between cultural values and artistic practice in different civilizations. S/U or letter grading.

C286. Public Ethnomusicology. (4) Lecture, four hours; outside study, eight hours. Designed for Ethnomusicology majors. How music industry functions and how products are created, marketed, and consumed. Techniques of pure research, basic and theoretical in nature, contrasted with those of applied research, practical and policy-oriented in approach. Concurrently scheduled with course C184. Letter grading.

287. Seminar: Folk Music. (4) Seminar, three hours. S/U or letter grading.

CM288. Music Industry. (4) (Same as Music CM282 and Musicology CM288.) Lecture, four hours; discussion, one hour; outside study, eight hours. Limited to Ethnomusicology, Music, and Musicology majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course CM182. Letter grading.

289. Research Design and Grant Writing in Ethnomusicology. (4) Seminar, three hours; outside study, nine hours. Design of dissertation research proposal, locating and applying for dissertation fieldwork grants, organizing and presenting advanced academic proposals with sophisticated methods and professional writing skills. S/U or letter grading.

290. Seminar: Ethnomusicology. (6) Seminar, three hours. Requisites: courses 20A, 20B, 20C, C200, 201, 202. May be repeated for credit. S/U or letter grading.

291. Ethnomusicology Colloquium Series. (1) Research group meeting, one hour. Limited to graduate ethnomusicology students. Introduction to new trends and issues in discipline of ethnomusicology in effort to strengthen and stimulate intellectual community within department. Topics vary from term to term and consist of presentations by guest lecturers, faculty members, and students. May be repeated for credit. S/U grading.

292A-292Z. Seminars: Special Topics in Ethnomusicology. (4 each) Seminar, four hours. Designed for graduate students. Utilization of special interests and expertise of regular and visiting faculty; topics of current interest presently offered in ethnomusicology program. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495A. Teaching Apprentice Practicum. (2) Eight weekly two-hour seminar sessions, plus intensive training session during fall quarter registration week. Preparation: appointment as teaching apprentice in Ethnomusicology Department. Required of all new teaching apprentices. Special course dealing with

problems and practices of teaching ethnomusicology and systematic musicology at college level. May not be applied toward degree requirements. S/U grading.

495B. Teaching with Technology. (2) Seminar, three hours; outside study, three hours. Limited to graduate ethnomusicology students. Training in presentation, spreadsheet, web design, and digitization software, and its application in classroom and in preparation of electronic teaching portfolio. S/U grading.

596. Directed Individual Studies. (2, 4, or 6) Tutorial, to be arranged. Only 4 units may be applied toward MA minimum course requirements. S/U or letter grading.

597. Preparation for Master's Comprehensive Examination or PhD Qualifying Examinations. (2 or 4) Tutorial, to be arranged. May be repeated for credit. S/U grading.

598. Guidance of MA Thesis. (4, 8, or 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

599. Guidance of PhD Dissertation. (4, 8, or 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

EUROPEAN STUDIES

See International and Area Studies

FAMILY MEDICINE

David Geffen School of Medicine

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Chairs

Patrick T. Dowling, MD, MPH (*Kaiser Permanente Endowed Professor of Community Medicine*), Chair
Martin Quan, MD, Vice Chair, Academic Affairs
Michelle Anne Bholat, MD, MPH, Vice Chair, Clinical Affairs
Denise K.C. Sur, MD, Vice Chair, Education
Michael Rodriguez, MD, MPH, Vice Chair, Global Health
Steven Shoptaw, MD, Vice Chair, Research

Directors

David Araujo, MD, *Ventura County*
Pamela Davis, MD, *Northridge Hospital*
Lynne M. Diamond, MD, *Pomona Valley*
Kathleen Dor, MD, *Kaiser-Woodland Hills*
Theresa Nevarez, MD, MBA, *Harbor-UCLA*
Carol A. Stewart, MD, *Clinica Sierra Vista*
John K. Su, MD, *Kaiser-Sunset*
Denise K.C. Sur, MD, *UCLA*

Scope and Objectives

The Department of Family Medicine provides all students with a basic introduction to family-centered care in both the inpatient and ambulatory settings. During the basic clerkship, students develop (1) an appreciation of the breadth and scope of family medicine, (2) a basic knowledge in the broad content areas of family medicine, and (3) fundamental clinical skills appropriate to family medicine, including the coordination and management of patients with multiple chronic diseases. The overall goal is to provide students with the opportunity to gain an understanding and appreciation of the

central role of the primary care physician in the healthcare system, and to offer advanced clinical training for those students interested in pursuing careers in family medicine. Further, the basic curriculum includes an overview of healthcare issues facing underserved and immigrant populations in urban America, as well as an introduction to health services research in family medicine.

Family medicine faculty members are in leadership roles in the doctoring curriculum and in the Primary Care College. All first-year students are assigned to work with a family medicine preceptor once a month on a longitudinal basis for the entire year as part of the doctoring program. In the third and fourth (clinical) years, required and elective opportunities exist. All students take a required four-week clerkship in the third year, which is offered at over 10 teaching sites.

The department offers paid six-week electives known as Summer Research Fellowships. This program teaches students how to collect data and submit applications for federal designation as underserved areas. It includes journal article reviews on healthcare reform and disparities, as well as the geographic mal-distribution of physicians and the shortage of primary care physicians in South Los Angeles. Students can also participate in a clinical experience.

For further details on the Department of Family Medicine, see <http://www.uclahealth.org/Family-Medicine/>.

Family Medicine

Upper Division Course

199. Directed Research in Family Medicine. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

FILM, TELEVISION, AND DIGITAL MEDIA

School of Theater, Film, and Television

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Kathleen A. McHugh, PhD, *Chair*

Professors

Barbara Boyle, JD
John T. Caldwell, PhD
Thomas F. Denove, BA
Erkki I. Huhtamo, PhD
Deborah Nadoolman Landis, PhD (*David C. Copley Professor for Study of Costume Design*)
Stephen D. Mamber, PhD
Purnima Manekkar, PhD
Denise R. Mann, PhD

William McDonald, MFA
Kathleen A. McHugh, PhD
Celia L. Mercer, MFA
Chon A. Noriega, PhD
Nancy Richardson, MFA
Teri E. Schwartz, MA, *Dean*
Charles E. Sheetz, MFA
Becky J. Smith, MA
Richard Walter, MA

Professors Emeriti

Jerzy Antczak, MA
Janet L. Bergstrom, PhD
Nicholas K. Browne, EdD
Gyula Gazdag, MFA
Marina Goldovskaya, PhD
A.P. Gonzalez, MA
Lewis R. Hunter, MA
Barbara Marks
Robert Rosen, MA
Vivian Sobchack, PhD
Howard Suber, PhD
Peter Wollen, BA
John W. Young, MA

Associate Professors

Arne O. Lunde, PhD
C. Fabian Wagmister, MFA

Assistant Professors

Kristy Guevara-Flanagan, MFA
Rory M. Kelly, MFA
Gina Kim, MFA
Ellen C. Scott, PhD
Jasmine N. Trice, PhD

Lecturers S.O.E.

Harold L. Ackerman, MA, *Emeritus*
Mark McCarty, MA, *Emeritus*

Lecturers

Tim T. Albaugh, MFA
Ana Lily Amirpour, MFA
Christopher Appelhans
Marc A. Arneson
Bethany Babyak, BA
William J. Barminski
Anne P. Beatts, BA
Sunny Behar Parker, MFA
Vincent M. Brook, PhD
Robert A. Burgos
Jeffrey A. Burke
James JC Calciano, BFA
David L. Chambers
Julie Chambers
Heather Collins, MFA
Richard Edwards, MFA
Stephen Farber, MA
Cynthia Felando, PhD
Joshua Feldman, MFA
Michael Friend, MA
Alexander S. Franklin, MFA
Alan L. Friel, JD
George Gary, MFA
Jason Gandler, PhD
Charles B. Gervich
Nicholas Griffin
Cecelia Hall
Rhonda Hammer, PhD
Benjamin U. Harris, MFA
Alexander G. Hedlund, MFA
Erin Hill, PhD
Charles D. Holland, MA, JD
Jeremy R. Hughto, MA
David Johnson, MFA
Michael W. Johnson
Silvia C. Kratzer, PhD
Susan J. Kroyer, BS
Jonathan A. Kuntz, PhD
Neil Landau, BA
Valerie M. Lettera
Kenneth N. Levine
Robert J. Levy, BA
Nicholas LaTerza, JD
David MacMillan
David M. Maquiling, BFA

Eric Marin, MA
 Beau E. Marks
 Kathleen McInnis, BA
 Jeffrey D. Melvoine, BFA
 Joshua J. Morgan
 Paul Nagle, BA
 Thomas A. Nunan, BA
 Deland Nuse
 Robin B. Pelleck
 Jennifer A. Porst, PhD
 Robert Pool
 Teresa M. Press Marx
 Barry Primus
 Daniel J. Pyne, MFA
 Bernardo Rondeau, MA
 Mark E. Rosman
 Michael Rothhaar, BA
 Elisabeth Seldes Annacone, MA
 Benjamin R. Sher, PhD
 Robert Skir, MFA
 Karen Smalley
 Charles Solomon
 Beth Stern
 James Strain, MA, MFA
 John W. Sweet, MFA
 Wilm H. Thoben
 Neil H. Thompson
 Charlotte M. Trachinger
 Derick Tsai, BS, BFA
 Jeanne Tyson, MFA
 Glenn V. Vilppu
 Linda Voorhees
 Andrew J. Wagner
 Douglas A. Ward
 Peter Weller, PhD
 Michael Werb, MFA
 Cormac Wibberley, BA
 Marianne Wibberley, MFA
 Glenn Williamson, BA
 Amy M. Winfrey
 Iris Yamashita, MS
 John Yoon, MFA
 Kris T. Young, MFA
 Amotz Zakai, MFA

Adjunct Associate Professors

April Shawhan
 John W. Simmons, MFA

Visiting Professors

Peter Guber, LLM
 Michael W. Colleary, MFA

Visiting Assistant Professors

James E. Franco, BA
 Tim Good
 David Hoberman
 Roderick Holcomb
 Mali H. Kinberg, PhD
 Barbara Klinger, PhD
 Hans-Martin Liebing
 Margaret A. Murphy
 Sjoerd Oostrik, MA
 Channing Power, BA
 Michael T. Puopolo, MBA
 Deborah Spera, BA
 Kenneth Suddleson, JD
 Michelle Weiss

Scope and Objectives

The purpose of the Department of Film, Television, and Digital Media is to develop in its students a scholarly, creative, and professional approach to film, television, and digital art forms. The aim of the department is to train graduates who will eventually make original contributions in their chosen field.

The department offers an undergraduate minor in Film, Television, and Digital Media, an undergraduate program leading to the Bachelor of Arts in Film and Television, and graduate programs leading to the Master of Arts, Master

of Fine Arts, and PhD degrees in Film and Television.

For current or specific information about the programs and faculty members, see <http://www.tft.ucla.edu/programs/film-tv-digital-media-department/>.

Undergraduate Study

The Film and Television major is a designated capstone major. Undergraduate students are required to complete one departmentally sponsored internship course as well as coursework related to the senior thesis concentration area. All courses, including capstone senior thesis projects, involve work shopping individual projects. Group participation in the creation and production of each student's project is core to the curriculum. Specific student learning objectives vary based on concentration area.

Film and Television BA

Capstone Major

The undergraduate Film and Television major encourages development of a personal vision that incorporates creative, practical, intellectual, and aesthetic values. Within the context of a liberal arts education, the program provides a broad background in the field and in the diversity of film and television practice, including courses in history and theory, critical thinking, animation, screenwriting, and the fundamentals of film, video, and television production.

Admission

Students are admitted for fall quarter only. Admission is highly competitive, and only a limited number of students can be accepted each year. In addition to the UC Application for Admission and Scholarships, freshman and transfer applicants must submit a School of Theater, Film, and Television supplemental application. For information about the supplemental application, see <http://www.tft.ucla.edu/filmfa>.

Transfer Students

Transfer applicants to the Film and Television major with 90 or more units must meet UCLA transfer requirements and, before arriving at UCLA, must complete the School of Theater, Film, and Television's general education requirements by either (1) taking college courses that satisfy the school's general education requirements or (2) completing the Intersegmental General Education Transfer Curriculum (IGETC) at a California community college or (3) achieving UC reciprocity through completion of general education requirements at another UC campus while a student there.

In addition to the UC Application for Admission and Scholarships, transfer applicants must submit a School of Theater, Film, and Television supplemental application. For information about the supplemental application, see <http://www.tft.ucla.edu/filmfa>.

Refer to the *UCLA Transfer Admission Guide* at <http://www.admission.ucla.edu/prospect/Adm>

[_tr/tradms.htm](#) for up-to-date information regarding transfer selection for admission.

Preparation for the Major

Required: Film and Television 1A, 1B, 1C, 6A, 10A, 15, 33, 51, 52, 84A, and one course from Theater 10, 15, 20, 28A, 28B, 28C, or 30.

The Major

Required: Film and Television 101A, 102A, 102B, 102C, 106B (or 106C), 134, 154, 155, 163; one cinema and media studies elective from 107, 108, M111, 112, 113, 114, M117, or 122N; one capstone departmentally sponsored internship (course 195) taken concurrently with course 194; and a senior concentration (20 units) from one of the following areas: (1) *film production/directing*—courses 175A, 175B, 178, (2) *documentary production*—courses 186A, 186B, 186C, (3) *screenwriting*—courses 135A, 135B, 135C, (4) *animation*—courses 181A, 181B, 181C, (5) *editing/postproduction*—consult department, (6) *cinematography*—consult department, or (7) *digital media*—consult department.

Courses taken to satisfy the senior concentration may not also be applied toward other course requirements in the major.

Students should be mindful of the exigencies inherent in filmmaking and be prepared to meet the additional demands of time and costs.

Students are required to perform assignments on each other's projects. In addition, the department reserves the right to hold for its own purposes examples of any work done in classes and to retain for distribution such examples as may be selected.

Film, Television, and Digital Media Minor

The Film, Television, and Digital Media minor is designed for students who wish to augment their major program of study with a series of courses that promote the study of film, television, and digital media as art forms with social, political, cultural, and economic significance. The minor consists of a selection of lower and upper division courses that introduce students to the practice and critical study of film, television, and digital media.

To enter the minor students must have declared a major other than the Film and Television BA, be in good academic standing, have a minimum 3.0 grade-point average, have completed at least three film and television courses with grades of B or better, and file an application at the Student Services Office, 103 East Melnitz Building, (310) 206-8441. For information about the minor, see <http://www.tft.ucla.edu/filmminor>. All degree requirements, including the specific requirements for this minor, must be fulfilled within the unit maximum set forth by each student's school or College.

Required Lower Division Courses (8 to 11 units): Two courses selected from Film and Television 6A, 10A, 33, M50, 51, or 84A.

Required Upper Division Courses (20 to 27 units): Five courses as follows: (1) one film and media history, aesthetics, and society course from Film and Television 106B, 106C, 108,

M111, 112, 113, 114, 116, M117, 122J, or 122N, (2) two film and media practice courses from 122B, 122D, 122E, 122K, 122M, C132, 140, 146, 181A, 183A, 183B, 183C, 184B, 186A, and (3) two film and media studies elective courses from 106B, 106C, 108, M111, 112, 113, 114, 116, M117, 122B through 122N, C132, 140, 146, 181A, 181B, 181C, 183A, 183B, 183C, 184B, 186A, 195 (taken concurrently with course 194). Courses taken under items 1 and 2 may not also be applied toward item 3.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor. All units applied toward the minor must be taken in residence at UCLA. Film and television courses taken at other institutions cannot be applied toward the minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Film, Television, and Digital Media offers Master of Arts (MA), Master of Fine Arts (MFA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Film and Television.

Film and Television

Lower Division Courses

1A-1B-1C. Freshman Symposium. (1-1-1) (Formerly numbered 10A.) Laboratory, three hours. Course 1A is enforced requisite to 1B, which is enforced requisite to 1C. Limited to Film and Television majors. Structured forum in which freshmen meet on regular basis to discuss curricular issues, meet with faculty members from department, and have exposure to array of guest speakers from media industries. Letter grading.

2A-2B-2C. Sophomore Symposium. (1-1-1) (Formerly numbered 10B.) Laboratory, three hours. Enforced requisite: course 1C. Course 2A is enforced requisite to 2B, which is enforced requisite to 2C. Limited to Film and Television majors. Structured forum in which sophomores meet on regular basis to discuss curricular issues, meet with faculty members from department, and have exposure to array of guest speakers from media industries. Letter grading.

6A. History of American Motion Picture. (6) (Formerly numbered 106A.) Lecture/screenings, eight hours; discussion, one hour. Historical and critical survey, with examples, of American motion picture both as developing art form and as medium of mass communication. Letter grading.

10A. American Television History. (5) (Formerly numbered 110A.) Lecture/screenings, five hours; discussion, one hour. Critical survey of American television history from its inception to present. Examination of interrelationships between program forms, industrial paradigms, social trends, and culture. Starting

with television's hybrid origins in radio, theater, and film, contextualization, viewing, and discussion of key television shows, as well as Hollywood films that comment on radio and television. Consideration of television programs and series in terms of sociocultural issues (consumerism, lifestyle, gender, race, national identity) and industrial practice (programming, policy, regulation, business). Letter grading.

15. Stylistic Studies for Moving Image: Theory and Practice. (6) (Formerly numbered 115.) Lecture, four hours; discussion, one hour. Enforced requisite: course 1A. Limited to Film and Television majors. Drawing heavily on wide array of historical examples, examination of many expressive strategies potentially usable in creation of moving image art forms: iconography, editing, composition, kinetics, sound, narrative, discourse, and performance. Letter grading.

33. Introductory Screenwriting. (4) (Formerly numbered 133.) Lecture, one hour; discussion, one hour. Not open for credit to students with credit for course C132/C430. Structural analysis of feature films and development of professional screenwriters' vocabulary for constructing, deconstructing, and reconstructing their own work. Screenings of films and selected film sequences in class and by assignment. P/NP or letter grading.

M50. Introduction to Visual Culture. (5) (Same as English M50.) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Study of how visual media, including advertising, still and moving images, and narrative films, influence contemporary aesthetics, politics, and knowledge. P/NP or letter grading.

51. Digital Media Studies. (5) Lecture, three hours; laboratory, one hour. Introduction to history, theory, and authoring skills of digital media, art, and culture. P/NP or Letter grading.

52. Cinematography. (4) (Formerly numbered 150.) Lecture, three hours; laboratory, three hours. Enforced requisite: course 1A. Limited to Film and Television majors. Introduction to motion imaging photography for thorough understanding of fundamental tools and principles of cinematography to create images that support and enhance story of film, achieve comprehension of principles of motion imaging photography through lectures, discussions, and screenings, develop skills of cinematographer by shooting exercises during laboratory period, and acquire appreciation of art of cinematography. Language and skills of image construction provided, as well as image analysis and deconstruction. Letter grading.

72. Production Practice in Film, Television, and Digital Media. (2 to 4) Lecture, three hours; laboratory, three hours. Exploration of research, analysis, and conceptualization of dramatic narrative and laboratory experience in one or more various aspects of contemporary production and postproduction practices for entertainment media, including theater, film, video, and digital media. May be repeated for maximum of 8 units. Letter grading.

84A. Overview of Contemporary Film Industry. (4) (Formerly numbered 184A.) Lecture, three hours; discussion, one hour. Examination of evolving economic structures and business practices in contemporary Hollywood film industry, with emphasis on operations of studios and independent distribution companies, their development, marketing, and distribution systems, and their relationship to independent producers, talent, and agencies. Letter grading.

Upper Division Courses

101A-101B-101C. Junior Symposium. (1-1-1) (Formerly numbered 100A.) Laboratory, three hours. Course 101A is enforced requisite to 101B, which is enforced requisite to 101C. Limited to Film and Television majors. Structured forum in which juniors meet on regular basis to discuss curricular issues, meet with faculty members, and have exposure to array of guest speakers from within film industry. Letter grading.

102A-102B-102C. Senior Symposium. (1-1-1) (Formerly numbered 100B.) Laboratory, three hours. Enforced requisite: course 101A. Course 102A is enforced requisite to 102B, which is enforced requisite to 102C. Limited to Film and Television majors. Structured forum in which seniors meet on regular basis to discuss curricular issues, meet with faculty members, and have exposure to array of guest speakers from within film and television industry. Letter grading.

104. Story and Style: Theory and Practices of Filmmaking. (5) (Formerly numbered 101.) Lecture/screenings, six hours; discussion, one hour. Systematic analysis of how filmmakers use sound and image to tell stories on screen. Viewing of selected films as case studies to understand relationship of theory to practice and to develop skills in critical thinking, analytical writing, and strategies for creating original film and video productions. P/NP or letter grading.

106B. History of European Motion Picture. (6) Lecture/screenings, eight hours; discussion, one hour. Historical and critical survey, with examples, of European motion picture both as developing art form and as medium of mass communication. Letter grading.

106C. History of African, Asian, and Latin American Film. (6) Lecture/screenings, eight hours; discussion, one hour. Critical, historical, aesthetic, and social study—together with exploration of ethnic significance—of Asian, African, Latin American, and Mexican films. Letter grading.

107. Experimental Film. (6) Lecture/screenings, eight hours; discussion, one hour. Study and analysis of unconventional developments in motion pictures. P/NP or letter grading.

108. History of Documentary Film. (6) Lecture/screenings, eight hours; discussion, one hour. Philosophy of documentary approach in motion pictures. Development of critical standards and examination of techniques of teaching and persuasion used in selected documentary, educational, and propaganda films. Letter grading.

110C. World Media Systems. (4) Lecture/viewing, four hours; discussion, one hour. Requisite: course 110A. Designed for juniors/seniors. Global analysis of internal and external broadcasting services, with emphasis on their motives, origins, technologies, and programming. Special attention to political, economic, and regulatory constraints and common world media issues. P/NP or letter grading.

M111. Women and Film. (6) (Same as Gender Studies M111.) Lecture, eight hours; discussion, one hour. Historical issues and critical approaches to women and cinema that may include authorship, stardom, female genres, and images of women in Hollywood cinema; alternative cinema, and independent cinema from silent era to present. Letter grading.

112. Film and Social Change. (6) Lecture/screenings, eight hours; discussion, one hour. Development of documentary and dramatic films in relation to and as force in social development. Letter grading.

113. Film Authors. (5) Lecture/screenings, five hours; discussion, one hour. In-depth study of specific film author (director or writer). P/NP or letter grading.

113A. Film Directors: Hitchcock and His Influence. (5) Lecture/screenings, five hours; discussion, one hour. Study of films of Alfred Hitchcock and influence he has had on other filmmakers. Lectures and screenings of Hitchcock films in first seven weeks, with coverage of films that are closely patterned after Hitchcock's in last three weeks. P/NP or letter grading.

113B. Film Authors: Women Filmmakers. (5) Lecture, five hours; discussion, one hour. Consideration of contributions to world cinema made by women directors, with focus on women directors working in various eras and modes of production (e.g., silent cinema, industry cinema, avant garde) with specific investigations of several auteurs, specifically Dorothy Arner, Jane Campion, and Cheryl Dunye. P/NP or letter grading.

114. Film Genres. (5) Lecture/screenings, five hours; discussion, one hour. Study of specific film genre (e.g., Western, gangster cycle, musical, silent epic, comedy, social drama). P/NP or letter grading.

116. Film Criticism. (4) Lecture, four hours; laboratory, to be arranged. Study of and practice in film criticism. P/NP or letter grading.

M117. Chicanos in Film/Video. (5) (Same as Chicana and Chicano Studies M114.) Lecture/screenings, five hours; discussion, one hour. Goal is to gain nuanced understanding of Chicano cinema as political, socioeconomic, cultural, and aesthetic practice. Examination of representation of Mexican Americans and Chicanos in four Hollywood genres—silent greaser films, social problem films, Westerns, and gang films—that are major genres that account for films about or with Mexican Americans produced between 1908 and 1980. Examination of recent Chicano-produced films that subvert or signify on these Hollywood genres, including *Zoot Suit*, *Ballad of Gregorio Cortez*, and *Born in East L.A.* Consideration of shorter, more experimental work that critiques Hollywood image of Chicanos. Guest speakers include both pioneer and up-and-coming filmmakers. P/NP or letter grading.

C118. Intermediate Cinematography. (4) Lecture, two hours; laboratory, four hours. Requisites: courses 100A, 150, 185. Intermediate study of principles of cinematography, with emphasis on exposure, lighting, and selection of film, camera, and lenses. Concurrently scheduled with course C416. Letter grading.

C120. Digital Cinematography. (4) Lecture, three hours. Requisites: courses 100A, 185. Advanced study of principles of digital cinematography, with emphasis on electronic exposure control, lighting, formats, cameras, and lenses. Concurrently scheduled with course C420. Letter grading.

122B. Introduction to Art and Technique of Filmmaking. (4) Lecture, four hours; discussion, one hour. Students acquire understanding of practical and aesthetic challenges undertaken by artists and professionals in making of motion pictures and television. Examination of film as both art and industry: storytelling, sound and visual design, casting and performance, editing, finance, advertising, and distribution. Exploration of American and world cinema from filmmaker's perspective. Honing of analytical skills and development of critical vocabulary for study of filmmaking as technical, artistic, and cultural phenomenon. P/NP or letter grading.

122C. Design and Experimental Digital Film Production. (4) Lecture, three hours; discussion, one hour. Students conceive, write, polish, shoot, and edit short digital experimental movies and crew on classmate projects. Experimentation with image, sound, and montage; examination of scenes from feature films and experimental short subjects. By end of term, students have one- to three-minute digital films with titles and sound track. P/NP or letter grading.

122D. Film Editing: Overview of History, Technique, and Practice. (4) Lecture, three hours. Practical application of film editing techniques, how they have evolved, and continue to evolve. Examination of history of editing, as well as current editing trends, terminology, and workflow. P/NP or letter grading.

122E. Digital Cinematography. (4) Lecture, three hours. With lectures, screenings, and demonstrations, study of principles of digital cinematography. How tools and techniques affect visual storytelling process. Topics include formats, aspect ratios, cameras, lenses, special effects, internal menu picture manipulation, lighting, composition, coverage, high definition, digital exhibition, filtration, multiple-camera shooting. P/NP or letter grading.

122I. Writing for Animation Series. (5) Lecture, three hours. Introduction to craft and business of writing animation for television. Overview of history of animation produced specifically for this medium, along with its many formats. Business model has changed radically over past five decades, as have types of shows that have been created. Designed to put shows in historical perspective, with eye toward where industry is heading given changes in technology and continuing (and growing) scrutiny of outside forces such as corporations and FCC. Letter grading.

122J. Disney Feature: Then and Now. (5) Lecture, three hours; discussion, three hours. Study and analysis of Disney's animated features. Evaluation of why Disney's animated features have dominated until recently and ramifications of this dominance on animation and society. Letter grading.

122K. Visual Effects. (4) Lecture, three hours. Nearly every film employs some form of visual effects, whether in reconstructing backdrop of history, creating futuristic or fantasy world, or simply fixing weather or production problems. Discussion of evolution of visual effects, as well as problems and blessings inherent in constantly evolving technology. Top visual effects consultants to be guest lecturers. P/NP or letter grading.

122M. Film and Television Directing. (4) Lecture, three hours. Through discussions, screenings, demonstrations, and guests, exploration of script, previsualization, directing actors, directing camera coverage in relationship to story, practical on-set directing, and directing for camera. P/NP or letter grading.

122N. History of Animation in American Film and Television. (5) Lecture, six hours. Survey of art of animation in America from its precinema origins to recent films of Disney, Pixar, DreamWorks, Ghibli, and others. Place of animation in pop culture, racial imagery and ethnic stereotypes, growth of art form, and how it reflects American society. P/NP or letter grading.

126. Acting for Film and Television. (4) Studio, six hours. Projects in acting for television, video, and film. May be repeated twice for credit. P/NP or letter grading.

128. Media and Ethnicity. (4) Lecture, four hours. Utilizing Asian American experience, exploration of impact and uses of media on contemporary American ethnic communities. Role and techniques of media influence besides community utilization and production. P/NP or letter grading.

CM129. Contemporary Topics in Theater, Film, and Television. (2) (Same as Theater CM129.) Lecture, two hours; screenings, two hours. Limited to junior/senior and graduate theater/film and television students. Examination of creative process in theater, film, and television, with consideration of writing, direction, production, and performance. Overview of individual contributions in collaborative effort; examination of distinctiveness and interrelations among these arts. Individual units include participation of leading members of theater, film, and television professions. May be repeated twice for credit. Concurrently scheduled with course CM229. P/NP or letter grading.

131. Nontheatrical Screenwriting for Film and Television. (4 or 8) Discussion, three hours. Research and writing of documentary, technical, educational, industrial, and propaganda scripts. May be repeated for maximum of 12 units. P/NP or letter grading.

C132. Screenwriting Fundamentals. (2) Lecture, one hour. Corequisite for graduate students enrolled in course 431. Not open for credit to students with credit for course 133. Examination of screenwriting fundamentals: structure, character and scene development, conflict, locale, theme, history of drama. Review of authors such as Aristotle. Concurrently scheduled with course C430. P/NP or letter grading.

134. Intermediate Screenwriting Workshop. (4) Seminar, three hours. Problems in film and television writing. P/NP or letter grading.

135A-135B-135C. Advanced Screenwriting Workshops. (8-8-8) Laboratory, three hours. Enforced requisite: course 101A. Course 135A is enforced requisite to 135B, which is enforced requisite to 135C. Courses in film and television writing. First act of original screenplay to be developed in course 135A, followed by second act in course 135B, and third act in course 135C. Letter grading.

140. Interactive Expression. (4) Lecture, six hours. Introduction to history and practice of interactive media, with emphasis on uniqueness of computer-mediated expression. Letter grading.

C142. Digital Imagery and Visualization. (4) Lecture, three hours; laboratory, three hours. Introductory hands-on investigation of techniques of digital still imaging and aesthetics of digital image, in context of examining dynamics of cultural constructions and visual codes. Students conceive and produce several digital image visualizations. Concurrently scheduled with course C242. Letter grading.

C143. Moving Digital Image. (4) Lecture, three hours; laboratory, three hours. Investigation of different ways of creating and manipulating linear moving images (digital video) on desktop computers, exploring both creative and theoretical aspects of this production environment. Students conceive and produce number of short projects. Concurrently scheduled with course C243. Letter grading.

C144. Interactive Multimedia Authoring. (4) Lecture, three hours; laboratory, three hours. Introduction to expressive and aesthetic potential of interactive digital media and its theoretical issues. Exploration of methodologies and tools for media integration, interface design, and interactive audiovisual construction. Students conceive, produce, and master individual interactive multimedia projects. May be repeated once for credit. Concurrently scheduled with course C244. Letter grading.

C145. Creative Authoring for World Wide Web. (4) Lecture, three hours; laboratory, three hours. Exploration of creative aspects of World Wide Web as medium for personal/collective expression. Students produce Web works and serve them online. Contextualization of medium by looking at its history, embedded ideology, and sociopolitical consequences. May be repeated once for credit. Concurrently scheduled with course C245. Letter grading.

146. Art and Practice of Motion Picture Producing. (4) Lecture, three hours. Exploration of role of producer as both artist and business person. Comparative analysis of screenplays and completed films. Emphasis on assembly of creative team and analysis of industrial context, both independent and studio. Screenings viewed outside of class and on reserve at Powell Library. Letter grading.

C147. Planning Independent Feature Production. (4) Lecture, three hours. Analysis of procedure, problems, and budgets in planning feature-length script for film and television production, with emphasis on role of producer and creative organizational techniques of producing. Concurrently scheduled with course C247. Letter grading.

C148. Advanced Digital Media Workgroup. (4) Discussion, four hours; laboratory, two hours. Designed for students with previous laboratory course experience, course provides opportunity to create large-scale digital media works with advanced software tools and techniques in small process-oriented, creative workshop environment. May be repeated once for credit. Concurrently scheduled with course C248. Letter grading.

C149A-C149B. Music in Film: Another Way to Tell Stories. (4-4) Lecture, three hours. Course C149A is requisite to C149B. Exploration of concepts and issues that drive creation and use of music in film. Through lecture/discussion and practical assignments, examination of deep collaboration between filmmaker and composer. Viewing of noteworthy examples and following of collaboration of filmmakers with composers, with weekly sessions dedicated to temping, creation and development of new scores, studio visits, and creative/conceptual dialogue between musician and filmmaker. Preparation of film ready for temping by end of first term and ready for scoring at beginning of second term. Concurrently scheduled with courses C455A-C455B. Letter grading.

150. Cinematography. (4) Lecture, three hours; laboratory, three hours. Requisites: courses 100A, 185. Limited to Film and Television majors. Introduction to image control in motion picture photography through exposure, lighting, and selection of film, camera, and lens. Supervised projects in photography to complement material covered in lecture. Letter grading.

151. Introduction to Experimental Filmmaking. (4) Lecture, three hours; laboratory, to be arranged. Limited to Film and Television majors. Techniques of image manipulation, design, and art direction. Production and completion of exercise (no longer than three minutes), using 16mm nonsync sound film. May be repeated twice for credit. Letter grading.

152. Film and Television Sound Recording. (4) Lecture, three hours; laboratory, to be arranged. Limited to Film and Television majors. Introduction to principles and practices of film and television sound recording, including supervised exercises. P/NP or letter grading.

C152C. Digital Audio Postproduction. (4) Lecture, three hours; laboratory, three hours. Limited to departmental majors. Through discussion, demonstrations, and laboratory assignments, exploration of digital audio tools and procedures available to today's filmmakers. Coverage of many technical, equipment, and software step-by-steps, with emphasis on creative process. Concurrently scheduled with course C452C. Letter grading.

153. Motion Picture Lighting. (4) Lecture, three hours; laboratory, three hours. Enforced requisites: courses 52, 101A, 185. Limited to Film and Television majors. Introduction to principles and tools of lighting used in visual storytelling through lectures, discussions, and screenings. Creative lighting techniques covering topics such as people, environment, spatial relationships, movement, color, special effects, and continuity. Letter grading.

154. Film Editing. (4) Lecture, three hours; laboratory, two hours. Enforced requisite: course 101A. Limited to Film and Television majors. Introduction to artistic and technical problems of film editing, with practical experience in editing of image and synchronous sound. Letter grading.

C154B. Advanced Film Editing. (4) Lecture, three hours; laboratory, one hour. Preparation: submission of rough cut of existing project or proposal to edit work of another director. Enforced requisites: courses 154, 185. Limited to Film and Television majors in postproduction phase with advanced knowledge of organization and operation of postproduction process. Students may also propose to edit significant scene given to them by instructor. Concurrently scheduled with course C454B. Letter grading.

155. Introduction to Digital Media and Tools. (4) Lecture, six hours; laboratory, one hour. Enforced requisite: course 101A. Limited to Film and Television majors. Instruction and exercises in basic concepts and software of virtual production environments and digital postproduction tools. Letter grading.

163. Directing Cameras. (4) Laboratory, three hours. Enforced requisite: course 101A. Limited to Film and Television majors. Investigation of expressive potential of image within and beyond narrative from directorial perspective. Experiments with working methodologies that stimulate visual creativity and positioning image as fundamental element of cinematic expression. Letter grading.

164. Directing Actors. (4) Laboratory, four hours. Exercises in analysis of script and character for purpose of directing actors. Emphasis on eliciting best possible performance from actors. May be repeated twice for credit. P/NP or letter grading.

165. Advanced Narrative Television Directing. (4) Laboratory, six hours. Requisites: courses 134, 185. Limited to Film and Television majors. Supervised exercises in television multicamera direction, with emphasis on creative use of cameras, sound, composition, and communication with those in front of and behind camera. May be repeated twice for credit. Letter grading.

C168. Creative Location Film Production. (8) Lecture, four hours; discussion, four hours; laboratory, to be arranged. Limited to directing or producer's program students. Problems of location, production, directing, and cinematography in various real-life practical locations. Practical application of solving problems and communication within limitations of production experience. Concurrently scheduled with course C468. Letter grading.

C170A. Introduction to Digital Effects. (4) Lecture, three hours; laboratory, to be arranged. Introductory study of digital effects production, with specific focus on motion graphics, compositing, effects processing, and title sequences. Concurrently scheduled with course C470A. Letter grading.

175A-175B. Undergraduate Film Production. (8-4 to 8) Limited to Film and Television majors. P/NP or letter grading. **175A.** Lecture, four hours; laboratory, eight hours. Enforced requisites: courses 101A, 185. Course 175A is enforced requisite to 175B. Writing, preproduction, and production for short film. **175B.** Lecture, three hours; laboratory, eight hours. Enforced requisite: course 175A. Completion of postproduction (editing, creation of sound tracks) for short film begun in course 175A.

176A-176B. Advanced Undergraduate Video Production (8-4 to 8) Discussion, three hours; laboratory, to be arranged. Requisite: course 185. Limited to Film and Television majors. Completion of video production (no more than 20 minutes), including its writing, production, and editing. Letter grading.

M177. Film and Television Acting Workshop. (2) (Same as Theater M178.) Laboratory, four hours. Workshop providing opportunities for students to rehearse, perform, and evaluate scenes. Three different production styles to which performers may need to adjust are (1) preproduction rehearsals with director, (2) single-camera experience, and (3) multiple-camera experience. May be repeated twice for credit. Letter grading.

178. Film and Television Production Laboratory. (2 or 4) Laboratory, to be arranged. Supervised laboratory experience in various aspects of film and television production. May be repeated for maximum of 12 units, but only 8 units may be applied toward Film and Television major. Letter grading.

181A. Introduction to Animation. (5) Lecture, three hours; laboratory, three hours. Drawing experience not required. Fundamentals of animation through preparation of short animated film. P/NP or letter grading.

181B. Writing for Animation. (4 or 8) Lecture, six hours; studio, to be arranged. Requisite: course 181A. Research and practice in creative writing and planning for animated film. May be repeated for maximum of 16 units. P/NP or letter grading.

181C. Animation Workshop. (4 or 8) Studio, six hours. Preparation: storyboard at first class meeting. Enforced requisite: course 181A. Organization and integration of various creative arts used in animation to form complete study of selected topic. May be repeated for maximum of 16 units. P/NP or letter grading.

183A. Producing I: Film and Television Development. (4) Lecture, three hours; discussion, one hour. Open to nonmajors. Critical analysis of contemporary entertainment industries and practical approach to understanding and implementing producer's role in development of feature film and television scripts. Through scholarly and trade journal readings, in-class discussions, script analysis, and select guest speakers, exposure to various entities that comprise feature film and television development process. Basic introduction to story and exploration of proper technique for evaluating screenplays and teleplays through writing of coverage. May be taken independently for credit. Letter grading.

183B. Producing II: Entertainment Economics. (4) Lecture, three hours; discussion, one hour. Open to nonmajors. Critical understanding of strategies and operating principles that drive flow of revenue in entertainment industry. Exploration of theoretical frameworks and development of critical perspective, while studying industrial processes through which movie and television properties are financed and exploited throughout all revenue streams. May be taken independently for credit. Letter grading.

183C. Producing III: Marketing, Distribution, and Exhibition. (4) Lecture, three hours; discussion, one hour. Open to nonmajors. Marketing and distribution of feature films across multiple exhibition platforms and subsequent reception and consumption by audi-

ences. Focus on engagement between distributor, exhibitor, and audience and analysis of various conceptual frameworks and industrial strategies within which these relationships are conceived and operate. May be taken independently for credit. Letter grading.

184A. Overview of Contemporary Film Industry. (4) Lecture, three hours; discussion, one hour. Examination of evolving economic structures and business practices in contemporary Hollywood film industry, with emphasis on operations of studios and independent distribution companies, their development, marketing, and distribution systems, and their relationship to independent producers, talent, and agencies. Letter grading.

184B. Overview of Contemporary Television Industry. (4) Lecture, three hours. Examination of evolving economic structures and business practices in contemporary Hollywood television industry, with emphasis on operations of networks and cable companies, series development, marketing, and network branding from 1947 to present. Letter grading.

185. Undergraduate Television and Video Production. (6) Laboratory, six hours. Enforced requisite: course 1C or 101A. Limited to Film and Television majors. Instruction and exercises in basic techniques of television and video production. Letter grading.

186A. Introduction to Documentary Production. (4) Lecture, three hours; laboratory, three hours; fieldwork, four to six hours. Course 186A is enforced requisite to 186B, which is enforced requisite to 186C. Introductory viewing and discussion of selected documentaries and instruction in various production skills necessary to create video documentaries. Completion of series of exercises from conceptualization through postproduction, culminating in production of short documentary. Letter grading.

186B. Intermediate Documentary Production Workshop. (4) Lecture, three hours; laboratory, three hours; fieldwork, four to six hours. Enforced requisite: course 186A. Intermediate viewing and discussion of selected documentaries and instruction in various production skills necessary to create video documentaries. Completion of series of exercises from conceptualization through postproduction, culminating in production of short documentary. Letter grading.

186C. Advanced Documentary Production Workshop. (4) Lecture, three hours; laboratory, three hours; fieldwork, four to six hours. Enforced requisite: course 186B. Advanced viewing and discussion of selected documentaries and instruction in various production skills necessary to create video documentaries. Completion of series of exercises from conceptualization through postproduction, culminating in production of short documentary. Letter grading.

187A-187B-187C. Producing and Directing Remote Multicamera Production. (4-6-6) Lecture/laboratory, three hours (additional hours to be arranged). Letter grading. **187A.** Professionally oriented lecture/laboratory/field workshop course designed to provide disciplined planning, responsible leadership, and organizational and problem-solving skills required in deadline remote production. Emphasis on clarity of vision, storytelling, effective execution of pitch, preproduction, shoot, and editorial. **187B-187C.** Instruction and supervised productions of remote experience, with focus on development and execution of concept. Experience closely patterned after professional experiences in working with talent, production venues, and production logistics of remote on-location video programs.

188A. Special Courses in Film, Television, and Digital Media. (4) Lecture, three hours; discussion, one hour. Special topics in film, television, and digital media for undergraduate students taught on experimental or temporary basis. May be repeated for credit. P/NP or letter grading.

193A. Film Curatorship. (4) Lecture, two hours; discussion, two hours; laboratory, four hours. Study of principles and techniques of film curatorship and research, including but not limited to acquisitions, cataloging, storage, and retrieval systems. Special atten-

tion to application of new technology, equipment, and program materials to film archival-library design for research and teaching. P/NP or letter grading.

193B. Television Curatorship. (4) Lecture, two hours; discussion, two hours; laboratory, four hours. Study of principles and techniques of television curatorship and research, including but not limited to acquisitions, cataloging, storage, and retrieval systems. Special attention to application of new technology, equipment, and program materials to television archival-library design for research and teaching. P/NP or letter grading.

194. Internship Seminars: Film, Television, and Digital Media. (2) Seminar, two hours. Enforced corequisite: course 195. Designed for students currently in departmental internships. General introduction to contemporary film and television industries and discussion and engagement with and expansion on internship experiences. Common business practices and expansion of critical understanding of industry at large. May be repeated for credit. P/NP grading.

195. Corporate Internships in Film, Television, and Digital Media. (4) Tutorial, one hour; fieldwork, 12 hours. Enforced corequisite: course 194. Limited to juniors/seniors. Corporate internship in supervised setting in business related to film, television, and digital media industries. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP grading.

199. Directed Research or Senior Project in Film, Television, and Digital Media. (2 to 8) Tutorial, three hours. Limited to senior Film and Television majors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be taken for maximum of 8 units. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Seminar: Research, Methods, and Resources. (6) Seminar, three hours; laboratory, four to six hours (additional screenings and/or video laboratory work as required). Designed for graduate students. Examination and study of research methods, techniques, and resources related to film and television research, including development of computer skills for preparation of bibliographies, online database searching and retrieval and, when appropriate, use of computer/video-disc technology for research. Letter grading.

201A. Seminar: Media Industries and Cultures of Production—Foundations. (6) Seminar, three hours; film screenings, three hours. Critical survey of various scholarly traditions and methods (ethnographic, sociological, political-economic, geographic) that have been used to study film and television production practices as cultural, social, and industrial phenomena, as basis for individual student research projects. Letter grading.

201B. Seminar: Media Industries and Cultures of Production—Transmedia. (6) Seminar, three hours; film screenings, three hours. Requisite: course 201A. Examination of contemporary production studies research and transmedia practices, including innovations in marketing, licensing, distribution, industrial organization, creative work, new technologies, and evolving relations between fans and producers in digital economy. Letter grading.

202. Seminar: Media Audiences and Cultures of Consumption. (6) Seminar, three hours; film screenings, three hours. Critical study of reception and use of television and electronic media and examination of theoretical approaches to culture and audience research. Consideration of issues of cultural taste, consumerism, style/lifestyle, identity, and relationships between audience, industry, and mass-marketed images/commodities. Letter grading.

203. Seminar: Film and Other Arts. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Studies in interrelationships between film and fine arts, or performing arts, or

literature, with emphasis on ways these other arts have influenced film. May be repeated twice for credit. S/U or letter grading.

204. Seminar: Visual Analysis. (6) Seminar, three hours; film screenings, two to four hours. Study of visual analysis (or textual analysis), using DVD accessing features, as approach to learning what makes film great and distinct art form. Exploration of role of visual style in narrative fiction filmmaking to attempt to understand some ways it can operate. Letter grading.

205. Seminar: Creating Visual Essays for Film History and Analysis. (6) Seminar, three hours; laboratory, three hours. Prior technical knowledge not required; technical assistance is available. Creation of individual original research projects in film/television history and analysis destined for audio-visual medium, finalized as high-resolution DVDs. Projects may be extensions of research intended for print publication, dissertation chapters, conference presentations, teaching, etc. Equal emphasis on acquiring basic skills needed to create visual essays and on methods of research for this new form of scholarly research. Comparison of limits and advantages of print versus audio-visual publication. Use of Adobe Production Suite. Letter grading.

206A. Seminar: European Film History. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Studies in different periods of European cinemas or movements. Topics may include Italian neorealism, French film of 1930s, French New Wave and crime film, Weimar cinema, and Soviet silent cinema. See annual departmental listings for special topics. May be repeated twice for credit with topic change. Letter grading.

206B. Seminar: Selected Topics in American Film History. (6) Seminar, three hours; film screenings, three hours. Seminar with focus on specific topic or period in American film history. Letter grading.

206C. Seminar: American Film History. (6) Seminar, three hours; film screenings, four hours. Introduction to industrial, social, and aesthetic history of American film. Letter grading.

206D. Seminar: Silent Film. (6) Seminar, three hours; film screenings, two to four hours. Discussion of silent film from its beginning in 1895 to transition to sound cinema in 1927 to 1930. Film viewings discussed in terms of genre, national cinema, formal developments, and directors. Readings on film historical and theoretical issues. Letter grading.

207. Seminar: Experimental Film. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Studies of form, style, politics, and history of experimental, innovative, avant-garde, and minority film and video. Letter grading.

208A. Seminar: Film Structure. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Examination of various film conventions, both fictional and nonfictional, and of role of structure in motion picture. S/U or letter grading.

208B. Seminar: Classical Film Theory. (6) Seminar, three hours; film screenings, four hours. Study of principal topics and lines of inquiry that characterize theoretical writings of Arneim, Eisenstein, Bazin, Kracauer, etc. Letter grading.

208C. Seminar: Contemporary Film Theory. (6) Seminar, three hours; film screenings, four to six hours. Requisite: course 208B. Designed for graduate students. Study of redefinition of aims and methods of film theory through contemporary writings. S/U or letter grading.

209A. Seminar: Documentary Film. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Nonfictional film and its relation to contemporary culture. S/U or letter grading.

209B. Seminar: Fictional Film. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Film as fiction and its relation to contemporary culture. May be repeated once for credit. S/U or letter grading.

209D. Seminar: Animated Film. (6) Seminar, three hours; film screening, three hours. Designed for graduate students. Critical study of animated film: its historical development, structure, style, use, and relation to contemporary culture. S/U or letter grading.

210. Seminar: Contemporary Broadcast Media. (6) Seminar, three hours (additional hours as required); film screening, three hours. Designed for graduate students. Consideration of issues raised by recent developments in television and radio, commercial and public, associated with innovations in satellite, cable, and cartridge systems. S/U or letter grading.

211A. Seminar: Historiography. (6) Seminar, three hours; film screening, three hours. Limited to Film and Television MA candidates. Beginning examination of function and methods of writing film and television history as seen in works of key historians in U.S. and Europe. S/U or letter grading.

211B. Seminar: Historiography. (6) Seminar, three hours; film screening, three hours. Limited to Film and Television PhD candidates. Examination of function and methods of writing film and television history as exemplified by key works in this tradition, with attention to central issues of historical thought on media. S/U or letter grading.

212. Cinema and Media Studies Graduate Colloquium. (2) Lecture, two hours. Exchange with scholars inside and outside department through lectures and academic paper presentation and offers students practice in presenting papers for professional conferences, CV writing seminars, job market/interview preparation seminars, and discussion of current topics and trajectory of area of cinema and media studies. May be repeated for maximum of 14 units. S/U grading.

213. Capstone Seminar. (6) Seminar, three hours. Limited to Film and Television MA candidates. Capstone course for cinema and media studies master's program. Students write, revise, and present comprehensive essay on preapproved topic derived from their MA coursework. Letter grading.

215. Seminar: Theory and Method. (6) Seminar, three hours. Limited to Film and Television PhD candidates. Examination of major modes of theoretical reflection that bear on film and television through study of central texts of such traditions as phenomenology, auteurism, semiology, psychoanalysis, sociology, etc. S/U or letter grading.

215B. Seminar: Text and Context in Intermedia Age. (6) Seminar/screenings, five hours. Theoretical and methodological approaches to media texts and contexts beginning with theories that located aesthetic, ideological, and cultural meanings in literary, theatrical, film, or television texts or group of texts to latter approaches from within material, social, and industrial contexts from which media texts emerge. Letter grading.

216. Film, Costume, and Character. (6) Seminar, three hours; film screenings, three hours. Exploration of integration of costume design into filmmaking process and illumination of work required to bring characters from written page to life. Discussion of practice of costume design. Analysis of films from various genres. Letter grading.

217A. Seminar: American Television History. (6) Seminar, three hours; screenings, four hours. Critical survey of U.S. television industry from its inception to present. Examination of programming and changes within industry by considering range of technological, economic, aesthetic, social, and cultural dimensions. Letter grading.

217B. Seminar: Selected Topics in Television History. (6) Seminar, three hours; screenings, three hours. Advanced critical seminar, with focus on specific topic or area (historical period, industry, programming, genre, or social formation) in domestic or international television. Letter grading.

218. Seminar: Culture, Media, and Society. (6) Seminar, three hours; screenings/discussion, four hours. Emphasis on discourse of other(s). Thematization of other is concerned with theories of difference rather than similarity or identity—with how other cul-

tures enter into politics of representation and representation of politics through metaphors of (1) difference without opposition, (2) heterogeneity without hierarchy, and/or (3) otherness without ethnocentrism. Examination of how women, national minorities, and Third World peoples have been rendered others; place of cinematic apparatus in this process and how academization of others is positioned vis-à-vis mainstream critical discourse. Letter grading.

219. Seminar: Film and Society. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Study of ways film affects and is affected by social behavior, belief, and value systems; considered in relation to role of media in society. May be repeated once for credit. S/U or letter grading.

220. Seminar: Television and Society. (6) Seminar, four hours; screenings/discussion, three hours. Designed for graduate students. Study of ways television forms affect and are affected by social behavior, belief, and value systems; study of technological and economic aspects of medium. May be repeated once for credit. S/U or letter grading.

221. Seminar: Film Authors. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Intensive examination of works of outstanding creators of films. May be repeated twice for credit. S/U or letter grading.

222. Seminar: Film Genres. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Studies of patterns, styles, and themes of such genres as Western, gangster, war, science fiction, comedy, etc. May be repeated twice for credit. S/U or letter grading.

223. Seminar: Visual Perception. (6) Seminar, three hours; film screenings, three hours. Aesthetic, psychological, physiological, and phenomenological approaches to vision as they relate to ways in which viewers experience and see film, television, and digital media. Letter grading.

224. Computer Applications for Film Study. (6) Lecture, three hours; film screenings, three hours. Survey of computer applications relevant to film study, principally computer-videodisc systems and image capture technology. S/U or letter grading.

225. Seminar: Videogame Theory. (6) Seminar, three hours; laboratory, three hours. Videogame theory, with exploration of nature of medium, rather than looking at history, industrial practice, social effects, or any other of many interesting questions that games also raise. Acknowledgment of roots in film, television, and media studies and investigation of emerging videogame field. S/U or letter grading.

CM229. Contemporary Topics in Theater, Film, and Television. (2) (Same as Theater CM229.) Lecture, two hours; screenings, two hours. Limited to junior/senior and graduate theater/film and television students. Examination of creative process in theater, film, and television, with consideration of writing, direction, production, and performance. Overview of individual contributions in collaborative effort; examination of distinctiveness and interrelations among these arts. Individual units include participation of leading members of theater, film, and television professions. May be repeated twice for credit. Concurrently scheduled with course CM129. S/U or letter grading.

C242. Digital Imagery and Visualization. (4) Lecture, three hours; laboratory, three hours. Introductory hands-on investigation of techniques of digital still imaging and aesthetics of digital image, in context of examining dynamics of cultural constructions and visual codes. Students conceive and produce several digital image visualizations. Concurrently scheduled with course C142. Letter grading.

C243. Moving Digital Image. (4) Lecture, three hours; laboratory, three hours. Investigation of different ways of creating and manipulating linear moving images (digital video) on desktop computers, exploring both creative and theoretical aspects of this production environment. Students conceive and produce number of short projects. Concurrently scheduled with course C143. Letter grading.

C244. Interactive Multimedia Authoring. (4) Lecture, three hours; laboratory, three hours. Introduction to expressive and aesthetic potential of interactive digital media and its theoretical issues. Exploration of methodologies and tools for media integration, interface design, and interactive audiovisual construction. Students conceive, produce, and master individual interactive multimedia projects. May be repeated once for credit. Concurrently scheduled with course C144. Letter grading.

C245. Creative Authoring for World Wide Web. (4) Lecture, three hours; laboratory, three hours. Exploration of creative aspects of World Wide Web as medium for personal/collective expression. Students produce Web works and serve them online. Contextualization of medium by looking at its history, embedded ideology, and sociopolitical consequences. May be repeated once for credit. Concurrently scheduled with course C145. Letter grading.

246. Seminar: Issues in Electronic Culture. (6) Seminar, three hours; laboratory, three hours. Critical studies seminar with major hands-on laboratory component that explores impact of new digital technologies on contemporary culture and aesthetics. Students do laboratory projects using visualization, image manipulation tools, and Internet authoring tools. Letter grading.

C247. Planning Independent Feature Production. (4) Lecture, three hours. Analysis of procedure, problems, and budgets in planning feature-length script for film and television production, with emphasis on role of producer and creative organizational techniques of producing. Concurrently scheduled with course C147. Letter grading.

C248. Advanced Digital Media Workgroup. (4) Discussion, four hours; laboratory, two hours. Designed for students with previous laboratory course experience, course provides opportunity to create larger-scale digital media works with advanced software tools and techniques in small process-oriented, creative workshop environment. May be repeated once for credit. Concurrently scheduled with course C148. Letter grading.

249. Digital Revolution. (4) Lecture, four hours; discussion, one hour; laboratory, one hour. Comprehensive survey to introduce students to emerging digital technologies, resulting new media, and their artistic, economic, and social implications. Topics include digital editing, digital previsualization, multimedia, World Wide Web, interactive television, and virtual reality. Letter grading.

270. Seminar: Film Criticism. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Study of key aesthetic questions of analysis and evaluation in relation to central works of motion picture criticism. May be repeated once for credit. S/U or letter grading.

271. Seminar: Television Criticism. (6) Seminar, four hours; screenings/discussion, three hours. Designed for graduate students. Analysis of major forms of television production and criticism it has elicited. May be repeated once for credit. S/U or letter grading.

273. Seminar: Contemporary Film and Television Criticism. (6) Seminar, three hours; film and television screenings, four to six hours. Limited to Film and Television PhD candidates. Study and practice of analytic and critical response, with emphasis on contemporary film and television. S/U or letter grading.

274. Seminar: Research Design. (6) Seminar, three hours. Designed for second-year Film and Television PhD students. Examination of general principles that govern formulation of major research projects and preparation of prospectus for PhD dissertation. S/U or letter grading.

276. Seminar: Non-Western Films. (6) Seminar, three hours (additional hours as required); film screening, three hours. Designed for graduate students. Study of aesthetic and ideological impulses of selected films from Asia, Africa, and Latin America. S/U or letter grading.

277. Seminar: Narrative Studies. (6) Seminar, four hours; screenings/discussion, three hours. Designed for graduate students. Study of writings on theory of narrative structure and their significance for analysis of film forms. S/U or letter grading.

283A. Developing Comedy Series. (4) Seminar, three hours. Basic tenets and analysis of television comedy shows and contemporary industry production and business practices. Development of original show concepts and pitch for review and feedback by class, instructor, and guests. Letter grading.

283B. Writing Television Comedy Scripts. (8) Seminar, three hours. Enforced requisite: course 283A. Examination of basics of half-hour pilot format, style, and content and learning of principles behind network needs and choices in choosing pilots. Forum in which to discuss ideas and issues with class and instructor. Weekly progress on original half-hour pilot and series bible required. Letter grading.

283C. Running Television Comedy Room. (4) Seminar, three hours. Enforced requisite: course 283A. Practical knowledge about skills necessary to be writer/executive producer of half-hour comedy show. Focus on community building, collaboration, and leadership skills needed to successfully function in writers' room, as well as breaking stories, writing, and rewriting television scripts. Letter grading.

284A. Developing Drama Series. (4) Seminar, three hours. Basic tenets and analysis of television drama shows and contemporary industry production and business practices. Development of original show concepts and pitch for review and feedback by class, instructor, and guests. Letter grading.

284B. Writing Television Drama Scripts. (8) Seminar, three hours. Enforced requisite: course 284A. Examination of basics of drama pilot format, style, and content and learning of principles behind network needs and choices in choosing pilots. Forum in which to discuss ideas and issues with class and instructor. Weekly progress on original drama pilot and series bible required. Letter grading.

284C. Running Television Drama Room. (4) Seminar, three hours. Enforced requisite: course 284A. Practical knowledge about skills necessary to be writer/executive producer of one-hour drama show. Focus on community building, collaboration, and leadership skills needed to successfully function in writers' room, as well as breaking stories, writing, and rewriting television scripts. Letter grading.

287A. Introduction to Art and Business of Producing I. (4) Seminar, three hours. Introduction for first-year producers program students to producer's role in navigating unique dynamic between art and commerce in entertainment industry. Overview of development, production, and distribution of feature films for worldwide theatrical market, including identifying material, attracting elements, and understanding basics of studio and independent financing and distribution. S/U or letter grading.

287B. Introduction to Art and Business of Producing II. (4) Seminar, three hours. Requisite: course 287A. Builds on principles taught in course 287A and presents continuation of study of development, production, and distribution of feature films for worldwide theatrical market, including identifying material, attracting talent elements, and understanding basics of studio and independent financing and distribution. Minimum of two unproduced screenplays to be presented for review by class and instructor to begin identifying potential thesis projects. S/U or letter grading.

287C. Introduction to Art and Business of Producing III. (4) Seminar, three hours. Requisites: courses 287A, 287B. Builds on principles taught in courses 287A and 287B. Presentation of screenplays prepared in course 287B for review by class and instructor with goal of isolating and identifying primary and secondary thesis projects. Discussions of script analysis and creating set of viable development notes for primary projects. Completion of written outline for original projects and pitching of primary projects to panel of industry executives for further feedback. S/U or letter grading.

288A-288B-288C. Feature Film Development I, II, III. (4-4-4) Lecture, three hours. Course 288A is requisite to 288B, which is requisite to 288C. Practical hands-on approach to understanding and implementing producer's role in development of feature film screenplay and negotiating particulars of production process. Through in-class discussions, script analysis, story notes, and select guest speakers, exposure to various entities that comprise feature film development process. S/U or letter grading. **288A.** Basic introduction to story and exploration of proper technique for evaluating screenplays through writing of coverage. **288B.** Deeper evaluation of screenplay through writing of story notes. **288C.** Story development and art of pitching. Script evaluation and work in groups of two to build three-act structure and create compelling characters for original ideas pitched in class.

289A. Current Business Practices in Film and Television. (4) Discussion, three hours. Requisite: course C247. Designed for graduate students. Examination of current status of financing/production/distribution agreements, union agreements, music, copyright, etc., necessary to understand film and television industry. S/U or letter grading.

289B. Strategy. (4) Lecture, three hours. Course 289A is not requisite to 289B. Examination of business realities of industry, with focus on techniques for analyzing behavior, making strategic decisions, and overcoming obstacles to achieving results as producer, writer, or director. Assignments designed to assist students in articulating and achieving their goals and to help them effectively transition from classroom to their careers in entertainment industry. S/U or letter grading.

289C. Independent Spirit: Creative Strategies for Financing and Distributing Independent Features. (4) Lecture, three hours. Course 289B is not requisite to 289C. Key insights into financing and distribution of independent or specialty films. Topics include film finance, production, marketing, distribution, agents, and new technology, with emphasis on applying this knowledge to individual student projects. S/U or letter grading.

290A. Research and Development I. (4) Seminar, three hours. Forum for roundtable strategy sessions and mock story meetings with instructor, students, and various industry guests. Development of one story idea for thesis project. S/U or letter grading.

290B. Research and Development II. (4) Seminar, three hours. Forum for roundtable strategy sessions and mock story meetings. Students must make concrete weekly progress on thesis project and adapt strategy based on feedback received. Development of marketing and business strategies for story idea set up in course 290A. S/U or letter grading.

290C. Research and Development III. (4) Seminar, three hours. Final stages of thesis preparation for evaluation. Guidance provided by instructor on how to effectively present selected project. Requirements include industry-related book reports, script analysis, pitching selected concept, weekly research to understand marketplace, accumulation and updating of data, and justification for potential buyers comprised of industry professionals. S/U or letter grading.

291A. Studios versus Independents: Navigation Process. (4) Lecture, three hours. Tools necessary for producer to navigate Hollywood entertainment industry. Topics discussed through lectures and guest speakers include impact of difficulty to navigate relationship between art and commerce in craft of filmmaking, rapid advance of new technologies, diverse new means of building finance capital for emerging producing entities, and what future may hold for truly independent filmmaker. S/U or letter grading.

291B. Feature Film Marketing. (4) Lecture, three hours. Course 291A is not requisite to 291B. Examination of numerous groups that are responsible for specific marketing components and make up marketing departments. Distribution and in-theater marketing, trailers, publicity, promotions, research, and

media. Mechanics and levels of intuition required to make sure movies are seen by public. S/U or letter grading.

291C. Feature Film Distribution and Exhibition. (4) Lecture, three hours. Course 291B is not requisite to 291C. Investigation of philosophy, structure, and major players that make up entertainment industry, with emphasis on film distribution and exhibition. Through lectures, readings, and guest speakers, exploration of interrelated arenas of production, marketing, business affairs, media, and impact of international market on distribution and exhibition of studio releases. S/U or letter grading.

292A. Overview of Network Television Management. (4) Lecture, three hours. Designed to expand basic understanding of network and cable television business. Exploration of role of showrunner, executives from networks and production companies, packaging agents, and studios responsible for developing and creating programming. S/U or letter grading.

292B. Who Produces Television? Showrunner, Nonwriting Producer, Network Executive, Studio Executive, or Agent? (4) Lecture, three hours. Course 292A is not requisite to 292B. In-depth look at role that key individuals play in getting television shows on air. Discussion of readings, lectures, and distinguished guests from each area of television industry: networks, studios, agencies, and production companies. S/U or letter grading.

292C. Running Shows: Producing for Broadcast and Cable. (4) Lecture, three hours. Course 292B is not requisite to 292C. Exploration of role of writers-producers or showrunners in creating television shows. Designed to train writers who typically enter field as staff writers and to develop concrete tools of producers. Training of next generation of nonwriting network and studio development executives whose job it is to assist writers-producers in highly collaborative process of creating, developing, producing, and scheduling television programming. S/U or letter grading.

293. Seminar: Film and Television Curatorship. (4) Seminar, three hours (additional hours as required). Designed for graduate students. Study and practice of issues in archival research and administration. S/U or letter grading.

294A. Contracts and Negotiation. (4) Lecture, three hours. Survey of range of contracts involved in studio productions, including literary submission and option agreements, artist employment, director employment, writer collaboration agreements, coproduction agreements, music rights license, etc. Actual studio agreements referenced to illuminate potential consequences of each transaction. Negotiation strategy exercises. S/U or letter grading.

294B. Entertainment Law, Business Practices, and Negotiation Strategies. (4) Lecture, three hours. Course 294A is not requisite to 294B. In-depth analysis of structure, economics, and legal aspects of entertainment industry, with emphasis on television and film. Topics include intellectual property and proprietary rights, project development and production, talent, guilds, distribution and financing, ancillary rights, and music rights. Advanced negotiation strategy exercises. S/U or letter grading.

294C. International Financing and Distribution. (4) Lecture, three hours. Course 294B is not requisite to 294C. Legal-based course dealing with independent finance and distribution of feature films. Topics include fundamentals of film financing, domestic distribution, international distribution, European coproductions, role of foreign sales agents and of bankers and completion bond companies. S/U or letter grading.

295A. Art of Presentation. (4) Lecture, three hours. Cultivation of skills needed for students to present themselves and their project goals with clarity and precision to industry professionals. Oral presentations designed to enhance student ability to deliver convincing arguments on range of topics. S/U or letter grading.

295B. Advanced Film and Television Producing Workshop for Producers, Writers, and Directors. (4) Lecture, three hours. Course 295A is not requisite to 295B. Designed to help producers, as well as screenwriters and directors, focus on networking opportunities and to develop strategies to bring their feature and television projects to marketplace. Case-study documents (drafts of screenplays, dailies, etc.) from current or recently produced projects provided. S/U or letter grading.

295C. Advanced Producing: Role of Successful Producer. (4) Lecture, three hours. Designed to provide producers with comprehensive understanding of business acumen involved in purchasing scripts for studios and independent production companies. Through script analysis and in-class discussions, students encouraged to examine not just story elements, but marketing assets inherent in pieces of material. S/U or letter grading.

296A. Role of Talent Agencies. (4) Lecture, three hours. Introductory overview of various departments at agencies, including motion picture literary, talent, story, packaging, and television, and examination of various interactions among each. Exercises encourage producers, writers, and directors to learn how to work effectively with individuals at talent agencies. S/U or letter grading.

296B. Who Represents Me? (4) Lecture, three hours. Course 296A is not requisite to 296B. In-depth analysis of different forms of representation offered by agents, managers, business managers, and lawyers and detail of legal rights and responsibilities of each. Exercises require students to represent rights holders in series of potential projects. S/U or letter grading.

297A-297B-297C. New Media Marketing I, II, III. (4-4-4) Seminar, three hours. Course 297A is requisite to 297B, which is requisite to 297C. Overview of changing world of storytelling through development of new technologies and new media. Development of short teaser/trailer or website using digital resources (digital cameras, editing, and new media effects) to promote student feature or television thesis project. S/U or letter grading.

298A-298B. Special Studies in Film and Television. (2 to 6 each) Seminar, three hours; film screening, three hours. Designed for graduate students. May be repeated once for credit. S/U or letter grading. **298A.** Seminar study of problems in film and television, organized on topic basis. **298B.** Critical study of animated film: its historical development, structure, style, use, and relation to contemporary culture.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Film Image Design Laboratory. (4) Lecture, two hours; laboratory, six hours. Limited to graduate film and television students. Conception and design of nonnarrative film imagery. One-minute experiments in relation of meaning to technique, including manipulation of optics, photochemistry, elements of electronic processes, and display of time and motion. May be repeated once for credit. S/U or letter grading.

401. Film Analysis for Filmmakers. (4) Lecture/ screenings, five hours. Limited to graduate film and television students. Drawing heavily from array of historical examples, examination of many expressive strategies useable in creation of moving image art forms. Unifying theory and practice, presentation of approach to viewing great films of past that empowers filmmakers to use sound and images to tell original stories in present. Focus on strategic decision making in areas of writing, design, cinematography, editing, sound, and performance to enable filmmakers to discover their own personal style for telling stories on screen. Letter grading.

402A-402B. Advanced Narrative Directing Workshops. (4 or 8-8) Limited to nine graduate film and television students. Production of 10- to 15-minute fiction film or project. Letter grading. **402A.** Labora-

tory, six or 12 hours; fieldwork, to be arranged. Requisites: courses 405, 409, 410A, 410B, 410C, 433. Students budget and preproduce their projects by end of first term. **402B.** Laboratory, 12 hours; fieldwork, to be arranged. Requisite: course 402A. In second term students must complete photography on location and/or in studio.

402C. Advanced Narrative Directing Workshop. (4) Laboratory, four hours. Requisites: courses 402A, 402B. Completion of postproduction on projects started in courses 402A and 402B. Letter grading.

403A-403B-403C. Advanced Documentary Workshops. (4 to 8 each) Lecture/discussion/laboratory, 16 to 24 hours; fieldwork, to be arranged. Requisites: courses 405, 409, 410A, 410B, 410C, 433. Limited to graduate film and television students. Production of advanced individual documentary film or video projects. Students conceptualize, research, write, shoot (on location), and edit projects to completion. May be repeated once for credit. S/U or letter grading.

404A-404B. Advanced Abstract/Experimental Media Workshops. (8-8) Lecture/discussion/laboratory, 12 hours; fieldwork, to be arranged. Requisites: courses 405, 409, 410A, 410B, 410C, 433. Limited to 10 students per section. Production of 20-minute abstract or experimental film, video, or multimedia project. Students plan, design, and shoot their projects in first term and work as crew for each other in rotating assignments. In second term students must complete postproduction of their projects. S/U or letter grading.

404C. Advanced Abstract/Experimental Media Workshop. (8) Lecture/discussion/laboratory, 12 hours; fieldwork, to be arranged. Requisites: courses 404A, 404B. Completion of all stages of production and postproduction on projects started in courses 404A and 404B. Letter grading.

405. Television Production Workshop. (8) Laboratory, eight hours; other, to be arranged. Limited to graduate film and television students. Basics of television production and direction, focusing on studio multiple camera with minimal use of remote camera. Use of various formats of video production, including scripted and nonscripted projects, culminating in narrative three-camera project. S/U or letter grading.

406. Experimental Video Workshop. (4) Laboratory, six hours; other, to be arranged. Limited to graduate film and television students. Introduction to independent and experimental video with examination of impact of new video technologies in television, covering concepts of video art, new television, digital video, high-definition TV, and film and tape postproduction. S/U or letter grading.

407. Video Documentary Workshop. (8) Laboratory, 12 hours. Limited to graduate film and television students. Exploration of documentary video, including screening variety of international works and producing short documentary project using single-camera field production techniques. S/U or letter grading.

408A-408B. Video Editing. (4-4) Discussion, four hours; laboratory, to be arranged. Limited to graduate film and television students. Individual instruction in electronic editing. S/U or letter grading. **408A.** Online Editing; **408B.** Offline Editing.

409. Directing Actors for Camera Workshop. (4) Workshop, six hours; laboratory, to be arranged; laboratory preparation, two to four hours. Limited to MFA production program students. Team-taught with five weeks designed to give director actor/camera techniques, and five weeks to offer basic strategies to elicit good performances from actors. Emphasis on problems faced when directing actors for film. S/U or letter grading.

410A. Symposium. (2) Seminar, three hours. Limited to and required of first-year MFA production program students. Exploration of principal concepts of film and television production within context of preproduction, production, and postproduction, providing forum for synthesis of knowledge gained in various first-year technical craft courses. Exploration of strategies for learning production within academic environment. May be repeated for credit. Letter grading.

410B. Cinematography. (2) Seminar, three hours. Limited to and required of first-year MFA production program students. Production workshop designed to give hands-on experience in all aspects of film production (tools and practicum of medium) as each student writes/directs/edits six-minute film. May be repeated for credit. Letter grading.

410C. Postproduction. (2) Seminar, three hours. Limited to and required of first-year MFA production program students. Production workshop designed to give hands-on experience in all aspects of film production (tools and practicum of medium) as each student writes/directs/edits six-minute film. May be repeated for credit. Letter grading.

410D. Postproduction Sound. (2) Seminar, three hours. Requisites: courses 405, 409. Limited to and required of first-year MFA production program students. Technical and aesthetic aspects of postproduction sound recording, editing, and rerecording for film and television. Application of principles of sound design to student films while using UCLA's John Candy Room and Scoring Stage for Automatic Dialogue Replacement (ADR), Foley, and mixing. Use of Pro Tools LE for recording, editing, and mixing, selection and use of microphones and mixing consoles, and incorporation of Final Cut Pro soundtracks into mix environment. Students record ADR and Foley and present mix of edited dialogue/ADR, Foley, sfx, and music tracks by end of term. Letter grading.

410E. Production. (12) Lecture, three hours; fieldwork, 24 to 40 hours. Requisites: courses 401, 409, 410A through 410D. Limited to and required of first-year MFA production/directing students. Designed to give hands-on experience in film production. Students prepare and direct six-minute films and serve in preassigned crew positions for each other. Letter grading.

411. Survey of Multimedia Production. (4) Lecture, three hours; laboratory, three hours. Introduction to various methods of digital production, with focus on photo manipulation, desktop nonlinear postproduction, and distribution on World Wide Web. Letter grading.

C416. Intermediate Cinematography. (4) Lecture, two hours; laboratory, four hours. Intermediate study of principles of cinematography, with emphasis on exposure, lighting, and selection of film, camera, and lenses. Concurrently scheduled with course C118. Letter grading.

417. Lighting for Film and Television. (4) Lecture, two hours; laboratory, six hours. Limited to graduate film and television students. Lectures, supervised exercises on stage or in exterior, screenings of scenes, and discussions aimed at learning to master lighting to create appropriate mood or atmosphere of premeditated scene recorded on film or through electronic system. May be repeated twice for credit. Letter grading.

418. Cinematography and Directing. (4) Lecture, two hours; laboratory, six hours. Requisite: course 417. Limited to graduate film and television students. Supervised filming of short dramatic projects on sound stage and at exterior locations that explore complexity of process, emphasizing balance and collaboration essential to both directing and photography in its varied technical, production, and creative aspects. Letter grading.

419. Advanced Cinematography. (4) Lecture, two hours; discussion, one hour; laboratory, one hour. Requisites: courses 417, 418. Limited to graduate film and television students. Advanced study of principles of cinematography, with emphasis on exposure, lighting, and selection of film, camera, and lenses. S/U or letter grading.

C420. Digital Cinematography. (4) Lecture, three hours. Advanced study of principles of digital cinematography, with emphasis on electronic exposure control, lighting, formats, cameras, and lenses. Concurrently scheduled with course C120. Letter grading.

423A. Direction of Actors for Film and Television. (4) Lecture, four hours; laboratory. Preparation: first film project. Limited to graduate film and television students. Required of all production majors shooting

fiction thesis. Exercises in analysis of script and character for purpose of directing actors in film and television productions. Emphasis on eliciting best possible performance from actors. May be repeated twice for credit. S/U or letter grading.

423B. Advanced Direction of Actors for Film and Television. (4) Studio laboratory, six hours. Requisite: course 423A. Limited to graduate film and television students. Advanced study and practice of directing actors before camera. Emphasis on developing techniques to immediately enhance communication between director and actor on set in order to maintain continuity from shot to shot. S/U or letter grading.

C430. Screenwriting Fundamentals. (2) Lecture, one hour. Corequisite for graduate students enrolled in course 431. Examination of screenwriting fundamentals: structure, character and scene development, conflict, locale, theme, history of drama. Review of authors such as Aristotle. Concurrently scheduled with course C132. S/U or letter grading.

431. Introduction to Film and Television Screenwriting. (4) Lecture, three hours. Limited to graduate film and television students. Introductory course in problems of film and television screenwriting. S/U or letter grading.

433. Writing Short Screenplays. (4) Lecture, three hours. Limited to and required of first-year MFA production program students. Conception, development, and writing of six-minute dramatic film script to be produced in courses 410A, 410B, 410C. Letter grading.

434. Advanced Screenwriting. (8) Seminar, three hours. Requisite: course 431. Advanced problems in writing of original film and television screenplays. May be repeated for credit. Letter grading.

435. Advanced Writing for Short Film and Television Screenplays. (4) Discussion, three hours. Requisite: course 410C. Limited to graduate film and television students. Conception, development, and writing of dramatic film script to be produced as advanced or thesis project. Letter grading.

437. Nontheatrical Writing for Film and Television. (4) Discussion, three hours. Limited to graduate film and television students. Advanced problems in field of documentary and special feature programs, with emphasis on research and preproduction. May be repeated for maximum of 16 units. S/U or letter grading.

451. Advanced Design for Film and Television. (4) Laboratory, to be arranged. Limited to graduate film and television students. Advanced study and practice of techniques and methods of design for motion pictures. Art direction for advanced workshop productions. May be repeated for maximum of 12 units. S/U or letter grading.

452A. Film and Television Sound Recording. (4) Lecture, three hours; laboratory, four hours. Limited to graduate film and television students. Principles and practices of film and television sound recording, including supervised exercises. S/U or letter grading.

452B. Music Recording Workshop. (4) Lecture, four hours; studio, eight hours. Supervised exercises in studio music recording techniques, with emphasis on special requirements for motion pictures and television. S/U or letter grading.

C452C. Digital Audio Postproduction. (4) Lecture, three hours; laboratory, three hours. Limited to departmental majors. Through discussion, demonstrations, and laboratory assignments, exploration of digital audio tools and procedures available to today's filmmakers. Coverage of many technical, equipment, and software step-by-steps, with emphasis on creative process. Concurrently scheduled with course C152C. Letter grading.

453. Postproduction Sound Design. (2 to 4) Lecture, three hours. Designed to give film students insight into world of postproduction sound and to provide knowledge and tools necessary to complete postwork on their projects. Exploration of all areas of postproduction sound design from editing to final mixing. How to effectively use sound design to enhance storytelling capability of films, evaluate music

choices, pick composer, music edit, create sound design to enhance story points, discover design opportunities, and select right sound effects. How to edit dialogue, prep for Automatic Dialogue Replacement and Foley sessions, and supervise final sound mix. Screening of numerous film clips to provide examples of postsound choices that demonstrate effective use of sound design. S/U or letter grading.

454A. Advanced Film Editing. (4) Lecture, three hours; laboratory, to be arranged. Preparation: submission of rough cut and/or copy of screenplay. Limited to film and television thesis and advanced project students in postproduction phase of thesis or advanced project. Organization and operation of postproduction process. Letter grading.

C454B. Advanced Film Editing. (4) Lecture, three hours; laboratory, one hour. Preparation: submission of rough cut of existing project or proposal to edit work of another director. Limited to film and television students in postproduction phase with advanced knowledge of organization and operation of postproduction process. Students may also propose to edit significant scene given to them by instructor. Concurrently scheduled with course C154B. Letter grading.

454C. Advanced Film Editing: Postproduction Pathways. (2 to 4) Lecture, three hours; laboratory, two hours. Limited to departmental majors. Through discussions, demonstrations, outside speakers, and laboratory assignments, demystification of ever-changing world of postproduction. Students plan, schedule, and budget their postproduction pathway in preproduction. May be repeated once for credit. Letter grading.

C455A-C455B. Music in Film: Another Way to Tell Stories. (4-4) Lecture, three hours. Course C455A is requisite to C455B. Exploration of concepts and issues that drive creation and use of music in film. Through lecture/discussion and practical assignments, examination of deep collaboration between filmmaker and composer. Viewing of noteworthy examples and following of collaboration of filmmakers with composers, with weekly sessions dedicated to temping, creation and development of new scores, studio visits, and creative/conceptual dialogue between musician and filmmaker. Preparation of film ready for temping by end of first term and ready for scoring at beginning of second term. Concurrently scheduled with courses C149A-C149B. Letter grading.

459A-459B. Directing for Film and Television. (4-4) Lecture, three hours. Limited to graduate film and television students. Analysis and exploration, with specific scenes, of differences and many similarities in directorial approach to same literary material in theater, film, and television. S/U or letter grading.

464A-464B. Advanced Film Directing. (8-8) Studio, to be arranged. Limited to graduate film and television students. Special problems in direction of fictional and documentary films. S/U or letter grading.

465. Narrative Television Workshop. (8) Laboratory, eight hours. Supervised exercises in television multi-camera direction, with emphasis on creative use of composition and sound, and communication with those in front of and behind camera. Letter grading.

466A-466B. Advanced Professional Video Workshops. (8-8) Lecture, three hours; laboratory, to be arranged. Requisites: courses 405, 410A, 410B, 410C, 423A. Limited to graduate film and television students. Hands-on problems in working with various interrelated disciplines in professional production experience, including interaction with students of design and acting from Department of Theater. Letter grading.

C468. Creative Location Film Production. (8) Lecture, four hours; discussion, four hours; laboratory, to be arranged. Limited to directing or producer's program students. Problems of location, production, directing, and cinematography in various real-life practical locations. Practical application of solving problems and communication within limitations of production experience. Concurrently scheduled with course C168. Letter grading.

C470A. Introduction to Digital Effects. (4) Lecture, three hours; laboratory, to be arranged. Introductory study of digital effects production, with specific focus on motion graphics, compositing, effects processing, and title sequences. Concurrently scheduled with course C170A. Letter grading.

472. Commercials. (4) Lecture, four hours. Limited to MFA students. Designed to give students opportunity to explore one very specific kind of filmmaking. Through exploration of advertising, students gain knowledge about what kind of work is salable in American and foreign markets and how to work within distinct confines of commercial genre. Letter grading.

475. Film I. (8) Discussion, three hours; laboratory, to be arranged. Designed for graduate students. Study of basic techniques of film production, including pre-production planning and production of group short film. S/U or letter grading.

476. Video I. (8) Discussion, three hours; laboratory, to be arranged. Designed for graduate students. Study of basic techniques of television and video production, including completion of one or more projects. S/U or letter grading.

478. Video II. (8) Discussion, three hours; studio, to be arranged. Requisites: courses 185, and 405 or 476. Designed for graduate students. Group experience in video production with each member rotating on crew work in production of individual or collective projects. S/U or letter grading.

480. Timing for Animation. (4) Lecture, three hours; laboratory, three hours. Process of animation timing through lectures and assignments. Letter grading.

482A-482B. Advanced Animation Workshops. (4 or 8 each) Lecture, three hours; studio, to be arranged. Requisites: courses 181A, 181B, 181C. Advanced organization and integration of various creative arts used in animation, resulting in production of complete animated film. May be repeated for maximum of 16 units. S/U or letter grading.

483A-483B-483C. Advanced Computer Animation. (4 to 8 each) Lecture, six hours; laboratory, four hours. Requisites: courses 181A, 181C, 482A. Recommended: course 181B. Course 483A is requisite to 483B, which is requisite to 483C. Creation and production of complete and original advanced computer animated film. Letter grading.

484A-484B. Visual Thinking and Organization for Animation. (4-4) Lecture, six hours; laboratory, four hours. Course 484A is requisite to 484B. Systematic approach to analyzing and communicating two-dimensional and three-dimensional form and applying traditional compositional approaches to animation. May be repeated for maximum of 16 units. Letter grading.

485. Legal Issues in Animation. (4) Lecture, three hours; laboratory, three hours. Examination of legal issues in animation, including copyright, contracts, constitutional issues in animation, competing rights, employer/employee relationships, and representation in animation. S/U or letter grading.

486. Directed Individual Study: Preparation to Advance to Candidacy for MFA in Production. (2 to 4) Tutorial, four to eight hours. Limited to MFA production program students. Specialized development and organization of proposed thesis project prior to advancement to candidacy. Should be taken term before student plans to advance to candidacy. S/U or letter grading.

487. Directed Individual Study: Postproduction Laboratory. (4) Laboratory, eight hours. Limited to MFA production program students. Completion of projects in final stages of postproduction. May not be repeated. S/U or letter grading.

488A. Interactive Animation. (4 to 8) Lecture, six hours; laboratory, to be arranged. Requisites: courses 181A, 181C, 489A. Organization and integration of various creative arts used in animation and interactive media to form complete study of selective interactive animation project. May be repeated for maximum of 16 units. Letter grading.

488B. Advanced Interactive Animation. (4 to 8) Lecture, six hours; laboratory, to be arranged. Requisite: course 488A. Organization and integration of various creative arts used in animation and interactive animation to form completed project of selected interactive topic. May be repeated for maximum of 16 units. Letter grading.

489A. Computer Animation in Film and Video. (4 to 8) Lecture, six hours; laboratory, four to eight hours; other, to be arranged. Preparation: completed animated film. Requisites: courses 181A, 181C. Instruction in and supervised production of computer animation. May be repeated for maximum of 16 units. Letter grading.

489B. Production in Computer Animation. (4 to 8) Lecture, six hours; laboratory, four to eight hours. Requisite: course 489A. Instruction in creation, preparation, and production of complete and original computer animation film or tape. May be repeated for maximum of 16 units. Letter grading.

495A. Practice of Teaching Film and Television. (2) Seminar, three hours. Required of all teaching assistants and associates in critical studies program. Orientation and preparation of graduate students who have responsibility to assist in teaching undergraduate courses in department; discussion of problems common to teaching experience. S/U grading.

495B. Teaching with Technology in Film and Media Studies. (2) Seminar, three hours. How to use appropriate technology to become more effective teaching assistants. Pedagogical impact of tools, including course management software, presentation technologies, and Internet. Discussion of technological resources available on campus. Use of unfamiliar tools to gain confidence in ability to incorporate new technologies in teaching. S/U grading.

496. Practice of Teaching Film and Television. (2) Discussion, two hours. Required once of all teaching assistants and associates in department. Orientation and preparation of graduate students who have responsibility to assist in teaching undergraduate courses in department; discussion of problems common to teaching experience. May not be applied toward MA, MFA, or PhD. May be repeated. S/U grading.

498. Professional Internship in Film and Television. (4, 8, or 12) Tutorial, to be arranged. Full- or part-time at studio or on professional project. Designed for MFA/PhD program advanced students. Internship at various film, television, or theater facilities accentuating creative contribution, organization, and work of professionals in their various specialties. Given only when projects can be scheduled. S/U or letter grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596A. Directed Individual Studies: Research. (2 to 12) Tutorial, to be arranged. Limited to graduate students. May be repeated with consent of instructor. S/U or letter grading.

596B. Directed Individual Studies: Writing. (2 to 12) Tutorial, to be arranged. Limited to graduate students. May be repeated with consent of instructor. S/U or letter grading.

596C. Directed Individual Studies: Directing. (2 to 12) Tutorial, to be arranged. Limited to graduate students. May be repeated with consent of instructor. S/U or letter grading.

596D. Directed Individual Studies: Design. (2 to 12) Tutorial, to be arranged. Limited to graduate students. May be repeated with consent of instructor. S/U or letter grading.

596E. Directed Individual Studies: Acting. (2 to 12) Tutorial, to be arranged. Limited to graduate students. May be repeated with consent of instructor. S/U or letter grading.

596F. Directed Individual Studies: Production. (2 to 12) Tutorial, to be arranged. Limited to graduate students. May be repeated with consent of instructor. S/U or letter grading.

597. Preparation for PhD Qualifying Examinations in Film and Television. (2 to 12) Tutorial, to be arranged. May be taken for maximum of 12 units. S/U grading.

598. MA Thesis in Film and Television. (2 to 12) Tutorial, to be arranged. Preparation: advancement to MA candidacy. Research and writing for MA thesis. May be taken for maximum of 12 units. S/U grading.

599. PhD Dissertation in Film and Television. (2 to 12) Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Research and writing for PhD dissertation. May be repeated. S/U grading.

FOOD STUDIES

Interdisciplinary Minor College of Letters and Science

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Joseph F. Nagy, PhD, Chair

Faculty Committee

Allison B. Carruth, PhD (*English, Institute of the Environment and Sustainability, Institute for Society and Genetics*)

Barbara Drucker, MFA (*Art*)

Akhil Gupta, PhD (*Anthropology*)

Joseph F. Nagy, PhD (*English*)

Amy C. Rowat, PhD (*Integrative Biology and Physiology*)

Wendelin M. Slusser, MD, MS (*Community Health Sciences*)

Keith D. Stolzenbach, PhD (*Civil and Environmental Engineering, Institute of the Environment and Sustainability*)

Scope and Objectives

The Food Studies minor uses food—its production, preparation, sharing, consumption, and disposal—as a lens for understanding individual, sociocultural, and global issues. The study of the role of food in multiple complex aspects of life builds bridges across all areas of the academy, including arts, anthropology, environment and sustainability, folklore and mythology, geography, history, humanities, law, psychology, public health, public policy, and other fields.

Through interdisciplinary courses and a capstone experience, students in the minor acquire a unique insight of food studies and emerge with a new intellectual framework for understanding this expanding area of study.

Undergraduate Study

Food Studies Minor

To enter the Food Studies minor, students must have an overall grade-point average of 2.0 or better and file a petition with College Academic Counseling, A316 Murphy Hall.

Required Lower Division Courses (10 or 11 units): Environment 25 or General Education Cluster M1CW, and one course from Community Health Sciences 48, Italian 42C, or Physiological Science 7.

Required Elective Courses (20 or 21 units): Four courses from Anthropology 133F, Chinese 185, Civic Engagement 170SL, Community Health Sciences 130, 131, 132, English 112E, M118F, Food Studies 197, Italian 124, Physiological Science 167, Society and Genetics M132, 134, Urban Planning M165, and World Arts and Cultures C129.

Required Capstone Course (4 units): Food Studies 195CE or 199.

No more than two lower division courses may be applied toward the minor. Students may petition to have courses other than those listed above under the required elective courses applied toward the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Food Studies

Upper Division Courses

187. Special Topics in Food Studies. (4) Lecture, three hours. Variable topics in one area within food studies. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

195CE. Community and Corporate Internships in Food Studies. (4) Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning (CCL). Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. Fulfills capstone experience requirement for Food Studies minor. May be repeated for credit with consent of Center for Community Learning. Individual contract with site supervisor, CCL coordinator, and faculty sponsor required. P/NP or letter grading.

197. Individual Studies in Foodways, Diet, and Nutrition. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Food Studies. (4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research projects in food studies under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

FOREIGN LITERATURE IN TRANSLATION

Scope and Objectives

The following courses offered in the departments of language and literature do not require reading knowledge of any foreign language.

Foreign Literature in Translation

Course List

Afrikaans (Germanic Languages)

40. From Oppressed to Oppressor and Beyond: Literature in Afrikaans from Preapartheid to Postapartheid Era in English Translation

Ancient Near East (Near Eastern Languages)

150A-150B. Survey of Ancient Near Eastern Literatures in English

Arabic (Near Eastern Languages)

150. Classical Arabic Literature in English
M151. Modern Arabic Literature in English

Armenian (Near Eastern Languages)

150A. Survey of Armenian Literature in English
C152. Modern Armenian Drama as Vehicle for Social Critique
C153. Art, Politics, and Nationalism in Modern Armenian Literature

Asian (Asian Languages)

151. Buddhist Literature in Translation

Central and East European Studies (Slavic Languages)

125. Interwar Central European Prose
126. Coldwar Central European Culture

Chinese (Asian Languages)

70. Classics of Chinese Literature
70W. Classics of Chinese Literature
131. World Sinophone Literature: Theories and Texts
C150A. Lyrical Traditions
150B. Chinese Literature in Translation: Traditional Narrative and Fiction
151. Chinese Literature in Translation: Modern Literature
152. Topics in Contemporary Chinese Literature and Culture
M153. Chinese Immigrant Literature and Film

Classics

40W. Reading Greek Literature: Writing-Intensive
41W. Reading Roman Literature: Writing-Intensive

60. Fantastic Journey: Antiquity and Beyond

137. Ancient Lives: Art of Biography

140. Topics in History of Greek Literature

141. Topics in History of Latin Literature

142. Ancient Epic

143A. Ancient Tragedy

143B. Ancient Comedy

144. Topical Studies in Ancient Culture

M145A. Ancient Greek and Roman Philosophy

M145B. Later Ancient Greek Philosophy

M146A. Plato—Earlier Dialogues

M146B. Plato—Later Dialogues

M147. Aristotle

150A. Female in Greek Literature and Culture

150B. Female in Roman Literature and Culture

162. Classical Myth in Literature

163. Ovid and Consequences

Comparative Literature

All undergraduate courses

Czech (Slavic Languages)

155. Survey of Czech Literature from Middle Ages to Present

Dutch (Germanic Languages)10. Contemporary Dutch Society and Culture: Beyond Rembrandt, Cheese, and Wooden Shoes
113. Modern Dutch and Flemish Literature in Translation**English**111A. Hebrew Bible in Translation
111B. Christian Biblical Texts in Translation
111C. Topics in Biblical Literature
112A. Oral Tradition
112B. Celtic Mythology
112C. Survey of Medieval Celtic Literature
112D. Celtic Folklore**French (French and Francophone Studies)**112. Medieval Foundations of European Civilization
M140. Women's Studies in French Literature
160. Francophone Cultures in English
161. French and Francophone Theater in Translation
163. French and Francophone Short Story in Translation
164. French and Francophone Novel in Translation
166. French and Francophone Autobiography in Translation
167. French and Francophone Intellectual History in Translation
169. Paris: Study of French Capital in Translation
171. Medieval Flix
172. Francophone Cinema and Literature in Translation
191A. Variable Topics Research Seminars in Translation**German (Germanic Languages)**50A-50B. Great Works of German Literature in Translation
56. Figures Who Changed World
57. Hollywood and Germany
58. Knights and Ladies, Sex and Power at Medieval Court
59. Holocaust in Film and Literature
60W. War
61A-61D. Modern Metropolis
M70. Origin of Language
102. War, Politics, Art
103, 104. German Film in Cultural Context
M105. Tristan, Isolde, and History of Heterosexuality
109. Jewish Question and German Thought
110. Special Topics in Modern Literature and Culture
111. Thomas Mann, Hesse, Böll, and Grass: German Nobel Prize Winners in English
112. Feminist Issues in German Literature and Culture
113. German Folklore
114. Fairy Tales and Fantastic
117. German Exile Culture in Los Angeles**Hungarian (Slavic Languages)**

121. Survey of Hungarian Literature in Translation

Iranian (Near Eastern Languages)

150A-150B. Survey of Persian Literature in English

Italian42A-42B-42C. Italy through Ages in English
46. Italian Cinema and Culture in English
50A-50B. Masterpieces of Italian Literature in English
102A-102B-102C. Italian Cultural Experience in English
110. Dante in English
140. Italian Novella from Boccaccio to Basile in Translation

150. Modern Fiction in Translation

151. Italy and Asia

152. Italy between Europe and Africa

M158. Women, Gender, and Sexuality in Italian Culture

230A-230B. Folk Tradition in Italian Literature

260A. Alternative Perspectives in Italian Culture: Studies of Folk Tradition in Italian Literature

260B. Women in Italian Culture

260C. Studies in Italian Cinema

Japanese (Asian Languages)

C150. Topics in Japanese Literature and Philosophy

151. Japanese Literature in Translation: Modern

154. Postwar Japanese Culture through Literature

M156. Literature and Technology

157. Classical Japanese Drama: Great Tradition

158. Love in Modern Japan

170. Japanese Tales of Supernatural

172. Fiction and Plays of Floating World

C173. Imperial Culture in Ancient Japan

174. Classical Japanese Poetry

Jewish Studies (Near Eastern Languages)

M150A-150B. Hebrew Literature in English

M151A-151B. Modern Jewish Literature in English

175. Modern Israeli Literature Made into Films

Korean (Asian Languages)

150. Korean Literature in Translation: Classical

151. Korean Literature in Translation: Modern

Polish (Slavic Languages)

152A-152B-152C. Survey of Polish Literature

Portuguese (Spanish and Portuguese)

40A-40B. Portuguese, Brazilian, and African Literature in Translation

46. Brazil and Portuguese-Speaking World

141A. Literature and Film in Portuguese

142C. Travel Narratives, Testimony, Autobiography

Romanian (Slavic Languages)

152. Survey of Romanian Literature

Russian (Slavic Languages)

25, 25W. Russian Novel in Translation

30. Russian Literature and World Cinema

M118. History of Russia, Origins to Rise of Muscovy

119. Golden Age and Great Realists

120. Literature and Revolution

121. Russian Pop Culture

C124C-C124T. Studies in Russian Literature

125. Russian Novel in Its European Setting

126. Survey of Russian Drama

M127. Women in Russian Literature

128. Russian Science Fiction

C170. Russian Folklore

Scandinavian

40, 40W. Heroic Journey in Northern Myth, Legend, and Epic

50, 50W. Introduction to Scandinavian Literatures and Cultures

C131. Introduction to Viking Age

C133A. Saga

134. Scandinavian Mythology

C137. Old Norse Literature and Society

138. Vikings

C141A. Theory of Scandinavian Novel

141B. Nordic Poetry

141C. Short Story in Scandinavia

142A. Introduction to Nordic Theater and Drama

143A. Scandinavian Detective Fiction

143C. Scandinavian Crime Literature

CM144A. Voices of Women in Nordic Literature

C145A. Henrik Ibsen

C145B. Knut Hamsun

C146A. August Strindberg

147A. Hans Christian Andersen

C147B. Søren Kierkegaard

148A. Halldór Laxness

152. Backgrounds of Scandinavian Literature

154. Romanticism

155. Modern Breakthrough

156. Scandinavian Literature of 20th Century

157. Contemporary Nordic Literature

161. Introduction to Nordic Cinema

C163A. Introduction to Danish Cinema

C163B. Introduction to Swedish Cinema

C163C. Introduction to Norwegian Cinema

C166A. Ingmar Bergman

C166C. Carl Dreyer

C171. Introduction to Scandinavian Folklore

C174A. Minority Cultures in Scandinavia

173A. Popular Culture in Scandinavia

174B. Queer Scandinavia

C175. Introduction to Sami Language and Culture

C180. Literature and Scandinavian Society

C185. Seminar: Scandinavian Literature

Serbian/Croatian (Slavic Languages)

154. South Slavic Literature

Slavic (Slavic Languages)

90. Introduction to Slavic Civilization

South Asian (Asian Languages)

150. Classical Indian Literature in Translation

Southeast Asian (Asian Languages)

70. Modern Southeast Asian Literature

90. Modern Literatures in Southeast Asia

130. Topics in Southeast Asian Literature

Spanish (Spanish and Portuguese)

60A-60B-60C. Hispanic Literatures in Translation

Ukrainian (Slavic Languages)

152. Ukrainian Literature

Yiddish (Germanic Languages)

121A. 20th-Century Yiddish Poetry in English Translation

121B. 20th-Century Yiddish Prose and Drama in English Translation

121C. Special Topics in Yiddish Literature in English Translation

FRENCH AND FRANCOPHONE STUDIES

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Scope and Objectives

The Department of French and Francophone Studies is a major West Coast center for the study of French. In recent decades French critical thought has maintained a dominant position in the Western world. The department seeks to give its students not only a background in the various fields of French and Francophone studies, but also opportunity to relate literary, linguistic, and cultural study to examination of the critical intellectual questions of our time.

The undergraduate lower division program is designed to provide practical competence in French after one year and thorough basic knowledge of the language after two years.

The undergraduate upper division program is chiefly devoted to perfecting linguistic skills and to the study of French and Francophone culture and literature. Courses in linguistics and business French are also offered. Students graduating with a Bachelor of Arts in French should be fully fluent in French and possess a thorough background in French and Francophone literature and culture. Both Bachelor of Arts degrees lead to graduate studies in French.

The graduate program offers both MA and PhD degrees and comprises training in the various fields of French and Francophone culture, literature, and thought, as well as in literary criticism, analysis, and theory. A number of courses in linguistics and stylistics are also offered.

Undergraduate Study

If students have taken French elsewhere, they must take a placement test administered by the department. Depending on the results of the placement test or with recommendation of an instructor, they may be permitted to enroll in a course of study at a more advanced level.

Requisites to all upper division courses taken in partial fulfillment of the French majors are French 6, 12, or equivalent. Courses 105 through 109 are not sequential and may be taken in any order, provided the requisites for each course are fulfilled.

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in French grammar and/or composition.

The French major is a designated capstone major. Students are required to complete a capstone seminar that is thematically devised to reflect current trends in the discipline. Through the capstone experience, students work closely with a faculty member on a focused topic of research. They engage in presentations and weekly discussions and write a research paper demonstrating language proficiency, critical and creative thinking, analytical skills, and a cultural perspective.

French BA

Capstone Major

Preparation for the Major

Required: French 1, 2, 3, 4, 5, 6, 12, or equivalent. Students normally take course 6 before undertaking course 12. Students who receive a grade of A in course 5 may enroll in course 12 concurrently with course 6, with consent of the instructor.

Transfer Students

Transfer applicants to the French major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of French and one French literature course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Two plans are offered by the department:

Plan I: French/Francophone Studies in Literature and Culture

Required: French 100, 101, two courses from 114A, 114B, and 114C, one senior capstone seminar (191B), and six 4-unit courses in French and Francophone literature and/or culture selected from upper division offerings in the department in language, civilization, literature, or the arts. One upper division elective course from outside the department may be substituted in the major program with consent of the undergraduate adviser. Each course must be taken for a letter grade.

Plan II: Interdisciplinary French/Francophone Studies

Required: French 100, 101, one course from 114A, 114B, or 114C, one senior capstone seminar (191B), four upper division elective courses in French and Francophone studies, and three upper division elective courses in fields relevant to French and Francophone studies to be selected from outside the department in consultation with the undergraduate adviser. Each course must be taken for a letter grade.

Plan II, with emphasis on French and Francophone culture, is a core program in French allowing for individual selection of relevant

courses in related fields such as gender studies, humanities, linguistics, and social sciences.

It is strongly advised that students who intend to pursue advanced degrees begin preparation for the language requirements at the undergraduate level.

If students' knowledge of French exceeds the preparation usually received in courses preparing for the major and if they demonstrate the requisite attainment in French 100 or 101, they may substitute for those courses in grammar and composition an equivalent number of upper division courses in the French and Francophone Studies Department in consultation with an adviser. All prospective French majors who are native or quasi-native speakers of French must see the undergraduate adviser before beginning upper division work in the major.

All majors must complete a minimum of nine courses of appropriate upper division work in the UCLA French and Francophone Studies Department. Freshmen and sophomores may take up to two courses taught in English, selected from French 164 through 167, in fulfillment of major requirements (if taken in the junior or senior year, these courses count as electives). A maximum of 8 units of course 199 may be applied toward the elective requirements for the major if approved in advance by the undergraduate adviser. Students must maintain a C average in upper division major courses in order to remain in the French major.

Coursework taken on a Passed/Not Passed basis is not acceptable in any area of the major program.

It is recommended that students intending to major in French consult the undergraduate adviser before enrolling in upper division courses.

French and Linguistics BA

Preparation for the Major

Required: French 1, 2, 3, 4, 5, 6, 12, or equivalent, Linguistics 20, completion of the third term of a second foreign language. Students normally take course 6 before undertaking course 12. Students who receive a grade of A in course 5 may enroll in course 12 concurrently with course 6, with consent of the instructor.

Transfer Students

Transfer applicants to the French and Linguistics major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of French, one French literature course, and one introduction to linguistics course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: French 100, 101, 104, one course from 114A, 114B, or 114C, two courses from 105, 107, 108, 109, 110, one upper division French elective course, and Linguistics 103, 110, 120A, 120B. Each course must be taken for a letter grade.

It is strongly advised that students who intend to pursue advanced degrees begin preparation for the language requirements at the undergraduate level.

If students' knowledge of French exceeds the preparation usually received in courses preparing for the major and if they demonstrate the requisite attainment in French 100 or 101, they may substitute for those courses in grammar and composition an equivalent number of upper division courses in the French and Francophone Studies Department in consultation with an adviser. All prospective French and Linguistics majors who are native or quasi-native speakers of French must see the undergraduate adviser before beginning upper division work in the major.

All majors must complete a minimum of nine courses of appropriate upper division work in the UCLA French and Francophone Studies Department. Freshmen and sophomores may take up to two courses taught in English, selected from French 164 through 167, in fulfillment of major requirements (if taken in the junior or senior year, these courses count as electives). A maximum of 8 units of course 199 may be applied toward the elective requirements for the major if approved in advance by the undergraduate adviser. Students must maintain a C average in upper division major courses in order to remain in the French and Linguistics major.

Coursework taken on a Passed/Not Passed basis is not acceptable in any area of the major program.

It is recommended that students intending to major in French and Linguistics consult the undergraduate adviser before enrolling in upper division courses.

Honors Program

The department encourages those students in the French majors with initiative and independence of mind who desire an enriched individualized course of study to apply for the honors program.

The honors program is designed for French majors who have fulfilled their lower division requirements and have a 3.5 departmental grade-point average. Students whose GPA falls between 3.3 and 3.5 should submit a composition from an advanced language or literature course to the honors committee. If the work submitted meets with approval, students are admitted to the program.

To graduate with departmental honors, students must complete a minimum of two honors projects in the context of nonhonors upper division courses (French 115 and above) taken for honors credit. They must do an honors project (a research paper of 12 to 15 pages) in addition to the regular course requirements. An honors contract must be signed before the end of the third week of the term. After completing the project, students fill out a completion form.

On the basis of their coursework and field of interest, students are expected to formulate a research topic they wish to pursue in greater

depth. They take course 198 where they receive regular personal supervision from a faculty member in the research, methodology, and writing of their approximately 20- to 25-page honors thesis (honors projects and the honors thesis are not to be confused).

Students may begin the honors program toward the end of their junior year or during their senior year. Students are allowed to enroll in graduate courses with the consent of the instructor but cannot use those courses to replace an honors project. Departmental honors are recorded on the final transcript if students fulfill all requirements for the program. They may submit their final honors thesis for the departmental prize.

French Minor

To enter the French minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (8 units): French 6 or equivalent and one course from 12, 14, 41, or 60.

Required Upper Division Courses (20 units): French 100 or 101, and four additional departmental courses in language, culture, or literature to be selected in consultation with an undergraduate counselor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of French and Francophone Studies offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in French and Francophone Studies.

French

Lower Division Courses

1. Elementary French. (4) Lecture, five hours. P/NP or letter grading.

1G. Elementary French for Graduate Students. (3) Lecture, three hours. Preparation for GSFLT or other language examinations. Passing grade does not imply satisfaction of language requirements. S/U grading.

2. Elementary French. (4) Lecture, five hours. Enforced requisite: course 1 with grade of C- or better. P/NP or letter grading.

3. Elementary French. (4) Lecture, five hours. Enforced requisite: course 2 with grade of C- or better. P/NP or letter grading.

4. Intermediate French. (4) Lecture, four hours. Enforced requisite: course 3 with grade of C- or better. P/NP or letter grading.

5. Intermediate French. (4) Lecture, four hours. Enforced requisite: course 4 with grade of C- or better. P/NP or letter grading.

6. Intermediate French. (4) Lecture, four hours. Enforced requisite: course 5 with grade of C- or better. P/NP or letter grading.

8. Intensive First-Year French. (12) Lecture, 15 hours. All-in-French intensive language program equivalent to first year of college French and designed to develop basic language skills. Additional work in language and media laboratory required. Offered in summer only. P/NP or letter grading.

9. Intensive Second-Year French. (8) Lecture, 10 hours; media laboratory, three hours. Enforced requisite: course 3. Intensive course equivalent to first two terms of intermediate French and designed to improve proficiency in reading, writing, and speaking. Offered in summer only. P/NP or letter grading.

10A-10D. French Conversation. (2 each) Discussion, three hours. Enforced requisite: course 3 with grade of B or better. P/NP or letter grading.

12. Introduction to Study of French and Francophone Literature. (5) Lecture, two hours; discussion, one hour. Enforced requisite: course 6. Principles of literary analysis as applied to selected texts in poetry, theater, and prose by French and Francophone writers. P/NP or letter grading.

14. Introduction to French Culture and Civilization in English. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 14W. Study of contemporary French institutions and issues in cultural, political, and socioeconomic realms. P/NP or letter grading.

14W. Introduction to French Culture and Civilization in English. (5) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 14. Study of contemporary French institutions and issues in cultural, political, and socioeconomic realms. Satisfies Writing II requirement. Letter grading.

16. Society and Self in Early Modern France. (5) Lecture, three hours; discussion, one hour. Role of religion, politics, and sociability in constructing self and understanding its relation with society in early modern France. Development of students' critical thought and knowledge of French and European intellectual tradition. P/NP or letter grading.

41. French Cinema and Culture. (5) Lecture/screenings, five hours; discussion, one hour. Introduction to French culture and literature through study of films of cultural and literary significance. P/NP or letter grading.

60. French and Francophone Novel. (5) Lecture, three hours; discussion, one hour. Study of literary masterpieces produced by writers from France and Francophone world (Canada, Africa, Caribbean, etc.) from 17th to early 21st century. P/NP or letter grading.

Upper Division Courses

100. Written Expression: Techniques of Description and Narration. (5) Lecture, three hours. Requisite: course 6. Writing assignments follow close analysis of relevant texts, film, and related grammatical structures. Examination of vocabulary and structures associated with descriptive writing and French verb tense system required for narration. P/NP or letter grading.

101. Advanced Expository Writing: Techniques of Argumentation. (4) Lecture, three hours. Requisite: course 100. Study of rhetorical devices and revision of related grammatical structures. Writing assignments follow analysis of relevant texts. P/NP or letter grading.

104. Theory and Correction of Diction. (4) Lecture, three hours. Enforced requisite: course 6. Study of individual sounds (vowels, consonants, and semi-vowels), including rhythm, intonation, and phrasing, and of learning sound—spelling correspondences to help sight read accurately. Thorough study of symbols of International Phonetic Alphabet (IPA) to give students tools to work on pronunciation systematically. Standard French serves as model, with examination of pronunciation changes and various dialects that are spoken in Francophone world to improve listening comprehension and pronunciation. P/NP or letter grading.

105. Structure of French. (4) Lecture, three hours. Prior background in linguistics not required. Introduction to linguistic analysis of French in areas of phonology, morphology, syntax, and language variation. P/NP or letter grading.

107. Advanced Oral Expression. (4) Lecture, three hours. Requisite: course 6. Discussion and analysis of current events and sociocultural issues; techniques of argumentation. P/NP or letter grading.

108. Advanced Practical Translation. (4) Lecture, three hours. Requisites: courses 100, 101. Translation of literary, sociocultural, and journalistic texts. May include editorials, polemical issues, film subtitles, biography and interview, formal and informal reporting, advertising and idiomatic language. Comparative stylistics of translation. P/NP or letter grading.

109. Language and Communication in Business French. (4) Lecture, three hours. Requisite: course 6. Oral and written communication in commercial arena, including transactions, banking, education, job search, correspondence, and management. P/NP or letter grading.

110. Culture of Business in France. (4) Lecture, three hours. Requisite: course 100 or 109. French culture in consumer world. Analysis of mentalities, practices and customs, marketing, and advertising strategies. Discussion of changes brought about by European Union and globalization. P/NP or letter grading.

112. Medieval Foundations of European Civilization. (4) Lecture, three hours; discussion/film screenings, two hours. Medieval texts, culture, social structure, and political history as they lay bases of European modernity. P/NP or letter grading.

114A-114B-114C. Survey of French Literature. (5-5-5) Lecture, three hours. Requisite: course 12. Survey of French literature from the medieval period through the 20th century. P/NP or letter grading:

114A. Medieval and Renaissance Literature. (5) Lecture, three hours. Requisite: course 12. Masterpieces of medieval and Renaissance literature, including examples of epic (*La Chanson de Roland*), romance (Chrétien de Troyes' *Yvain*), and Renaissance prose and poetry (including Marot, Du Bellay, Ronsard, Rabelais, Marguerite de Navarre, and Montaigne). P/NP or letter grading.

114B. 17th and 18th Centuries. (5) Lecture, three hours. Requisite: course 12. Study of selections from major works of classicism and Enlightenment, including those by Racine, Pascal, La Fayette, La Fontaine, Laclos, Diderot, Voltaire, and Rousseau. P/NP or letter grading.

114C. 19th and 20th Centuries. (5) Lecture, three hours. Requisite: course 12. Study of major literary movements and writers of period, including works by Hugo, Baudelaire, Balzac, Stendhal, Flaubert, Zola, Gide, Proust, Sartre, Robbe-Grillet, and Duras. P/NP or letter grading.

115. Studies in Medieval French Culture and Literature. (4) Lecture, three hours. Enforced requisite: course 5. Taught in French. Study of medieval French culture and literature, including lyric poetry and narrative romance, history of medieval warfare, comedy, and class structures. May be repeated for credit with topic change. P/NP or letter grading.

116. Studies in Renaissance French Culture and Literature. (4) Lecture, three hours. Taught in French. Study of Renaissance French culture and literature, including la Pléiade and 16th-century poetry, linguistic

and poetic revolution, novel and early prose, and late French humanism. May be repeated for credit with topic change. P/NP or letter grading.

117. Studies in 17th-Century French Culture and Literature. (4) Lecture, three hours. Enforced requisite: course 5. Taught in French. Study of 17th-century French culture and literature, including theater, philosophers, moralists, novelists, and cultural, political, social, religious, and courtly aspects. May be repeated for credit with topic change. P/NP or letter grading.

118. Studies in 18th-Century French Culture and Literature. (4) Lecture, three hours. Taught in French. Study of 18th-century French culture and literature, including satire, novel, theater, philosophers, and theoretical writings. May be repeated for credit with topic change. P/NP or letter grading.

119. Studies in 19th-Century French Culture and Literature. (4) Lecture, three hours. Enforced requisite: course 5. Taught in French. Study of 19th-century French culture and literature, including Romanticism, generation of 1848, naturalism and symbolism, and genres and trends from 1885 through World War I. May be repeated for credit with topic change. P/NP or letter grading.

120. Studies in 20th-Century French Culture and Literature. (4) Lecture, three hours. Taught in French. Study of 20th-century French culture and literature, including early 20th-century writers, surrealism, literature from 1915 to 1945, post-World War II literature, existentialism, new novel, theater, and poetry. May be repeated for credit with topic change. P/NP or letter grading.

121. Studies in Francophone Cultures and Literatures. (4) Lecture, three hours. Enforced requisite: course 5. Taught in French. Study of Francophone cultures and literatures, including works by poets, playwrights, and novelists from Caribbean, North Africa, Quebec, and sub-Saharan Africa, immigrant narratives, and colonialism and postcolonial studies. May be repeated for credit with topic change. P/NP or letter grading.

130. Contemporary French and Francophone Cultures. (4) Lecture, three hours. Requisite: course 12 or 100. Taught in French. Study of contemporary France and Francophone world (Africa, Asia, Caribbean, Quebec), government, institutions, and cultural, economic, social, and political issues. May be repeated for credit with topic change. Letter grading.

131. French and Francophone Theater. (4) Lecture, three hours. Taught in French. Through plays of 20th century, analysis of struggles of individuals and social groups in contexts that are historical, political, philosophical (existentialism, absurd), and cultural (colonialism and conformism). P/NP or letter grading.

132. French and Francophone Poetry. (4) Lecture, three hours. Taught in French. Study of history of French and Francophone poetry and readings of major poets from 16th to 20th century. P/NP or letter grading.

133. French and Francophone Short Story. (4) Lecture, three hours. Taught in French. Survey of short fiction forms in France and Francophone world. P/NP or letter grading.

134. French and Francophone Novel. (4) Lecture, three hours. Taught in French. Study of French and Francophone novels and readings of major novelists. May be repeated for credit with topic change. P/NP or letter grading.

136. French and Francophone Autobiography. (4) Lecture, three hours. Taught in French. Rhetoric of genre and its relation to broad questions of identity, gender, race, and class. May be repeated for credit with topic change. P/NP or letter grading.

137. French and Francophone Intellectual History. (4) Lecture, three hours. Requisite: course 12 or 100. Taught in French. Exploration of themes that address particular problem of French literature, civilization, or ideas. May be repeated for credit with topic change. P/NP or letter grading.

138. Contemporary French Theory. (4) Lecture, three hours. Requisite: course 12 or 100. Taught in French. Study of French theorists (Barthes, Baudrillard, Cixous, Derrida, Foucault, Irigaray) and major concepts in contemporary French thought, with attention to its influence on and application to literary and nonliterary texts. May be repeated for credit with topic change. P/NP or letter grading.

139. Paris: Study of French Capital. (4) Lecture, three hours. Enforced requisite: course 5. Taught in French. Textual and visual exploration of historical and imaginary (re)constructions of Paris, beginning with its earliest history and gradual formation of this great urban complex in maps from Renaissance to 20th century. Study of city's streets and quarters, traffic and transportation, multiple layers of past, present, and future, and *flâneurs* and insurrectionists through wide range of literary and critical texts. Readings cover mainly 19th and 20th centuries—Honoré de Balzac, Charles Baudelaire, Emile Zola, Marcel Proust, Louis-Ferdinand Céline, and others. P/NP or letter grading.

M140. Women's Studies in French Literature. (4) (Same as Gender Studies M140.) Lecture, three hours. Exploration of selected aspect of situation of women in French literature as author, character, symbol, etc. P/NP or letter grading.

141. French Cinema. (4) Lecture, three hours. Study of French cinema and cinematographers in generic, thematic, and sociocultural aspects. May be repeated for credit with topic change. P/NP or letter grading.

142. Francophone Cinema. (4) Lecture, three hours. Study of Francophone (Africa, Caribbean, postcolonial communities in France) cinema and cinematographers in generic, thematic, and sociocultural aspects. May be repeated for credit with topic change. P/NP or letter grading.

160. Francophone Cultures in English. (4) Lecture, three hours. Study of historical, anthropological, legal, literary, or filmic texts to provide students with broad view of some main issues in field of colonial and postcolonial Francophone studies. P/NP or letter grading.

161. French and Francophone Theater in Translation. (4) Lecture, three hours. Through plays of 20th century, analysis of struggles of individuals and social groups in contexts that are historical, political, philosophical (existentialism, absurd), and cultural (colonialism and conformism). May be repeated for credit with topic change. P/NP or letter grading.

163. French and Francophone Short Story in Translation. (4) Lecture, three hours. Survey of short fiction forms in France and Francophone world. May be repeated for credit with topic change. P/NP or letter grading.

164. French and Francophone Novel in Translation. (4) Lecture, three hours. Study of French novels. May be repeated for credit with topic change. P/NP or letter grading.

166. French and Francophone Autobiography in Translation. (4) Lecture, three hours. Rhetoric of genre and its relation to broad questions of identity, gender, race, and class. May be repeated for credit with topic change. P/NP or letter grading.

167. French and Francophone Intellectual History in Translation. (4) Lecture, three hours. Readings of French and Francophone writers, historians, and thinkers. May be repeated for credit with topic change. P/NP or letter grading.

169. Paris: Study of French Capital in Translation. (4) Lecture, three hours. Textual and visual exploration of historical and imaginary (re)constructions of Paris, beginning with its earliest history and gradual formation of this great urban complex in maps from Renaissance to 20th century. Study of city's streets and quarters, traffic and transportation, multiple layers of past, present, and future, and *flâneurs* and insurrectionists through wide range of literary and critical texts. Readings cover mainly 19th and 20th centuries—Victor Hugo, Charles Baudelaire, Jules Verne, Emile Zola, André Breton, Walter Benjamin, Roland Barthes, and others. P/NP or letter grading.

171. Medieval Flix. (4) Lecture, three hours. Examination of Middle Ages across issues such as gender, class, race, religion, sexuality, love, and death. Exploration of each of these key terms in Middle Ages and look at Middle Ages as projection screen for interrogating, contesting, and resolving contemporary debates on gender, class, race, and religion. Contrasting of medieval and modern around issue of difference and diversity; sessions to be situated in their historical cross-cultural contexts. Film screenings accompanied by medieval texts. P/NP or letter grading.

172. Francophone Cinema and Literature in Translation. (4) Lecture, three hours. Study of Francophone (Africa, Caribbean, postcolonial communities in France) cinema and cinematographers in generic, thematic, and sociocultural aspects. May be repeated for credit with topic change. P/NP or letter grading.

191A. Variable Topics Research Seminars in Translation. (4) Seminar, three hours. Research seminars on topics to be announced each term. Topics include major writers, genres, cultural movements, or theoretical practices. Reading, discussion, and development of culminating project. May be repeated for credit with consent of major adviser. P/NP or letter grading.

191B. Variable Topics Research Seminars: French. (4) Seminar, three hours. Taught in French. Research seminars on topics to be announced each term. Topics include major writers, genres, cultural movements, or theoretical practices. Reading, discussion, and development of culminating project. May be repeated for credit with consent of major adviser. P/NP or letter grading.

195. Community or Corporate Internship in French. (4) Tutorial, to be arranged. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

198. Honors Research in French. (4) Tutorial, three hours. Limited to junior/senior French majors with 3.5 departmental and 3.25 overall grade-point averages. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research or Senior Project in French. (2 to 4) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Contemporary French Theories. (4) Lecture, three hours. Introductory study of French structuralist and poststructuralist thought in literature, linguistics, psychoanalysis, anthropology, philosophy, and feminism, that may include texts by Althusser, Barthes, Deleuze, Derrida, Foucault, Genette, Irigaray, Kristeva, Lacan, Lyotard, and others. S/U or letter grading.

201. Techniques of Literary Analysis. (4) Lecture, three hours. Practice in close analysis of literary texts, including *explication de texte*. S/U or letter grading.

202. Cultural Studies. (4) Lecture, three hours. Introduction to theoretical approaches to popular and mass culture, and to postcolonial and Francophone cultures. Topics include emergent disciplines and theories such as sociology and structuralism, city, revolution, avant-garde strategies, media, diaspora during postwar modernization, Algerian War, May 68, and beyond. Theorists include Barthes, de Certeau, Bourdieu, Baudrillard, Lyotard, Ross, Rey Chow, Virilio. S/U or letter grading.

203. Contemporary Francophone Literature. (4) Lecture, three hours. Study of Francophone African, Caribbean, Vietnamese, or Quebec literatures and cultures, with specific attention to issues of cultural

contact, language, colonialism, anticolonialism, nationalism, resistance and dissidence, and postcolonial theory. S/U or letter grading.

204. Studies in Autobiography. (4) Lecture, three hours. Introduction to theories of autobiography and subjectivity, and to genre of autobiography in literatures in French across centuries. Topics include early modern approaches to self-writing, Rousseau and emergence of modern self, women's autobiography in France and Francophone world. Theorists may include Georges Gusdorf, Philippe Lejeune, Paul de Man, Jacques Derrida, Helene Cixous, Michel Foucault, Pierre Bourdieu, Toril Moi. S/U or letter grading.

205. Studies in Cinema and Literature. (4) (Formerly numbered 205A.) Lecture, three hours. Discussion of selected topics in French and Francophone cinema and literature. S/U or letter grading.

207. Studies in History of Ideas. (4) Seminar, three hours. Particular problems in French literature and ideas. May be repeated for credit. S/U or letter grading.

208. Studies in Literary Criticism. (4) Seminar, three hours. Readings in literary criticism, theory, and literature from any period of French literature. May be repeated for credit. S/U or letter grading.

209. Studies in Literary Genre. (4) Seminar, three hours. Advanced research and study of literary genres such as poetry, drama, fiction, autobiography, or performance and of theory of these genres. S/U or letter grading.

M210. Paleography of Latin and Vernacular Manuscripts, 900 to 1500. (4) (Same as Classics M218, English M215, and History M218.) Lecture, three hours; discussion, two hours. Introduction to history of Latin and vernacular manuscript book from 900 to 1500 to (1) train students to make informed judgments with regard to place and date of origin, (2) provide training in accurate reading and transcription of later medieval scripts, and (3) examine manuscript book as witness to changing society that produced it. Focus on relationship between Latin manuscripts and vernacular manuscripts with regard to their respective presentation of written texts. S/U or letter grading.

214. Problematics of Medieval Language and Literature. (4) Lecture, three hours. Introduction to Old French and problematics of medieval literature. S/U or letter grading.

215. Studies in Middle Ages. (4) Seminar, three hours. Examination of nature of cross-cultural, cross-linguistic, and cross-confessional exchange in medieval and early modern periods and France's role in it. S/U or letter grading.

216. Renaissance. (4) Lecture, three hours. French literature of 16th century studied within historical, intellectual, and cultural contexts. Letter grading.

217. 17th Century. (4) Lecture, three hours. Readings in 17th-century literature studied within historical, cultural, and literary contexts. S/U or letter grading.

218. Enlightenment. (4) Lecture, three hours. Readings in 18th-century French literature and thought: novels, satires, plays, and other key Enlightenment philosophies. Letter grading.

219. 19th Century. (4) Lecture, three hours. Readings in 19th-century literature, covering development of novel, lyric poetry, and theater from Romantic period to *fin-de-siecle*. S/U or letter grading.

220. 20th Century. (4) Lecture, three hours. Overview, both historical and analytical, of 20th-century French literature set in context of several key critical topics that interrogate canonical interpretation. Letter grading.

296. Research Methods and Writing. (2) Seminar, two hours. Advanced study of current topics in literary and cultural analysis and in critical theory. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guid-

ance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching French at College Level. (4) Seminar, three hours; discussion, one hour. Designed for graduate students. Theory and practice of language teaching. S/U grading.

596. Directed Individual Studies or Research. (2 to 4) Tutorial, to be arranged. S/U or letter grading.

597. Preparation for Second-Year Review or PhD Qualifying Examinations. (2 to 8) Tutorial, to be arranged. May be repeated for maximum of 16 units. S/U grading.

598. Research for and Preparation of MA Thesis. (2 to 4) Tutorial, to be arranged. Maximum of 4 units may be applied toward MA/MFA degree requirements. S/U grading.

599. Research for and Preparation of PhD Dissertation. (2 to 8) Tutorial, to be arranged. S/U grading.

FRESHMAN GENERAL EDUCATION CLUSTERS

College of Letters and Science

UCLA

A265 Murphy Hall
Box 951571
Los Angeles, CA 90095-1571

(310) 794-5040
fax: (310) 206-2175
<http://www.uei.ucla.edu/clusters.htm>

Anthony R. Friscia, PhD, *Director*

Faculty Committee

Scott H. Chandler, PhD (*Integrative Biology and Physiology*)

Jeffrey L. Decker, PhD (*English*)

Anthony R. Friscia, PhD (*Integrative Biology and Physiology*)

Jennifer A. Jay, PhD (*Civil and Environmental Engineering, Institute of the Environment and Sustainability*)

James E. Larkin, PhD (*Physics and Astronomy*)

Joseph F. Nagy, PhD (*English*)

Vilma Ortiz, PhD (*Sociology*)

Janice L. Reiff, PhD (*History, Statistics*)

Abigail C. Saguy, PhD (*Gender Studies, Sociology*)

Matthew Norton Wise, PhD (*History, Institute for Society and Genetics*)

Scope and Objectives

Available to entering freshmen only, cluster courses are an option for satisfying both general education and Writing II requirements. Clusters are yearlong, collaboratively taught, interdisciplinary courses that focus on a topic of timely importance, such as the global environment or interracial dynamics. The courses are taught by some of UCLA's most distinguished faculty members and seasoned graduate students. During fall and winter quarters, students attend lecture courses and small discussion sections and/or laboratories. In spring quarter, the same students enroll in one of a number of satellite seminars dealing with topics related to the cluster theme.

Freshman clusters are designed to strengthen the writing, quantitative reasoning, critical thinking, and information literacy skills that students need to excel at UCLA. At the conclusion of the entire yearlong cluster, students complete

40 to 50 percent of their general education course requirements and fulfill the Writing II requirement. Cluster students are eligible for three terms of honors credit, with the spring quarter seminar providing Honors Collegium credit.

For the current cluster course offerings and general education credit, refer to <http://www.uei.ucla.edu/clusters.htm>.

General Education Clusters

Lower Division Courses

M1A-M1B-M1CW. Food: Lens for Environment and Sustainability. (6-6-6) (Same as Environment M1A-M1B-M1CW.) Course M1A is enforced requisite to M1B, which is enforced requisite to M1CW. Limited to first-year freshmen. Letter grading. **M1A-M1B.** Lecture, three hours; discussion, two hours. Food as lens for local and global environmental and sustainability issues. Integration of environmental, social, economic, and technological solutions for fair, sustainable, and healthy food production, food security, and access. Focus on human impacts on Earth's biological and physical systems, including how food production and consumption contributes to, and is impacted by, global problems, including climate change, pollution, and overpopulation. Laboratory exercises included in discussions. **M1CW.** Special Topics. Seminar, three hours. Enforced requisite: course M1B. Examination of specialized environmental and sustainability topics as they relate to food, including air, water, biodiversity, climate change, food access, food security, and health. Satisfies Writing II requirement.

20A-20B-20CW. Interracial Dynamics in American Culture and Society. (6-6-6) Course 20A is enforced requisite to 20B, which is enforced requisite to 20CW. Limited to first-year freshmen. Letter grading. **20A-20B.** Lecture, three hours; discussion, two hours. Examination of nature and meaning of race in American society through study of history, literature, and law. Consideration, among other topics, of construction of race as social and cultural category among two or more groups and exploration of ways in which race has shaped understanding of American citizenship. **20CW.** Special Topics. Seminar, three hours. Enforced requisite: course 20B. Consideration of how experience, debates, and issues of race are represented and understood in historical, legal, cinematic, and literary contexts. Satisfies Writing II requirement.

21A-21B-21CW. History of Modern Thought. (6-6-6) Course 21A is enforced requisite to 21B, which is enforced requisite to 21CW. Limited to first-year freshmen. Letter grading. **21A-21B.** Lecture, three hours; discussion, two hours. Introduction to key issues in humanities and social sciences through reading of prominent social theories of past four centuries. Consideration of writers from Rousseau and Wollstonecraft to Foucault and Beauvoir in historical context and from perspectives of academic specialties for which their work is fundamental. **21CW.** Special Topics. Seminar, three hours. Enforced requisite: course 21B. Examination of cross-section of classical and modern social theories and debates that shape them. Satisfies Writing II requirement.

22A-22B-22CW. Toward World Economy: Perils and Promise of Globalization. (5-5-5) Course 22A is enforced requisite to 22B, which is enforced requisite to 22CW. Limited to first-year freshmen. Letter grading. **22A-22B.** Lecture, three hours; discussion, two hours. Exploration of causes and mechanisms of globalization as well as its consequences. Critical examination of globalization theories, international institutions of trade, finance, governance, and overall impact of globalization on human society. **22CW.** Special Topics. Seminar, three hours. Enforced requisites: course 22B, and English Composition 3 or 3H or En-

glish as a Second Language 36. Topics may include global governance, development, and health. Satisfies Writing II requirement.

23A-23B-23CW. Inside Performing Arts: Interdisciplinary Exploration of Performance in Society and Culture. (5-5-5) Course 23A is enforced requisite to 23B, which is enforced requisite to 23CW. Limited to first-year freshmen. Letter grading. **23A-23B.** Lecture, four hours; discussion, two hours. Introduction to historical development and evolution of performing arts, aesthetic theories and practices, and political, social, and cultural contexts within which performance has evolved. **23CW.** Special Topics. Seminar, three hours. Enforced requisites: course 23B, and English Composition 3 or 3H or English as a Second Language 36. Topics include origins and ideas of performance, art and performance, and music as cultural expression. Satisfies Writing II requirement.

M24A-M24B-M24CW. Work, Labor, and Social Justice in U.S. (6-6-6) (Same as Labor and Workplace Studies M1A-M1B-M1CW.) Course M24A is enforced requisite to M24B, which is enforced requisite to M24CW. Limited to first-year freshmen. Letter grading. **M24A-M24B.** Lecture, three hours; discussion, two hours. Exploration of ways in which work has been transformed over last century, impact of this transformation on working people, and role of labor movement as force for social justice. **M24CW.** Special Topics. Seminar, three hours. Enforced requisite: course M24B. Topics include labor law/history, gender, race, and workplace. Satisfies Writing II requirement.

25A-25B-25CW. Politics, Society, and Urban Culture in East Asia. (6-6-6) Course 25A is enforced requisite to 25B, which is enforced requisite to 25CW. Limited to first-year freshmen. Letter grading. **25A-25B.** Lecture, three hours; discussion, two hours. Comprehensive exploration of historical evolution of popular East Asian urban culture and interrelationship of East Asian politics, social life, and economic and urban cultural expression. **25CW.** Special Topics. Seminar, three hours. Enforced requisite: course 25B. In-depth examination of issues in historical and contemporary East Asian popular culture. Satisfies Writing II requirement.

26A-26B-26CW. Poverty and Health in Latin America. (6-6-6) Course 26A is enforced requisite to 26B, which is enforced requisite to 26CW. Limited to first-year freshmen. Letter grading. **26A.** Lecture, three hours; discussion, two hours. Introduction to social determinants of health, with focus on cultural, historical, socioeconomic, public health, medical, political, and artistic context of poverty in modern Latin America and on different local, national, and regional responses to health inequities. Exploration of major trends and debates that have shaped and continue to define issues related to poverty and health in region. **26B.** Lecture, three hours; discussion, two hours. Enforced requisite: course 26A. Responses to health inequities and possible solutions to promote improved health outcomes and to social determinants of health illustrated through examples of current programs and policies. Major areas for addressing health inequity include governance, community action, social justice and human rights movements, health sector and public health programs, and global priorities. Introduction to tools to promote health, such as service delivery, health workforce, information systems, access to medicines, health systems financing, and health systems governance. **26CW.** Special Topics. Seminar, three hours. Enforced requisite: course 26B. Students meet weekly in small group seminars based on topics related to course theme to allow them to study, discuss, and then generate policy solutions to create more equitable healthcare in Latin America. Focus on one particular area of Latin America or one local Latin American community to reflect field study sites to eventually be offered and serve as preparation for summer field study component. Satisfies Writing II requirement.

30A-30B-30CW. Never-Ending Stories: Multidisciplinary Perspectives on Myth. (6-6-6) Course 30A is enforced requisite to 30B, which is enforced requisite to 30CW. Limited to first-year freshmen. Letter

grading. **30A-30B.** Lecture, three hours; discussion, two hours. Exploration in depth of particular mythological traditions, aspects of storytelling, role of myth in culture, society, and/or art, and contributions of various disciplines to study of myth. **30CW.** Special Topics. Seminar, three hours. Enforced requisite: course 30B. Topics may include myth and modern art (including literature, music, and film), myth and ritual, oral tradition and orality, myth and political ideology, myth and science, hero and trickster, and myths of creation. Satisfies Writing II requirement.

40A-40B-40CW. Chinese Classics, Their Legacy in East Asia, and Reimagination in Modern Times. (6-6-6) Course 40A is enforced requisite to 40B, which is enforced requisite to 40CW. Limited to first-year freshmen. Letter grading. **40A-40B.** Lecture, three hours; discussion, two hours. Learning in traditional China was defined through mastery of canon of classic texts that students memorized as part of their education. These classics were also taught in Vietnam, Japan, and Korea, and served to create cultural ties across East Asia. Many more texts came to be considered classics—works of enduring value, read by large numbers of people across centuries, including religious scriptures, legal codes, novels, paintings, and performances. Exploration of how Chinese classics have been used and reimagined in different places and times to demonstrate enduring importance of these texts and cultural artifacts. Emphasis on how these works were interpreted throughout East Asia, relationship with past, and how shared history is seen as informing present. **40CW.** Special Topics. Seminar, three hours. Enforced requisite: course 40B. In-depth examination of Chinese classic texts and their reimagination in modern times. Satisfies Writing II requirement.

60A-60B-60CW. America in Sixties: Politics, Society, and Culture, 1954 to 1974. (6-6-6) Course 60A is enforced requisite to 60B, which is enforced requisite to 60CW. Limited to first-year freshmen. Letter grading. **60A-60B.** Lecture, three hours; discussion, two hours. Interdisciplinary exploration of U.S. society from Brown versus Board of Education (1954) to resignation of Nixon. Topics include civil rights, Great Society, anti-Vietnam war movement, political and artistic countercultures, and changes in technology, law, and media. **60CW.** Special Topics. Seminar, three hours. Enforced requisite: course 60B. In-depth examination of political and cultural issues affecting U.S. society from 1954 to 1974. Satisfies Writing II requirement.

66A-66B-66CW. Los Angeles: The Cluster. (6-6-6) Course 66A is enforced requisite to 66B, which is enforced requisite to 66CW. Limited to first-year freshmen. Letter grading. **66A-66B.** Lecture, three hours; discussion, two hours. In-depth look at city in which UCLA is located. Drawing on concept of Los Angeles as laboratory, students engage in systematic way with urban area that is to be their home for next several years. As they do, they come to understand peoples, spaces, politics, and cultures of Los Angeles and its metropolitan region in both present and past, as well as Los Angeles' place in urban world. **66CW.** Special Topics. Seminar, three hours. Enforced requisite: course 66B. Topics may include musical cultures of Los Angeles, Los Angeles as global city, Los Angeles in fiction, Southern California and environment, planning for 21st-century Los Angeles, and housing and homelessness in Los Angeles. Satisfies Writing II requirement.

70A-70DW. Evolution of Cosmos and Life. (6 each) Course 70A is enforced requisite to 70B, which is enforced requisite to 70CW or 70DW. Limited to first-year freshmen. Letter grading. **70A-70B.** Lecture, three hours; discussion, two hours. Use of concept of evolution, as it applies to biological organisms, Earth, solar system, and universe itself, to introduce students to both life and physical sciences. Examination of evolution of universe, galaxy, solar system, and Earth in course 70A; focus on evolution of life in course 70B. **70CW.** Special Topics in Life Sciences. Seminar, three hours. Enforced requisite: course 70B. Not open for credit to students with credit for course 70DW. Examination in depth of various issues of evo-

lution in cosmos from life sciences perspective. Satisfies Writing II requirement. **70DW**. Special Topics in Physical Sciences. Seminar, three hours. Enforced requisite: course 70B. Not open for credit to students with credit for course 70CW. Examination in depth of various issues of evolution in cosmos from physical sciences perspective. Satisfies Writing II requirement.

M71A-M71B-M71CW. Biotechnology and Society. (6-6-6) (Formerly numbered 71A-71B-71CW.) (Same as Society and Genetics M71A-M71B-M71CW.) Course M71A is enforced requisite to M71B, which is enforced requisite to M71CW. Limited to first-year freshmen. Letter grading. **M71A-M71B**. Lecture, three hours; discussion, two hours. Exploration of methods, applications, and implications of biotechnology and of ethical, social, and political implications as well as biological underpinnings. **M71CW**. Special Topics. Seminar, three hours. Enforced requisite: course M71B. Topics include in-depth examination of ethics and human genetics, bioweapons and biodefense, sex and biotechnology. Satisfies Writing II requirement.

M72A-M72B-M72CW. Sex from Biology to Gendered Society. (6-6-6) (Formerly numbered 72A-72B-72CW.) (Same as Communication Studies M72A-M72B-M72CW, Society and Genetics M72A-M72B-M72CW, and Sociology M72A-M72B-M72CW.) Course M72A is enforced requisite to M72B, which is enforced requisite to M72CW. Limited to first-year freshmen. Letter grading. **M72A-M72B**. Lecture, three hours; discussion, two hours. Examination of many ways in which sex and sexual identity shape and are shaped by biological and social forces, approached from complementary perspectives of anthropology, biology, medicine, and sociology. Specific topics include biological origins of sex differences, intersex, gender identity, gender inequality, homosexuality, sex differences, sex/gender and law, and politics of sex research. **M72CW**. Special Topics. Seminar, three hours. Enforced requisite: course M72B. Topics may include politics of reproduction, sexuality, sexual identity, social construction of gender, and reproductive technologies. Satisfies Writing II requirement.

73A-73B-73CW. Mind over Matter: History, Science, and Philosophy of Brain. (6-6-6) Course 73A is enforced requisite to 73B, which is enforced requisite to 73CW. Limited to first-year freshmen. Letter grading. **73A-73B**. Lecture, three hours; discussion, two hours. Human brain is most complex structure in universe and last major organ system to be understood. Our brains give us power to see and hear, learn and remember, interpret others, and act purposefully in our environment. We can lose these abilities that we take for granted, naturally over time or as result of injury or disease. Brain function from historical, biological, psychological, and philosophical perspectives to enable students to better understand organ responsible for all mental processes and behavior in health and disease and to encourage them to think and write critically about interaction of neurobiological, philosophical, and psychological factors that control behavior and our experiences as human beings. Use of historical perspective to better understand how field of neuroscience and study of brain have emerged over time. **73CW**. Special Topics. Seminar, three hours. Enforced requisite: course 73B. Topics include mental illness, neuroscience in popular culture, and neuroscience of decision making. Satisfies Writing II requirement.

80A-80B-80CW. Frontiers in Human Aging. (6-6-6) Course 80A is enforced requisite to 80B, which is enforced requisite to 80CW. Limited to first-year freshmen. Letter grading. **80A-80B**. Lecture, three hours; discussion, two hours. Examination of aging process from vantage points of multiple disciplines, including biology, psychology, sociology, ethics, and public policy. Study of biomedical and biological aging and psychological, social, and ethical implications of phenomena. **80CW**. Special Topics. Seminar, three hours. Enforced requisite: course 80B. In-depth examination of gender and aging, cellular aging, cancer, and aging of brain. Satisfies Writing II requirement.

97A. Cluster Colloquia: Variable Topics. (1) Seminar, one hour. Variable topics course designed for students who have completed one GE cluster. Study, through small-group discussion and projects, of selected topics related to one cluster theme or topic. Consult *Schedule of Classes* for topics and instructors. May be repeated once for credit. P/NP grading.

GENDER STUDIES

College of Letters and Science

UCLA
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Kathryn Norberg, PhD
David Delgado Shorter, PhD
Shannon E. Speed, PhD
Sharon J. Traweek, PhD

Assistant Professors

Michelle F. Erai, PhD
Sarah Haley, PhD

Scope and Objectives

The Department of Gender Studies provides interdisciplinary academic programs that are both nationally and transnationally oriented. The undergraduate program offers a Bachelor of Arts degree and a minor; the graduate program offers Master of Arts (for PhD students only, no terminal master's) and PhD degrees.

Students develop critical reasoning and analytical skills, a deep appreciation for complexities of power and asymmetries in gender relations across time, class, and cultures, and conceptual tools for social change.

The gender studies curriculum challenges the pervasive theory/practice divide within the

academy. In both undergraduate and graduate courses, students are taught a broad range of methodological and analytical skills. Core undergraduate courses contextualize foundational theories and key analytic concepts within the study of different historical periods and social movements. In designating these courses Power, Knowledge, and Bodies, the department identifies three primary areas in which feminist and queer inquiry has been concentrated over time, enabling students to trace grounding concepts, key controversies, and the emergence of new theoretical paradigms.

The department has long enjoyed recognition for its strengths in areas including women's history, feminist science studies, and gender and the law. Over the past several years, it has become a leading program for interdisciplinary intersectional feminist scholarship on gender, sexuality, race, class, and nationality and is building a strong reputation in the areas of transnational literary and media studies, post-colonial feminist studies, studies of settler colonialism, feminist science studies, feminist policy studies, queer of color critique, and women of color feminism.

Undergraduate Study

The Gender Studies major is a designated capstone major. Students are required to complete a senior seminar in which they conduct original research while studying readings that consider how disciplinary and interdisciplinary research has been conducted and critiqued. Through their senior seminar work, students produce a significant work that may include an original research paper, a media project, or an in-depth literature review. They are expected to demonstrate working knowledge of the field of gender studies; understand key theoretical approaches in the study of women, gender, and sexuality; have ability to construct well-written analytic essays and present their work orally; and conduct a research project that involves the consultation of scholarly literature and presentation of evidence to support an argument.

Gender Studies BA

Capstone Major

The major in Gender Studies may be taken alone or in conjunction with another Letters and Science major. In the case of a double major, no more than five courses may be applied toward both majors.

Admission

To be admitted to the major, students must have completed Gender Studies 10, be in good standing, and formally register with the department. They are encouraged to declare their major as early as possible and to discuss their proposed course of study with the undergraduate adviser.

Students are encouraged to draw on the University's diverse resources in creating their program of study. They may pursue traditional and/or innovative subjects in fields ranging from the humanities and fine arts to the social

and life sciences. In addition to courses on the gender studies approved list, students may petition to have diverse courses accepted, including courses outside the College of Letters and Science, independent studies, or field study courses.

Each course applied toward the major must be taken for a letter grade, and students must have a grade-point average of 2.0 or better in gender studies courses to receive credit for completing the program. Courses in which they receive grades of C- or lower may not be applied toward the required courses in the major.

Preparation for the Major

Required: Gender Studies 10. Students must also complete departmental lower division requisites, as applicable, for upper division gender studies courses.

Transfer Students

Transfer applicants to the Gender Studies major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one multidisciplinary gender studies course and departmental lower division requisite courses.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

The major is designed to (1) impart core concepts in theory and critical analysis, research design, and methods and (2) provide exposure to a range of feminist and queer scholarship across disciplines. To achieve these goals, the major is divided into three categories.

Required for Students Who Entered Prior to Fall Quarter 2011: At least 11 upper division courses (minimum of 4 units each) as follows: (1) two core courses selected from Gender Studies 102, 103, 104, M110C, 130, or former courses 110A and 110B, (2) eight elective courses; one upper division tutorial (minimum of 4 units) selected from course 195, 197, or 199 may be applied toward the elective requirement (this limit does not apply to course 198A or 198B), and (3) course 187 (capstone seminar).

Required for Students Who Entered Fall Quarter 2011 and Thereafter: At least 11 upper division courses (minimum of 4 units each) as follows: (1) three core courses—Gender Studies 102, 103, 104, (2) seven elective courses; one upper division tutorial (minimum of 4 units) selected from course 195, 197, or 199 may be applied toward the elective requirement (this limit does not apply to course 198A or 198B), and (3) course 187 (capstone seminar).

Honors Program

The honors program is open to advanced junior and senior Gender Studies majors with a 3.6 grade-point average in gender studies courses and a minimum 3.4 overall GPA who have no outstanding Incomplete grades, and to majors who demonstrate ability to do hon-

ors work by submitting a paper to the department chair for approval.

To qualify for honors at graduation, students must successfully complete three successive terms of honors research (courses 198A, 198B, 198C) with their faculty sponsor and receive a grade of B+ or better on their research paper/project. Course 198A may be applied toward the elective requirement; courses 198B and 198C are in addition to the minimum required courses. Further information is available from the undergraduate counselor in the department office.

Gender Studies Minor

The Gender Studies minor augments and enriches study in a traditional field. Students participating in this program are required to complete both a departmental major and the Gender Studies minor.

To enter the minor, students must have an overall grade-point average of 2.0 or better and formally register with the department undergraduate advisers in 1120 Rolfe Hall. They are encouraged to declare the minor as early as possible.

Required Lower Division Course (5 units): Gender Studies 10. Students must also complete departmental lower division requisites, as applicable, for upper division gender studies courses.

Required Upper Division Courses (24 units): (1) One core course from Gender Studies 102, 103, or 104, (2) 120SL or 187 or an equivalent senior research seminar approved in advance, and (3) four upper division courses (minimum of 4 units each) from the approved gender studies course list. No more than 4 units of courses 195 through 199 may be applied.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Courses in which students receive grades of C- or lower may not be applied toward the core requirements in the minor. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Gender Studies Department offers Master of Arts (MA) and Doctor of Philosophy (PhD) degrees in Gender Studies.

Gender Studies

Lower Division Course

10. Introduction to Gender Studies. (5) Lecture, three hours; discussion, one hour. Introduction to key concepts in study of sex and gender. Exploration of topics such as gender socialization, body image, sexualities, masculinities, and women's subordination. Special emphasis on interaction of gender with other identity markers such as race, nation, ethnicity, sexuality, class, and other differences. P/NP or letter grading.

Upper Division Courses

102. Power. (4) Lecture, three hours. Enforced requisite: course 10. Consideration of how feminist social movements have identified and challenged gender-based subordination and ways feminist theorists have conceived and critiqued traditional theories of power. How have women's and other social movements defined and challenged social, political, and economic subordination? How have feminist theorists addressed subject of power? How do empire, colonialism, liberalism, neoliberalism, and globalization produce distinctive forms of gendered violence, gendered knowledge, and gendered subjectivities? How are gender and sexuality produced and regulated by law, nation, and economy? P/NP or letter grading.

103. Knowledge. (4) Lecture, three hours. Enforced requisite: course 10. Exploration of social production of knowledge about gendered subjects and gender systems. Students engage key issues in feminist theory and feminist epistemology. How do feminist scholars identify and frame research questions? How is knowledge about marginalized subjects produced? How has feminism challenged dominant understandings of knowledge, rationality, objectivity, and scientific method? How have social movements sought to challenge traditional modes of knowledge production? P/NP or letter grading.

104. Bodies. (4) Lecture, three hours. Enforced requisite: course 10. Exploration of scholarly theories and histories of body, with focus on topics such as sex identities, sexuality, gendered violence, and reproductive politics. How has science, medicine, and culture sought to distinguish male from female in different historical periods and locations? How have meanings of terms sex and gender varied across time and place? How has gendered body been represented in different visual cultures? How have embodied identities been produced in different historical and geographic contexts? What is relationship between embodiment and desire? P/NP or letter grading.

M104C. Diversity in Aging: Roles of Gender and Ethnicity. (4) (Same as Chicana and Chicano Studies M106B, Gerontology M104C, and Social Welfare M104C.) Lecture, four hours. Exploration of complexity of variables related to diversity of aging population and variability in aging process. Examination of gender and ethnicity within context of both physical and social aging, in multidisciplinary perspective utilizing faculty from variety of fields to address issues of diversity. Letter grading.

105. Topics in Women and Medicine. (4) Lecture/discussion, three hours. Examination of medical conditions of women in context of issues that impact women's health, healthcare, and healthcare providers. Discussion of basic health concepts and self-care; consideration of a women's health specialty and ways to deliver healthcare to women. Exploration of roles and lifestyles of female physicians. P/NP or letter grading.

M105A. Premodern Queer Literatures and Cultures. (5) (Same as English M101A and Lesbian, Gay, Bisexual, and Transgender Studies M101A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of discrete period of queer literature from beginning to circa 1850. Works by such writers as Sappho, Plato, Marlowe, Shakespeare, and Thomas

Gray may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M105B. Queer Literatures and Cultures, 1850 to 1970. (5) (Same as English M101B and Lesbian, Gay, Bisexual, and Transgender Studies M101B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Survey of discrete period of queer literature and culture from circa 1850 to 1970. Works by such authors as Walt Whitman, Radclyffe Hall, Gertrude Stein, Virginia Woolf, Langston Hughes, Tennessee Williams, Henry Blake Fuller, and James Baldwin may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M105C. Queer Literatures and Cultures after 1970. (5) (Same as English M101C and Lesbian, Gay, Bisexual, and Transgender Studies M101C.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Examination of cultural production, specifically literature, produced by queers after Stonewall rebellion in New York in 1969, widely regarded as origins or beginning of modern lesbian and gay rights movement in U.S. Writings and films by such authors as Andrew Holleran, Leslie Feinberg, Achy Obejas, Essex Hemphill, Audre Lorde, Cheryl Dunye, and Alison Bechdel may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M105D. Studies in Queer Literatures and Cultures. (5) (Same as English M101D and Lesbian, Gay, Bisexual, and Transgender Studies M101D.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Variable specialized studies course in queer literatures and cultures. Topics focus on particular problem or issue in terms of its relationship to queer cultures and writings. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M106. Imaginary Women. (5) (Same as Honors Collegium M106.) Seminar, four hours. Designed for juniors/seniors. Study of four female cultural archetypes—absconding wife/mother, infanticide mother, intellectual woman, and warrior woman—as they appear in their classical and modern manifestations in European and American cultures. P/NP or letter grading.

M107A. Studies in Women's Writing. (5) (Same as English M107A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Focus on women writers that may include historical, regional, national, or thematic emphasis, with possible topics such as authorship, self-writing, sexuality, gender, and genre. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M107B. Studies in Gender and Sexuality. (5) (Same as English M107B and Lesbian, Gay, Bisexual, and Transgender Studies M107B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Examination of literary and cultural production through lens of gender and sexuality. Depending on instructor, emphasis may be historical, regional, national, comparative, or thematic and include other intersectional vectors of identity and representation such as race and ethnicity. May be repeated for credit with topic or instructor change. P/NP or letter grading.

108S. Violence against Women. (4) Lecture, three hours. Requisite: course 10. Factual information and theoretical analyses regarding various forms of violence against women and girls in their homes, workplaces, and communities through critical examination of social structures and social science research. Letter grading.

M109. Women in Jazz. (4) (Same as African American Studies M109 and Ethnomusicology M109.) Lecture, four hours; discussion, one hour. Sociocultural history of women in jazz and allied musical traditions from 1880s to present. Survey of women vocalists, instrumentalists, composers/arrangers, and producers and their impact on development of jazz. P/NP or letter grading.

M110C. Philosophical Analysis of Issues in Feminist Theory. (4) (Same as Philosophy M187.) Lecture, three hours. Requisite for Gender Studies majors: course 10; for other students: one philosophy course. Examination in depth of different theoretical positions on gender and women as they have been applied to study of philosophy. Emphasis on theoretical contributions made by new scholarship on women in philosophy. Critical study of concepts and principles that arise in discussion of women's rights and liberation. Philosophical approach to feminist theories. May be repeated for credit with consent of instructor. Letter grading.

M111. Women and Film. (6) (Same as Film and Television M111.) Lecture, eight hours; discussion, one hour. Historical issues and critical approaches to women and cinema that may include authorship, stardom, female genres, and images of women in Hollywood cinema, alternative cinema, and independent cinema from silent era to present. Letter grading.

112. Special Topics in Women and Arts. (4) Lecture, three hours. Requisite: course 10. Selected topics relating feminist theories to creation of art by women, with consideration of cultural contexts in which they work. Approach to be comparative, cross-cultural, and interdisciplinary. Consideration of artistic practice by women in relation to issues of power, representation, and access. May be repeated twice, except for credit toward Gender Studies major. P/NP or letter grading.

113. Sex Work. (4) Lecture, three hours. Enforced requisite: course 10. Analysis of variety of contemporary sex work both in U.S. and abroad from feminist perspective. Examination of how race, class, and gender alter experience and perception of erotic labor, and consideration of critically feminist responses by range of authors to sex work. Topics include brothels, phone sex, strip clubs, sex tourism, military prostitution, and international traffic in persons. Reading of texts by sex workers, as well as articles from current philosophical and policy debates about prostitution. P/NP or letter grading.

M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies. (5) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M114.) Lecture, three hours; discussion, one hour. Introduction to history, politics, culture, and scientific study of lesbians, gay men, bisexuals, and transgendered people; examination of sexuality and gender as categories for investigation; interdisciplinary theories and research on minority sexualities and genders. P/NP or letter grading.

M115. Topics in Study of Sexual and Gender Orientation. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M115.) Lecture/discussion, three hours. Requisite: course 10 or M114. Studies in arts, humanities, social sciences, and/or life sciences on aspects of sexual orientation, gender identity, and lesbian, gay, and/or bisexual issues; variable topics may include cultural representations, historical and political change, life and health experiences, and queer or transgender theories; multiethnic and cross-cultural emphases. May be repeated for credit. Letter grading.

M116. Sexuality and the City: Queer Los Angeles. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M116.) Lecture, three hours. Requisite: course M114. Investigation of history, culture, and political economy of lesbian, gay, bisexual, and transgender Los Angeles. Letter grading.

M117. Women and Politics. (4) (Same as Political Science M107.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to rapidly growing body of empirical and theoretical scholarship on women and politics in both national and international contexts. Topics may include women's movement in U.S. and globally; women's electoral participation; representation of women in Congress and in legislatures worldwide; women as heads of government and state; feminist critiques of political science; women and human

rights; ERA; struggle for suffrage; mothers as political actors; women and military; women, development, and globalization. P/NP or letter grading.

M118. Queering American History. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M118.) Lecture, four hours. Enforced requisite: one prior lesbian, gay, bisexual, and transgender studies course. History of sexual and gender minorities in U.S. Topics include changing norms, romantic friendships, medical discourse, liberation politics, post-Stonewall culture, AIDS, transgender movement, queer theory, and politics. P/NP or letter grading.

M119. Tristan, Isolde, and History of Heterosexuality. (4) (Same as German M105.) Lecture, three hours. Taught in English. German, French, and English versions of Tristan and Isolde story from Middle Ages to 20th century. Particular attention to relation between representation of heterosexual love in each text and contemporaneous ideas about human sexuality. P/NP or letter grading.

120SL. Feminist Praxis: Community-Based Learning. (4) (Formerly numbered 120.) Seminar, three hours; fieldwork, four hours. Preparation: at least two gender studies core courses. Requisites: course 10 and one course from 102, 103, or 104. Service-learning course combining seminar with practical experience working on gender issues and connecting these experiences to methodological and theoretical themes explored in gender studies core courses. Community partners selected in advance by instructor in consultation with Center for Community Learning. Letter grading.

M121. Topics in Gender and Disabilities. (4) (Same as Disability Studies M121.) Lecture, three and one half hours. Limited to juniors/seniors. Ways in which issues of disability are affected by gender, with particular attention to various roles, positions, and concerns of women with disabilities. Approach is intersectional, exploring how social categories of class, race, ethnicity, religion, age, sexuality, nationality, and citizenship affect and are affected by gender and disability. Topics may include law (civil rights, nondiscrimination), representation (arts, literature), education, public policy, health. May be repeated for credit with topic and instructor change. P/NP or letter grading.

122. Masculinities. (4) Lecture, three hours. Enforced requisite: course 10. Masculinity as theorized by feminists and shaped by race, class, age, and nation. Topics include feminist theories of masculinity, male body, childhood and adolescent socialization, sport, male violence, homophobia, black masculinity, globalization and masculinity, and men's movements in 1970s and beyond. Special emphasis on social sciences approaches and methodologies. P/NP or letter grading.

123. Gender, Race, and Class in Latin American Literature and Film, 1850 to 1950. (4) Seminar, three hours. Requisite: course 10. Readings and discussion in English. Comparative survey of cultural expression in Latin America, with emphasis on works produced or set in late-19th and early-20th centuries. Historical and social circumstances of women in different Latin American cultural contexts, with particular concentration on how gender, sexuality, race, and class are absorbed and reflected in literature and film. Within this genealogy, examination of how cultural production sustains or interrogates categories used to construct social, political, and cultural hierarchies. Topics include questions of authorship and authority such as women's participation in formation of national cultures, engagement with artistic movements, and strategies of self-figuration. P/NP or letter grading.

125. Perspectives on Women's Health. (4) Lecture/discussion, three hours. Requisite: course 10. Examination in depth of various ways women provide healthcare in both paid and unpaid capacities and of political, economic, and social factors affecting women as recipients of healthcare. P/NP or letter grading.

M126. Feminist and Queer Theory. (5) (Same as English M126 and Lesbian, Gay, Bisexual, and Transgender Studies M126.) Lecture, four hours; discus-

sion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Recommended: one course from 102, 103, 104, English 120, or 121. Investigation of key concepts and debates in study of gender, sexuality, and kinship, with focus on their interrelated significance for making of culture. Readings to be interdisciplinary, with possible emphasis on impact of changing ideas of gender and sexuality on specific historical cultures. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M127. Women in Russian Literature. (4) (Same as Russian M127.) Lecture, three hours. Designed for juniors/seniors. Lectures and readings in English. Introduction to alternative tradition of women's writings in Russia and Soviet Union. Emphasis on images of women expressed in this tradition as compared with those found in works of contemporary male writers. P/NP or letter grading.

M128. Roots of Patriarchy: Ancient Goddesses and Heroines. (4) (Same as Honors Collegium M118.) Lecture, three hours. Examination of ancient goddesses and heroines—European, Neolithic, Near Eastern, Celtic, Scandinavian, Balto-Slavic, Indo-Iranian, and Greco-Roman—using translations of ancient texts, archaeological evidence, and feminist methodology in order to discover implications of ancient patriarchy on modern society. P/NP or letter grading.

129. Women and Gender in Caribbean. (4) Seminar, three hours. Requisite: course 10. Exploration of way in which gender discourses have been central to making of Caribbean history and to some most enduring experiments in European empire, capitalist development, and coercive labor. Emphasis on women who lived through slavery and indentured servitude and who continue to live under systems of globalization and neoliberal exploitation. How Caribbean women have historically empowered themselves and their communities, working in various ways to survive, radicalize, and transform their worlds. Ways in which ideas about gender and sexuality have shaped emergence of new nations and national cultures in Caribbean, and consideration of some dominant images of women in public space and popular culture. Exploration of complicated ways in which gender, race, class, sexuality, and national identity intersect in different Caribbean contexts. P/NP or letter grading.

130. Women of Color in the U.S. (4) Lecture/discussion, three hours. Requisite: course 10. Exploration of experiences of African American, Asian American, Chicana, and Native American women in order to assess intersections of race, ethnicity, class, and gender. Contemporary and/or historical and/or theoretical perspectives on racism and its relation to feminism as defined by women of color. P/NP or letter grading.

CM132A. Chicana Feminism. (4) (Same as Chicana and Chicano Studies CM110.) Lecture, four hours. Enforced requisite: course 10 or Chicana and Chicano Studies 10A. Examination of theories and practices of women who identify as Chicana feminist. Analysis of writings of Chicanas who do not identify as feminist but whose practices attend to gender inequities faced by Chicanas both within Chicana/Chicano community and dominant society. Attention to Anglo-European and Third World women. Concurrently scheduled with course CM232A. P/NP or letter grading.

CM132B. Contemporary Issues among Chicanas. (4) (Same as Chicana and Chicano Studies M154.) Lecture, two and one half hours. Requisite: course 10. Overview of conditions facing Chicanas in U.S., including issues on family, immigration, reproduction, employment conditions. Comparative analysis with other Latinas. P/NP or letter grading.

M133. Chicana Lesbian Literature. (4) (Formerly numbered CM133.) (Same as Chicana and Chicano Studies M133 and Lesbian, Gay, Bisexual, and Transgender Studies M133.) Lecture, four hours. Exploration of intersection of radical First and Third World feminist politics, lesbian sexuality and its relationship to Chicana identity, representation of lesbianism in

Chicana literature, meaning of *familia* in Chicana lesbian lives, and impact of Chicana lesbian theory on Chicana/Chicano studies. Letter grading.

M133A-M133B. History of Women in Europe. (4-4) (Same as History M133A-M133B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of social, political, and cultural roles of women in Western Europe from early Middle Ages to present. P/NP or letter grading. **M133A.** 800 to 1715; **M133B.** 1715 to Present.

M133C. History of Prostitution. (4) (Same as History M133C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of prostitution from ancient times to present. Topics include toleration in medieval Europe, impact of syphilis, birth of courtesan, regulation in 19th-century Europe, white slavery scare, and contemporary global sex trade. Readings include novels, primary sources, and testimony by sex workers. P/NP or letter grading.

134. Gender, Science, and Theory. (4) Lecture, three hours. Requisite: course 10. Examination of differing theoretical perspectives on relation between ideologies of gender and conceptualization and practice of science and medicine. Study of relations among gender, race, class, and sexual orientation and production and legitimization of scientific knowledge. Applications of theoretical critiques to research design, practice, and interpretation. Letter grading.

M135C. Bilingual Writing Workshop. (4) (Same as Chicana and Chicano Studies M135.) Seminar, four hours. Limited to juniors/seniors. Writing sample required; access to course webpage mandatory; need not be bilingual to enroll. Technical instruction, analysis, and theoretical discussion of bilingual creative expression through genre of short fiction. Bilingualism as both politics and aesthetics to be central theme. Discussion and analysis of Chicana/Chicano and Latina/Latino short story collections. Peer critique of weekly writing assignments. Emphasis on narrative techniques such as characterization, plot, conflict, setting, point of view, and dialogue, and magical realism as prevailing Chicanesque/Latin-esque style. Some attention to process of manuscript preparation, public reading, and publication. Letter grading.

M136. Music and Gender. (5) (Same as Music History M136.) Lecture, four hours; discussion, one hour. Analysis of gender ideologies in several musical cultures; representations of gender, body, and sexuality by both male and female musicians; contributions of women to Western art and popular musics; methods in feminist and gay/lesbian theory and criticism. Letter grading.

M137E. Work Behavior of Women and Men. (4) (Same as Psychology M137E.) Lecture, two and one half hours. Requisite: course 10 or Psychology 10. Designed for seniors. Examination of work behavior of women and men. Topics include antecedents of career choice, job findings, leadership, performance evaluation, discrimination and evaluation bias, job satisfaction, and interdependence of work and family roles. P/NP or letter grading.

138. Gender and Popular Culture. (5) Lecture, three hours; screenings, two hours. Limited to juniors/seniors. Conceptual tools and critical skills necessary to rigorously interrogate gender politics of popular culture in the U.S. context. Consideration of theories of popular culture and exploration of distinctive power and ideological force exerted by popular culture in American public life. Examination of specific representations of male and female bodies to understand visual vocabulary of gender in popular culture, as well as relationship between visual stereotypes and regimes of power. Consideration of debates concerning transformative potential of pop culture and exploration of capacity and limits of popular culture as agent of social change. Letter grading.

139. Women and Art in Contemporary U.S. (4) Lecture/discussion, three hours. Requisite: course 10. Exploration of some significant cultural issues of contemporary American women's art movement. Representation, resistance, and critical intervention in rela-

tion to gender, race, and class. Emphasis on visual and performance arts as these reflect various perspectives of feminism. Letter grading.

M140. Women's Studies in French Literature. (4) (Same as French M140.) Lecture, three hours. Exploration of selected aspect of situation of women in French literature as author, character, symbol, etc. P/NP or letter grading.

142. Race, Gender, and Punishment. (4) Seminar, three hours. Enforced requisite: course 10. Examination of what crisis scholars have called prison industrial complex. U.S. has largest prison population in world. How and why is this? Who is imprisoned? What historical conditions and ideologies gave rise to this massive explosion in prisoner population? Does prison function as regime? How have politicians used imprisonment as response to economic transformations and social disorders? How is current crisis analogous to or distinct from regimes of racialized punishment in prior historical moments? How do prisons change environments? How have people mobilized to reduce U.S. prison population? Why do some activists argue for reform and others for abolition? Examination of key topics, including policing and racial profiling, immigrant detention, privatization, spatial transformations, gender violence, prison spending, and political imprisonment. P/NP or letter grading.

CM143. Healers, Ritual, and Transformation. (4) (Same as World Arts and Cultures CM140.) Lecture, four hours. Designed for juniors/seniors. Examination of role of healers, historically and within contemporary culture-specific contexts. Exploration of psychological functions served by rites of passage and healing rituals and of role of arts in healing troubled communities. Concurrently scheduled with course CM243. P/NP or letter grading.

M144. Women's Movement in Latin America. (4) (Same as Chicana and Chicano Studies M144 and Labor and Workplace Studies M144.) Lecture, four hours. Course on women's movements and feminism in Latin America and Caribbean to examine diverse social movements and locations from which women have launched political and gender struggles. Discussion of forms of feminism and women's consciousness that have emerged out of indigenous rights movements, environmental struggles, labor movements, Christian-based communities, peasant and rural organizing, and new social movements that are concerned with race, sexuality, feminism, and human rights. Through comparative study of women's movements in diversity of political systems as well as national and transnational arenas, students gain understanding of historical contexts and political conditions that give rise to women's resistance, as well as major debates in field of study. P/NP or letter grading.

145. African American Women's History. (4) Seminar, three hours. Enforced requisite: course 10. Historical examination of black women's experiences in U.S. from antebellum era to present. By situating their experiences within major historical transitions in American history, exploration of key themes, including gender formation, sexuality, labor and class, collective action, gender and sexual violence, reproduction, and role of law. How have intersecting forms of oppression impacted black women's historical lives? How is difference constructed through interrelated and overlapping ideologies of race and gender? How do historians uncover their historical lives and what are challenges to such discoveries? Examination of their individual and collective struggles for freedom from racism, sexism, and heteropatriarchy as well as their participation in and challenge to social movements, including suffrage, women's liberation, civil rights, and black power. P/NP or letter grading.

M146. Feminist Geography. (4) (Same as Geography M146.) Lecture, three hours; discussion, one hour. Critical engagement of gender as concept of geographic inquiry. Gender as spatial process, analysis of feminist geographic theory and methods, landscapes of gender, challenges of representing gender. Spaces of femininity, masculinity, and sexuality. P/NP or letter grading.

M147A. Psychology of Lesbian Experience. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M147A and Psychology M147A.) Lecture, two hours; discussion, one hour. Requisite: course 10 or Lesbian, Gay, Bisexual, and Transgender Studies M114 or Psychology 10. Designed for juniors/seniors. Review of research and theory in psychology and gender studies to examine various aspects of lesbian experience, impact of heterosexism/stigma, gender role socialization, minority status of women and lesbians, identity development within a multicultural society, changes in psychological theories about lesbians in sociohistorical context. P/NP or letter grading.

M147B. History of Women in Colonial British America and Early U.S., 1600 to 1860. (4) (Same as History M147C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to major themes in history of early American women from initial confrontation of English and American Indian cultures in early 17th century to rise of women's rights movement in mid-19th century. P/NP or letter grading.

M147C. Transnational Women's Organizing in Americas. (4) (Same as Chicana and Chicano Studies CM147.) Lecture, four hours. Feminist theories of transnational organizing. Examination of gender and race as central to processes of globalization and essential to economic and political struggles encompassed in transnational power relations. Exploration of how questions of race and gender influence global economic policies and impact local actors and their communities. In time when people, capital, cultures, and technologies cross national borders with growing frequency, discussion of process of accelerated globalization has been linked to feminization of labor and migration, environmental degradation, questions of diaspora, sexuality, and cultural displacement, as well as growing global militarization. Problems and issues created by globalization and cultural, social, and political responses envisioned by transnational organizing. P/NP or letter grading.

M147D. History of Women in U.S., 1860 to 1980. (4) (Same as History M147D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to major themes in history of American women from abolition of slavery and Civil War to rise and consequences of second-wave feminism. P/NP or letter grading.

M148. Women in Higher Education. (4) (Same as Education M148.) Seminar, three hours. Designed for juniors/seniors. Overview of issues related to experience of women in higher education. Topics include curricular transformation, feminist pedagogy, gender equity, women faculty members, and intersection of gender and race. Letter grading.

M149. Media: Gender, Race, Class, and Sexuality. (5) (Same as Communication Studies M149 and Labor and Workplace Studies M149.) Lecture, four hours; activity, one hour. Limited to junior/senior Communication Studies and Gender Studies majors and Labor and Workplace Studies minors. Examination of manner in which media culture induces people to perceive various dominant and dominated and/or colonized groups of people. Ways in which women, gay, lesbian, bisexual, transgendered, racial, and ethnic marginalized peoples, class relations, and other subaltern or subordinated groups are presented and often misrepresented in media. Investigation and employment of practical applications of communications and feminist theories for understanding ideological nature of stereotyping and politics of representation through use of media, guest presentations, lectures, class discussions, and readings. Introduction to theory and practice of cultural studies. Letter grading.

M151. Marriage, Family, and Kinship. (4) (Same as Anthropology M151.) Lecture, three hours. Requisite: Anthropology 9. Examination of understandings of kinship in cross-cultural perspective and impact of kinship on interpersonal relationships, gender roles, and sociocultural systems. Readings from popular materials and formal ethnographic accounts. P/NP or letter grading.

M153. Media and Aggression against Women. (4) (Same as Communication Studies M153.) Lecture, three hours. Social scientific study of intersection between mass media and men's aggression against women. Particular consideration of sexual aggression, pornography, and characteristics of aggressive men. Analysis of interaction between nature and nurture. Letter grading.

M154P. Gender Systems: North America. (4) (Same as Anthropology M154P) Lecture, three hours. Recommended preparation: prior gender studies or anthropology courses. Designed for junior/senior social sciences majors. Comparative study of women's lives and gender systems in North American cultures from anthropological perspective. Critical review of relevant theoretical and practical issues using ethnography, case study, and presentations. P/NP or letter grading.

M154Q. Gender Systems: Global. (4) (Same as Anthropology M154Q.) Lecture, three hours. Recommended preparation: prior gender studies or anthropology courses. Designed for junior/senior social sciences majors. Comparative study of gender systems globally from anthropological perspective. Outline of material conditions of women's lives in world—gender division of labor, relationship of gender to state, and colonialism and resistance movements. P/NP or letter grading.

M155. Women's Voices: Their Critique of Anthropology of Japan. (4) (Same as Anthropology M155.) Lecture, three hours. Preparation: introductory socio-cultural anthropology course. The anthropology of Japan has long viewed Japan as a homogeneous whole. Restoration of diversity and contradiction in it by listening to voices of Japanese women in various historical contexts. P/NP or letter grading.

M155Q. Women and Social Movements. (4) (Same as Anthropology M155Q.) Lecture/discussion, three hours. Recommended preparation: prior gender studies or anthropology courses. Comparative studies of social movements (e.g., nationalist, socialist, liberal/reform), beginning with Russia and China and including Cuba, Algeria, Guinea-Bissau, Mozambique, Nicaragua, and Iran. Analysis of women's participation in social transformations and the centrality of gender interests. P/NP or letter grading.

156A. History of Women in the U.S.: Rebellious Women of 20th Century. (4) Lecture, three hours. Limited to juniors/seniors. Introduction to major and minor figures and movements for social change in the U.S., including themes from politics, sports, civil rebellions, and body. Examination of dramatic challenges to gender roles over course of the 20th century through actions of rebellious women who led way for myriad of changes in women's lives. Offered in summer only. P/NP or letter grading.

M157. Chicana Historiography. (4) (Same as Chicana and Chicano Studies M158 and History M151D.) Lecture, four hours. Examination of Chicana historiography, looking closely at how practice of writing of history has placed Chicanas into particular narratives. Using Chicana feminist approaches to study of history, revisiting of specific historical periods and moments such as Spanish Conquest, Mexican Period, American Conquest, Mexican Revolution, and Chicano Movement to excavate untold stories about women's participation in and contribution to making of Chicana and Chicano history. P/NP or letter grading.

M158. Women, Gender, and Sexuality in Italian Culture. (4) (Same as Italian M158.) Lecture, three hours; discussion, one hour. Analysis of gender roles, images of femininity and masculinity, patriarchy, myths of Madonna and Latin lover, condition of women in Italian society through history, politics, literature, film, and other media. Italian majors required to read texts in Italian. P/NP or letter grading.

M159. Pornography and Evolution. (4) (Same as Communication Studies M159.) Lecture, three hours. Discussion of theories and research on why pornography exists and its effects. Use of topic to illustrate value of evolutionary theory to social sciences generally. Letter grading.

M161. Sports, Normativity, and Body. (4) (Same as Disability Studies M161.) Lecture, four hours. Since creation of International Olympic Committee in 1894, athletes with disabilities have had, and been denied, formal opportunities to compete with able-bodied athletes. Overview of some major topics of discussion concerning intersections of athletic competition and disability, addressing variety of perspectives and themes on disability and sport, such as passing, sports integration, competition versus charity, and masculinity. Sources include readings, film, television, and biographical writings that address sports, body and disability generally, and Special Olympics specifically. P/NP or letter grading.

M162. Sociology of Gender. (5) (Same as Sociology M162.) Lecture, three hours; discussion, one hour. Enforced requisite: course 10 or Sociology 1. Examination of processes by which gender is socially constructed. Topics include distinction between biological sex and sociological gender, causes and consequences of gender inequality, and recent changes in gender relations in modern industrial societies. P/NP or letter grading.

M163. Gender and Work. (4) (Same as Sociology M163.) Lecture, three hours. Requisite: course 10 or Sociology 1. Exploration of relationship of gender to work, concentrating on the U.S. experience but also including some comparative material. Particular emphasis on analysis of causes and consequences of job segregation by gender and of wage inequality. P/NP or letter grading.

M164. Politics of Reproduction. (4) (Same as Sociology M164.) Lecture, three hours; discussion, one hour. Title refers to intersection between politics and life cycle. Topics include social construction of gender and population, reproductive issues, politicization of mothers, motherhood, and mothering, surrogacy, and new reproductive technologies. Letter grading.

M164A. Women, Violence, Globalization: India, Philippines, Singapore, Vietnam. (4) (Same as Asian American Studies M164.) Lecture, four hours. Study of various forms of violence done on women not only in and of themselves but in light of larger systems of oppression, with focus on Pilipino, Vietnamese, Singaporean, and South Asian cultures. Letter grading.

M165. Psychology of Gender. (4) (Same as Psychology M165.) Lecture, three hours. Consideration of psychological literature relevant to understanding contemporary sex differences. Topics include sex-role development and role conflict, physiological and personality differences between men and women, sex differences in intellectual abilities and achievement, and impact of gender on social interaction. P/NP or letter grading.

M167. Contested Sexualities. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M167.) Lecture, three hours; discussion, one hour. Sociological perspectives on formation, control, and resistance of lesbian, gay, bisexual, and transgendered people. Variable topics include identity and community; age, class, gender, and racial diversity; and analysis of contemporary issues affecting contested sexualities. Letter grading.

168. Feminist Economics in Globalizing World. (4) Lecture, four hours. Preparation: satisfaction of Letters and Science Writing II requirement. Requisite: course 10. Designed for juniors/seniors. Overview of field of feminist economics, with emphasis on development experiences in globalizing world economy. Overview of gender inequalities such as gender division of labor in paid and unpaid work, patterns of employment and unemployment, and wage gaps between men and women in different world economy regions; feminist critiques of economics and of theoretical debates within gender and development field on topics such as structural adjustment, feminization of labor force, and poverty; examination of efforts and proposals by governments, international policy-making institutions, and civil society organizations to make economic policies and structures gender-equitable. P/NP or letter grading.

CM170. Alternate Traditions: In Search of Female Voices in Contemporary Literature. (5) (Same as Comparative Literature CM170.) Seminar, three hours. Designed for upper division literature majors. Investigation of narrative texts by contemporary French, German, English, American, Spanish American, African, and Asian women writers from cross-cultural perspective. Common themes, problems, and techniques. Concurrently scheduled with course CM270. P/NP or letter grading.

M170C. History of Women in China, A.D. 1000 to Present. (4) (Same as History M170C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics include women and family, women in Confucian ideology, women in literature, feminist movement, and women and communist revolution. P/NP or letter grading.

171A. Women, Gender, and Law: Jurisprudence of Sexual Equality. (4) Lecture, four hours. Enforced requisite: course 10. Recommended: course 102 or 103 or 104. Exploration of models of equality described and/or advocated by legal theorists primarily in U.S.—equality of opportunity, equality of outcome, equality of respect, etc.—using specific problems of women (e.g., sexual harassment, pregnancy leave policy, access to safe and effective reproductive control technologies) for purposes of comparison and critique. Specific focus may vary by instructor (e.g., consideration of sexual equality theories to issues of gender equity, legal status of women in countries outside U.S. or from perspectives of international human rights). May be repeated for credit with topic or instructor change. P/NP or letter grading.

M172. Afro-American Woman in U.S. (4) (Same as African American Studies M172 and Psychology M172.) Lecture, two and one half hours. Designed for juniors/seniors. Impact of social, psychological, political, and economic forces which impact on interpersonal relationships of Afro-American women as members of large society and as members of their biological and ethnic group. P/NP or letter grading.

M173B. Women in 20th-Century Japan. (4) (Same as History M173B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Japanese women in Japanese and world history through state documents, autobiographical voices, contemporary television, and other varying historical sources, including topics such as women and new political order (1900 to 1930), women, war, and empire (1930 to 1945), and women in consumer society (1980s to 1990s). P/NP or letter grading.

M174. Sociology of Family. (4) (Same as Sociology M174.) Lecture, three hours; discussion, one hour. Theory and research dealing with modern family, its structure, and functions, including historical changes, variant family patterns, family as institution, and influence of contemporary society on family. P/NP or letter grading.

M175. Women and Cities. (4) (Same as Urban Planning M175.) Lecture, three hours. Limited to juniors/seniors. Examination of relationship between women and cities: (1) how cities have affected women's opportunities for economic and social equality, (2) women's contributions to development of U.S. cities, and (3) contemporary strategies and efforts to create urban environments that reflect women's needs and interests. P/NP or letter grading.

CM178. Critical Media Literacy and Politics of Gender: Theory and Production. (4) (Same as Education CM178.) Seminar, three hours. Corequisite: course CM178L. Use of range of pedagogical approaches to theory and practice of critical media literacy that necessarily involves understanding of new technologies and media forms. Study of both theory and production techniques to inform student analysis of media and critical media literacy projects. Concurrently scheduled with course CM278. Letter grading.

CM178L. Critical Media Literacy and Politics of Gender: Laboratory. (2) (Same as Education CM178L.) Laboratory, two hours. Corequisite: course CM178. Hands-on production experience as integral component of course CM178. Concurrently scheduled with course CM278L. Letter grading.

M180B. Historical Perspectives on Gender and Science. (4) (Same as History M180B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Historical cases illustrating how gender enters practices and concepts of science. Topics include gendered conceptions of nature, persona of man of science, role of women in scientific revolution, scientific investigations of women and feminine. P/NP or letter grading.

185. Special Topics in Gender Studies. (4) Lecture, three hours. Preparation: one prior gender studies course. Designed for juniors/seniors. Specialized or advanced study in one area within gender studies. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

M186. Voices of Women in Nordic Literature. (4) (Same as Scandinavian CM144A.) Seminar, three hours. Requisite: Scandinavian 5 or 15 or 25. Knowledge of Scandinavian languages not required for non-majors. Readings and discussion of writings by Scandinavian women writers analyzed in historical, theoretical, sociological, critical, and comparative contexts. P/NP or letter grading.

M186A. Women and Gender, Prehistory to 1792. (4) (Same as History M186A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of history of women, gender, and sexuality from prehistory to 1792. First half deals with period before written history and asks when did gender appear? How and why did patriarchy develop? Topics include evolution of women's bodies, appearance of gender, women's contribution to Neolithic revolution, significance of Goddess artifacts, creation myths, and women and sexuality in different religions. Consideration of effects of European conquest on Mesoamerican women, women's power in monarchies, gender dimensions of Atlantic slavery, and first manifestations of feminist consciousness in second half. Objects or texts created by women examined or read throughout. P/NP or letter grading.

M186B. Global Feminism, 1850 to Present. (4) (Same as History M186B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to movements for women's rights (educational, political, economic, sexual, and reproductive) around world and over one and one half centuries. P/NP or letter grading.

187. Senior Research Seminar: Gender Studies. (4) Seminar, three hours. Requisites: courses 10, 102, 103, 104. Designed for advanced junior/senior Gender Studies majors or minors. In-depth study of major theme in feminist research. Themes vary by instructor and term. Students pursue independent research related to course theme, with guidance from instructor, then share and critique other student works in progress. Letter grading.

M191D. Topics in Queer Literatures and Cultures. (5) (Same as English M191D and Lesbian, Gay, Bisexual, and Transgender Studies M191D.) Seminar, three or four hours. Enforced requisite: English Composition 3 or 3H. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M191E. Topics in Gender and Sexuality. (5) (Same as English M191E and Lesbian, Gay, Bisexual, and Transgender Studies M191E.) Seminar, three or four hours. Enforced requisite: English Composition 3 or 3H. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

195. Community or Corporate Internships in Gender Studies. (2 or 4) Tutorial, eight hours. Requisites: course 102 or 103 or 104, or two upper division gender studies courses not in 189 to 199 series. Limited to juniors/seniors. Internship in supervised setting in community agency, organization, or business approved by program. Content of student work must apply gender analysis or be focused on some aspect of gender studies. Students meet on regular basis with instructor, provide periodic reports on their experience on-site, and submit final report. Must be taken

for 4 letter-graded units to be applied toward Gender Studies major or minor. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

M195CE. Comparative Approaches to Community and Corporate Internships. (4) (Same as African American Studies M195CE, American Indian Studies M195CE, Asian American Studies M195CE, and Chicana and Chicano Studies M195CE.) Tutorial, one hour; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Comparative study of race, gender, and indigeneity in relation to contemporary workplace dynamics. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. Individual contract with supervising faculty member required. P/NP or letter grading.

197. Individual Studies in Gender Studies. (4) Tutorial, four hours. Preparation: at least two upper division gender studies courses. Requisite: course 102 or 103 or 104. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Content may include themes in feminist discourse, application of feminist theoretical perspectives to disciplinary field, or emerging areas of inquiry. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. Letter grading.

198A-198B-198C. Honors Research in Gender Studies. (4-4-4) Tutorial, four hours. Limited to junior/senior gender studies honors program students. Three-term sequence to research and write honors thesis under direct supervision of faculty sponsor and in consultation with faculty cosponsor. Individual contract required. **198A.** Requisite: course 187. Letter grading. **198B.** Enforced requisite: course 198A. In Progress grading (credit to be given only on completion of course 198C). **198C.** Enforced requisites: courses 198A, 198B. Letter grading.

199. Directed Research in Gender Studies. (2 or 4) Tutorial, to be arranged. Preparation: at least two upper division gender studies courses, minimum 3.0 grade-point average. Requisite: course 102 or 103 or 104. Limited to junior/senior Gender Studies majors and minors. Supervised individual research or investigation under guidance of faculty mentor on specific topic within gender studies. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

Graduate Courses

201. Introduction to Interdisciplinary Methods in Gender Studies. (4) Seminar, three hours. Presentation by faculty members of approaches to interdisciplinary studies and discussion of their own research. Demystification of methods, particularly of interdisciplinary sort, to introduce students to wide range of faculty research and to incorporate questions of ethics. Focus on interdisciplinary gender research that intervenes in knowledge production. Particular issues include approaches to interdisciplinary methods of research, introduction to feminist intersectional and queer theories, effective use of reflexivity and positionality in research and writing, and incorporating ethics into research design, conduct, and teaching. May be repeated once for credit with instructor change. Letter grading.

202. Key Theories and Concepts in Gender Studies. (4) Lecture/discussion, three hours. Relationship of debates in field to key intellectual and social movements (such as Marxism, poststructuralism, critical race studies, queer studies, indigenous studies, and postcolonial and transnational studies) that have elicited feminist critiques and contributed to development in feminist thought. Issues include analysis of central theoretical works in field and survey of key methodologies, examination of key concepts and de-

bates in gender studies, and identification of debates that have generated key analytics in feminist analysis and gender studies scholarship. May be repeated once for credit with instructor change. Letter grading.

203. Epistemologies of Gender. (4) Lecture/discussion, three hours. Focus on debates concerning methods of inquiry in gender and sexuality studies and exploration of intersections of feminist studies, masculinity studies, and queer studies. Debates and interventions concern interdisciplinary, intersectional feminist methods and changing boundaries of field over time. Exploration of critical tools to utilize and interrogate existing methodologies. Issues include examination of how feminisms have shaped and been shaped by processes of knowledge-production within and across disciplinary boundaries, cultures, and paradigms, and importance of intersectional, standpoint, and queer theory as critical research tools and as responses to issues of power, domination, oppression, and other loci of identities and difference. May be repeated once for credit with instructor change. Letter grading.

204. Research Design and Professional Development. (4) Seminar, three hours. Required of third-year gender studies graduate students. To be taken after all other coursework is complete; primarily geared toward proposal writing for dissertations and outside grants. Process of constructing dissertation proposals by providing structured process with incremental steps toward writing of dissertation proposal draft. Professional development for students as they prepare to enter academia or other professions. Help in preparation for fall grant-writing season, exploration of job/interview process, development of materials to assist in teaching, and analysis of various job markets. May be repeated once for credit with instructor change. Letter grading.

205. Subfields in Gender Studies. (4) Seminar, three hours. Departmental topics course that offers in-depth aspects of field. Limits of investigation set by individual instructor. S/U or letter grading.

210. Topics in Women and Public Policy. (4) Lecture, four hours. Designed for graduate gender studies students. Introduction to background, decision-making processes, and current debates over public policy directly affecting women in one or more major spheres of public life (e.g., work, family, political system, healthcare, legal regulation). Topics may focus on public health, political science, medicine, workplace studies, and social welfare. May be repeated for credit with topic or instructor change. Letter grading.

215. Topics in Study of Sexuality and Gender. (4) Seminar, three to four hours. Designed for graduate students. Multidisciplinary studies on aspects of sexual orientation, gender identity, queer and transgender theory, interdisciplinary research on minority sexualities, and social construction/deconstruction of gender. May be repeated for credit with topic or instructor change. Letter grading.

220. Cultural Studies in Gender, Race, and Sexuality. (4) Seminar, three hours. Designed for graduate students. In-depth study of representations of gender and sexuality in literature and performance culture, with special attention to race. Topics include flow of artistic cultural production across national borders, theorizing femmequeer as diasporic or multicultural formation. Letter grading.

CM232A. Chicana Feminism. (4) (Same as Chicana and Chicano Studies CM214.) Lecture, four hours. Enforced requisite: course 10 or Chicana and Chicano Studies 10A. Examination of theories and practices of women who identify as Chicana feminist. Analysis of writings of Chicanas who do not identify as feminist but whose practices attend to gender inequities faced by Chicanas both within Chicana/Chicano community and dominant society. Attention to Anglo-European and Third World women. Concurrently scheduled with course CM132A. S/U or letter grading.

M238. Feminist Theory. (4) (Same as Sociology M238.) Seminar, three hours. Designed for graduate students. Analysis of current American feminist theory

relevant to sociologists. Exploration of critiques of second wave feminism by working class feminists and/or feminists of color, feminist scholars from other countries, and recent "antifeminist" feminists. Discussion of directions for future feminist sociology. Letter grading.

CM243. Healers, Ritual, and Transformation. (4) (Same as World Arts and Cultures CM240.) Lecture, four hours. Designed for graduate students. Examination of role of healers, historically and within contemporary culture-specific contexts. Exploration of psychological functions served by rites of passage and healing rituals and of role of arts in healing troubled communities. Concurrently scheduled with course CM143. S/U or letter grading.

M252. Selected Topics in Sociology of Gender. (4) (Same as Sociology M252.) Lecture, two hours; discussion, two hours. Designed for graduate students. Seminar on selected topics in sociology of gender. May be repeated for credit. Letter grading.

M253A. Seminar: Current Problems in Comparative Education. (4) (Same as Education M253A.) Seminar, four hours. Examination of some of most influential critical theorists, including Marx, Nietzsche, Freud, Marcuse, Foucault, Fanon, and de Beauvoir and their contributions to critique of contemporary education, society, and politics. S/U or letter grading.

M255. Cross-Cultural Perspectives on Gender. (4) (Same as Sociology M255.) Seminar, three hours. How does gender manifest itself in lives of different groups of women in U.S. and abroad? Are universal analytical categories or united feminist movements possible or is gender too different cross-culturally? S/U or letter grading.

M259A-M259B. History of Women. (4-4) (Same as History M259A-M259B.) Seminar, three hours. Course M259A is requisite to M259B. History of women's social and political issues seen in U.S. and comparative context. In Progress (M259A) and letter (M259B) grading.

M261. Gender and Music in Cross-Cultural Perspective. (4) (Same as Ethnomusicology M261.) Seminar, three hours. Designed to foster in-depth understanding of gender in study of music as culture. Topics range from ethnography of gender and sexuality, (de)codification of messages of resistance, and gender representation to gendered politics via musical production. S/U or letter grading.

M263P. Gender Systems. (4) (Same as Anthropology M263P) Seminar, three hours. Current theoretical developments in understanding gender systems cross-culturally, with emphasis on relationship between systems of gender, economy, ideational systems, and social inequality. Selection of ethnographic cases from recent literature. S/U or letter grading.

M266. Feminist Theory and Social Sciences Research. (4) (Same as Education M266.) Lecture, four hours. Examination of how diverse feminist social theories of last quarter century have both challenged and strengthened conventional social sciences theories and their methodologies. Introduction especially to feminist standpoint theory, distinctive critical theory methodology now widely used in social sciences. Letter grading.

CM270. Alternate Traditions: In Search of Female Voices in Contemporary Literature. (5) (Same as Comparative Literature CM270.) Seminar, four hours. Designed for graduate students. Investigation of narrative texts by contemporary French, German, English, American, Spanish American, African, and Asian women writers from cross-cultural perspective. Common themes, problems, and techniques. Concurrently scheduled with course CM170. S/U or letter grading.

CM278. Critical Media Literacy and Politics of Gender: Theory and Production. (4) (Same as Education CM278.) Seminar, three hours. Corequisite: course CM278L. Use of range of pedagogical approaches to theory and practice of critical media literacy that necessarily involves understanding of new technologies and media forms. Study of both theory

and production techniques to inform student analysis of media and critical media literacy projects. Concurrently scheduled with course CM178. Letter grading.

CM278L. Critical Media Literacy and Politics of Gender: Laboratory. (2) (Same as Education CM278L.) Laboratory, two hours. Corequisite: course CM278. Hands-on production experience as integral component of course CM278. Concurrently scheduled with course CM178L. Letter grading.

285. Special Topics in Women's Studies. (4) Lecture/discussion, four hours. Designed for graduate students. Selected topics or special problems. In-depth study of aspects of feminist theory or research methods or gender analysis within disciplinary studies in social sciences, humanities, health sciences, arts, or professional programs. May be repeated for credit with topic or instructor change. Letter grading.

296. Doctoral Roundtable. (2) Research group meeting, two hours. Preparation: satisfactory completion of PhD program first year. Requisites: at least two courses from 201, 202, 203, 210. Limited to program PhD students. Interactive seminar with focus on disciplinary and interdisciplinary issues, feminist scholarship, research presentation, and professional development. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Requisite or corequisite: course 495. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Feminist Pedagogy. (2) Seminar, two hours. Preparation: appointment as teaching assistant in department. Introduction to feminist methods of teaching, with emphasis on reciprocity and dialogue and de-emphasis on hierarchy. Required of students while serving as teaching assistants (first time only) in undergraduate gender studies courses. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. Requisites: courses 201, 202, 203. Directed individual research and study in area related to women's studies/gender studies, arranged individually by student with instructor. May be repeated for credit. S/U or letter grading.

597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations. (2 to 12) Tutorial, eight hours. Limited to graduate gender studies students. Reading and preparation for written MA comprehensive examination or PhD qualifying field examinations. May be repeated for a maximum of 12 units. S/U grading.

598. Research for MA Thesis. (2 to 12) Tutorial, to be arranged. Requisites: courses 201, 202, 203. Research for and writing of MA thesis under direction of thesis committee chair. May be repeated for credit. S/U grading.

599. Research for PhD Dissertation. (2 to 12) Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Research for and writing of PhD dissertation under direction of dissertation committee chair. May be repeated for credit. S/U grading.

GEOGRAPHY

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 David L. Rigby, PhD
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Stephen A. Bell, PhD
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Assistant Professors

Kyle C. Cavanaugh, PhD
 Daniela F. Cusack, PhD
 Jamie M. Goodwin-White, PhD
 Adam D. Moore, PhD

Adjunct Assistant Professor

Thomas H. Painter, PhD

Scope and Objectives

Geography is the study of the natural world and how humans have changed it. It examines the physical Earth and life on it, looking at the world's diverse cultures and economies and at the environmental problems they produce.

Geography addresses many issues about the contemporary world. Some are local, such as documenting the development of ethnic neighborhoods within Los Angeles. Others are regional, such as determining the best locations for nature reserves in California. Many are global, such as the study of greenhouse gases and how they affect climates, culture and resource issues in developing countries, and the impact of information technologies on people in different places.

The work of geographers often takes them out of the classroom into the field to collect information on topics that range from the settlement of new immigrants to the distribution of endangered species, the erosion of shorelines, and the location of high-tech businesses. On other occasions, geographers work in laboratories, using techniques such as the computer analysis of satellite photographs to look for changes in river courses and the computer modeling of shifts in global vegetation patterns and the distribution of human populations. Re-

search is also conducted in libraries and archives, probing documentary sources on human interaction with the natural world and how that world is imagined.

Department of Geography graduates have a wide variety of career opportunities because of their combination of geographical/environmental perspectives and technical skills. UCLA geography students have gone on to become university scholars, school teachers, members of governmental and nongovernmental planning, development, and conservation agencies, business executives, lawyers, and specialists in geographical information analysis for government and private business. Because of its sophisticated focus on the relationship of the global to the local, geography is particularly useful for those who wish to pursue careers with an international focus.

The department has one of the top programs in the U.S. and offers two undergraduate majors that lead to the Bachelor of Arts degree: Geography and Geography/Environmental Studies. The Geography major combines a broad background in the field with specific tracks. The Geography/Environmental Studies major focuses on the impact of humans on the natural environment. Also offered are undergraduate minors in Geography, Geography/Environmental Studies, and Geospatial Information Systems and Technologies.

The department also offers the PhD degree in Geography (an MA degree may be earned in the process of completing PhD requirements). Student research projects are conducted in collaboration with a faculty adviser and advisory committee. Graduate students work in most major areas of geography and on projects around the world. Graduate alumni of the department have teaching positions at many leading universities in the U.S. and abroad.

Undergraduate Study**Geography BA**

The Geography major allows students to combine a broad background in the field with more specific interests and career goals. Students can select classes in several areas of geography such as urban, economic, cultural, environmental, physical, or biogeography. They should consult with the undergraduate adviser to plan a program suitable to their personal objectives.

Preparation for the Major

Required: Three courses (15 units) as follows: Geography 1 or 2, 3 or 4 or 6, and Statistics 12. Each course must be taken for a letter grade.

Transfer Students

Transfer applicants to the Geography major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one physical geography or biogeography course, one cultural geography or economic geography course, one people and ecosystems course, and one statistics course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division geography courses (44 units minimum), each taken for a letter grade. All geography upper division courses numbered 100 and higher may be applied toward the major, with a few exceptions. Contact the advising office for more information.

Geography/Environmental Studies BA

The major in Geography/Environmental Studies develops and deepens students' understanding of environmental issues; it explores problem-solving approaches from an interactive people/nature viewpoint and involves analysis of social, physical, and biotic environmental systems. The major's uniqueness lies in its emphasis on its geographical perspective of human impacts on natural systems, as well as of implications of global change on local and regional human systems.

Preparation for the Major

Required: Geography 1 or 2, 3 or 4 or 6, 5, and Statistics 12. Each course must be taken for a letter grade. Students are strongly advised to complete all preparation for the major courses before beginning upper division work in the major.

Transfer Students

Transfer applicants to the Geography/Environmental Studies major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one physical geography or biogeography course, one cultural geography or economic geography course, one people and ecosystems course, and one statistics course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division geography courses, each taken for a letter grade, that must be distributed as follows: (1) *environmental studies and natural systems core*—six courses from 100, 101, 102, 104, 105, M106, M107, 108, M109, 110, 111, 112, 113, 114, M115, 116, M117, 122, 123, 124, 125, 126, M127, M128, 129, M131, 132, 135, M137, 159C, 159D, 159E; (2) *human systems core*—two courses from 118, 133, 138, 140, 141, 142, 143, 144, 145, M146, 147, 148, M149, 150, 151, M153, 155, 159A, 159B; (3) *procedures*—two courses from 162, 163, 166, 167, 168, 169, 170, M171, 172, 173, 174, 177; and (4) *regions*—one course from 119, 139, 145, 152, 156, 158, 180, 181, 182A, 182B, 184, 185, or 186. Each course must be taken for a letter grade.

Geography/Environmental Studies majors are advised to complete the required courses in the human systems core before taking courses

in the environmental studies and natural systems core.

Honors Program

The honors program is designed for Geography and Geography/Environmental Studies majors who are interested in completing a research project that culminates in an honors thesis.

To qualify for graduation with departmental honors, students must have a cumulative grade-point average of 3.5 or better in all upper division geography courses and a 3.0 overall GPA. They must enroll in Geography 198A and 198B in two consecutive terms and earn grades of A- or better. They may elect to work with one or two faculty sponsors. Students are awarded highest honors, honors, or no honors based on an evaluation of the thesis by the faculty sponsor(s). Contact the undergraduate advising office for further information.

Geography Minor

The Geography minor is designed for students who wish to deepen and/or broaden their major program of study with a distinctive yet flexible program of courses encompassing the relationship between environment and society. The minor allows students to develop a coherent strategy for understanding and explaining the manner in which people and the Earth interact. Students have the opportunity to explore the origins, development, morphology, and processes of landscapes inherited from nature, as well as those institutions and cultural, economic, political, and social patterns associated with the human development, occupancy, organization, perception, and use of these landscapes.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition in the Geography Department Advising Office, 1255 Bunche Hall, 310-825-1166. Courses should be selected in consultation with the departmental adviser.

Required Lower Division Courses (10 units): Two courses from Geography 1, 2, 3, 4, 6. It is recommended that students take these courses before attempting upper division courses.

Required Upper Division Courses (20 units): Any five upper division geography courses, with a few exceptions. Contact the advising office for more information.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor, and at least three of the five upper division courses must be taken in residence at UCLA. Transfer credit for any of the above is subject to departmental approval.

Each minor course must be taken for a letter grade. Successful completion of the minor is indicated on the transcript and diploma.

Geography/Environmental Studies Minor

The Geography/Environmental Studies minor is intended for students interested in environmental issues and emphasizes a systems approach to gaining a causal understanding of major environmental problems facing our society and the world at large. The uniqueness of the minor lies in its geographical perspective on the impact, at various geographical scales, of human activity on natural systems and on the implications of global environmental change on local, regional, and global human systems.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition in the Geography Department Advising Office, 1255 Bunche Hall, 310-825-1166. Courses should be selected in consultation with the departmental adviser.

Required Lower Division Courses (10 units): Geography 5 and one course from 1, 2, 3, 4, or 6. It is recommended that students take these courses before attempting upper division courses.

Required Upper Division Courses (20 units): Three courses from the environmental studies cluster specified within the major and two geography courses from outside the environmental studies cluster.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor, and at least three of the five upper division courses must be taken in residence at UCLA. Transfer credit for any of the above is subject to departmental approval.

Each minor course must be taken for a letter grade. Successful completion of the minor is indicated on the transcript and diploma.

Geospatial Information Systems and Technologies Minor

The Geospatial Information Systems and Technologies minor is designed to provide students with a strong background in the use, application, and development of geospatial/environmental research techniques and methods.

To enter the minor, students must be in good academic standing, have completed Geography 7 with a grade of B or better, and file a petition in the Geography Department Advising Office, 1255 Bunche Hall, 310-825-1166. For majors in Geography or Geography/Environmental Studies, only two upper division courses may overlap between the major and this minor.

Required Lower Division Courses (10 units): Geography 7, Statistics 12.

Required Upper Division Courses (24 units minimum): Geography 167, 168, 169, 170, and any two courses selected from 154, 162, 163, 166, M171, 172, 173, and 199 (4 units with approval of the faculty adviser). Each upper division course must be completed with a grade of C or better.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better in the minor. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Geography offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Geography.

Geography

Lower Division Courses

1. Earth's Physical Environment. (5) Lecture, three hours; laboratory, two hours. Study of Earth's physical environment, with particular reference to nature and distribution of landforms and climate and their significance to people. P/NP or letter grading.

2. Biodiversity in Changing World. (5) Lecture, three hours; discussion, two hours. Biogeographic exploration of plant and animal diversity and conservation issues on continents and islands around world. Study of physical, biotic, and human factors responsible for evolution, persistence, and extinction of species and ecological communities. Analysis of effects of human activity. P/NP or letter grading.

3. Cultural Geography. (5) Lecture, three hours; discussion, two hours. Introduction to cultural geography of modern world, with examination of key concepts of space, place, and landscape as these have shaped and been shaped by connections between societies and their natural environments. Examples from variety of landscapes and places since 1800 and especially from Los Angeles region. P/NP or letter grading.

4. Globalization: Regional Development and World Economy. (5) Lecture, three hours; discussion, one hour. Economic geography explores spatial distribution of all forms of human productive activity at number of geographical scales—local, regional, national, and global. Key theme is impact of increasingly powerful global economic forces on organization of production. P/NP or letter grading.

5. People and Earth's Ecosystems. (5) Lecture, three hours; laboratory, two hours. Exploration of ways in which human activity impacts natural environment and how modification of environment can eventually have significant consequences for human activity. Examination, using case studies, of real environmental problems that confront us today. P/NP or letter grading.

6. World Regions: Concepts and Contemporary Issues. (5) Lecture, three hours; discussion, two hours. Interdisciplinary and historical approach to modern peoples, their differences in wealth or poverty, and their local origins of food production. Brief introduction to physical geography and biogeography of each region. Discussion of each region's peoples, languages, foods, prehistories, and histories. Letter grading.

7. Introduction to Geographic Information Systems. (5) Lecture, three hours; laboratory, two hours. Designed for freshmen/sophomores. Introduction to fundamental principles and concepts necessary to carry out sound geographic analysis with geographic information systems (GIS). Reinforcement of key issues in GIS, such as geographic coordinate systems, map projections, spatial analysis, and visualization of spatial data. Laboratory exercises use database query, manipulation, and spatial analysis to address real-world problems. P/NP or letter grading.

88A-88Z. Lower Division Seminars: Geography. (4 each) Discussion, three hours; reading period, one hour. Seminars designed to explore various themes and issues pertinent to environment and people. Seminar topics advertised in department during previous term. P/NP or letter grading.

88GE. Seminar Sequence: Special Topics in Geography. (5) Seminar, three hours. Enforced requisite: course 5. Designed for sophomores/juniors. Exploration of aspects of lecture topic through readings, images, and discussions. P/NP or letter grading.

Upper Division Courses

100. Principles of Geomorphology. (4) Lecture, three hours; reading period, one hour. Requisite: course 1. Recommended: course 100A. Study of processes that shape world's landforms, with emphasis on weathering, mass movement and fluvial erosion, transport, deposition; energy and material transfers; space and time considerations. P/NP or letter grading.

101. Coastal Geomorphology. (4) Lecture, three hours; reading period, one hour. Requisite: course 1. Recommended: course 101A. Study of origin and development of coastal landforms, with emphasis on past and present changes, hydrodynamic processes, sediment transfers, and such features as beaches, estuaries, lagoons, deltas, wetlands, dunes, seacliffs, and coral reefs, together with coastal zone management. P/NP or letter grading.

102. Tropical Climatology. (4) Lecture, three hours. In-depth exploration of development of tropical climate, with special reference to hurricanes, ENSO, and monsoons. Examination of human interaction with tropical climate processes and human-induced climate change in tropics. Use of climatological information to foster sound environmental management of climate-related resources in tropics. P/NP or letter grading.

104. Climatology. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of many relations between climate and world of man. Application of basic energy budget concepts to microclimates of relevance to ecosystems of agriculture, animals, man, and urban places. P/NP or letter grading.

105. Hydrology. (4) Lecture, three hours. Requisites: course 104, Statistics 12. Role of water in geographic systems: hydrologic phenomena in relation to climate, landforms, soils, vegetation, and cultural processes and impacts on landscape. Field projects required. P/NP or letter grading.

105A. Hydrology: Field and Laboratory. (2) Laboratory/fieldwork, six hours. Corequisite: course 105. Field and laboratory investigations into role of water in geographic systems: hydrologic phenomena in relation to climate, landforms, soils, vegetation, and cultural processes and impacts on landscape. Students solve applied hydrology problems in laboratory and make hydrologic measurements in field. P/NP or letter grading.

M106. Applied Climatology: Principles of Climate Impact on Natural Environment. (4) (Same as Atmospheric and Oceanic Sciences M106.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Exploration of knowledge and tools to solve complex problems in contemporary applied climatology, including current practices, influence of climate on environment, and human influence on changing climates. P/NP or letter grading.

M107. Soil and Water Conservation. (4) (Same as Environment M114.) Lecture, three hours; discussion, one hour. Enforced requisite: course 1 or 2 or Life Sciences 1 or 3. Designed for juniors/seniors. Systematic study of processes of and hazards posed by erosion, sedimentation, development, and pollution and techniques needed to conserve soil and maintain environmental quality. Scope includes agriculture, forestry, mining, and other rural uses of land. P/NP or letter grading.

108. World Vegetation. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Characteristics, distribution, environmental and cultural relationships of world's principal vegetation patterns. P/NP or letter grading.

M109. Human Impact on Biophysical Environment: What Science Has Learned. (4) (Same as Environment M109.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of history, mechanisms, and consequences of interactions between humans and environment. Exploration in depth of three thematic topics (deforestation, desertification, and greenhouse gas increase and ozone depletion) and four major subjects (soil, biodiversity, water, and landforms). P/NP or letter grading.

110. Population and Natural Resources. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of debate about environmental change and ability of planet to maintain growing population. Introduction and evaluation of basic demographic processes in context of food production, energy use, and environmental degradation. Discussion of major debates about use of resources in context of increasing population in developing countries and decreasing population in Western countries. P/NP or letter grading.

111. Forest Ecosystems. (4) Lecture, three hours; field trips. Requisite: course 2 or Life Sciences 1. Designed for juniors/seniors. Evaluation of ecological principles as they apply to forests. Emphasis on constraints of physical environment, biotic interactions, succession, disturbances, and long-term environmental change. P/NP or letter grading.

112. Analytical Animal Geography. (4) Lecture, three hours. Requisites: courses 1, 2 or Life Sciences 1, Statistics 12. Designed for juniors/seniors. Analysis of processes of expanding and contracting distribution areas. Focus on island biogeography and its implications for biodiversity trends in natural and anthropogenic environments. P/NP or letter grading.

113. Humid Tropics. (4) Lecture, three hours. Requisite: course 2 or 5 or Life Sciences 1. Designed for juniors/seniors. Examination of humid tropics, with emphasis on rainforests, their ecological principles, and forms of land use. Letter grading.

114. Africa and African Diaspora in Americas. (4) Lecture, three hours. Designed for juniors/seniors. Historical-geographical examination of Africa's role in Americas, with emphasis on environment, agriculture, food systems, and medicinal crops. P/NP or letter grading.

M115. Environmentalism: Past, Present, and Future. (4) (Same as Environment M132 and Urban Planning M165.) Lecture, three hours; discussion, one hour. Exploration of history and origin of major environmental ideas, movements or countermovements they spawned, and new and changing nature of modern environmentalism. Introduction to early ideas of environment, how rise of modern sciences reshaped environmental thought, and how this was later transformed by 19th-century ideas and rise of American conservation movements. Review of politics of American environmental thought and contemporary environmental questions as they relate to broader set of questions about nature of development, sustainability, and equity in environmental debate. Exploration of issues in broad context, including global climate change, rise of pandemics, deforestation, and environmental justice impacts of war. Letter grading.

116. Biogeography of Plant and Animal Invasions. (4) Lecture, three hours; reading period, one hour. Requisite: course 1 or 2 or 5. Examination of theories and examples of invasion of new environments by plants and animals introduced through natural processes or by human activity. P/NP or letter grading.

M117. Ecosystem Ecology. (4) (Same as Ecology and Evolutionary Biology M131.) Lecture, three hours; field trips. Enforced requisite: course 1 or Life Sciences 2. Designed for juniors/seniors. Development of principles of ecosystem ecology, with focus on understanding links between ecosystem structure and function. Emphasis on energy and water balances, nutrient cycling, plant-soil-microbe interactions, landscape heterogeneity, and human disturbance to ecosystems. P/NP or letter grading.

118. Medical Geography. (4) Lecture, three hours; reading period, one hour. Requisite: course 5. Examination of patterns of population/place/disease interactions and some effects of change and development on disease etiology and problems of healthcare. P/NP or letter grading.

119. Biophysical and Social Transformations in Northern Regions. (4) Lecture, three hours. Enforced requisite: course 5. Substantial transformation of world's northern high latitudes due to climate change, natural resource development, and key demographic trends in 21st century. Climate models project rising mean air temperatures and precipitation, and less sea-ice cover in Arctic Ocean, consistent with field observations of rising river flows, shrinking glaciers, and thawing permafrost. Ability of northern societies to react to these phenomena is shaped by new legal frameworks, like aboriginal land-claims agreements in North America, and resource economics, like oil and gas industry in West Siberia. Eight northern countries (including U.S.) face array of challenges and opportunities ranging from species extinctions to increased viability of shipping lanes. Major cities like Vancouver and Helsinki are becoming highly desired places to live, emigrate, and work. Blending of principles of human and biophysical geography to gain new understanding of northern quarter of planet, placed within broader global context. Letter grading.

122. Wildlife Conservation in Eastern and Southern Africa. (4) Lecture, three hours; reading period, one hour. Requisite: course 5. Designed for juniors/seniors. Analysis of tropical ecosystems of eastern Africa, including wildlife communities, vegetation, climate, and human impact. Discussion of national park systems and their natural and anthropogenic ecological dynamics. P/NP or letter grading.

123. Bioresource Management. (4) Lecture, three hours. Requisites: courses 2, 5. Recommended: Statistics 12. Designed for juniors/seniors. Theory and practice of management and conservation of bioresources. Introduction to wildlife management, endangered species conservation, and design and maintenance of National Parks and ecological reserves. P/NP or letter grading.

124. Environmental Impact Analysis. (4) Lecture, three hours. Preparation: two environmental studies cluster courses. Requisite: Statistics 12. Introduction to interdisciplinary analysis of local and regional impacts on environmental systems. Evaluation of state and federal concepts for analysis of environmental impact. P/NP or letter grading.

125. Health and Global Environment. (4) Lecture, three hours; reading period, one hour. Impact of environment and lifestyle on individual health examined from geographical perspective, with examples from both developed and developing countries. P/NP or letter grading.

126. Geography of Extinction. (4) Lecture, three hours; reading period, one hour. Requisite: course 5. Designed for juniors/seniors. Geographic and taxonomic survey and analysis of biotic extinctions over past 15,000 years. Identification of extinction factors and pathways through case studies of extinct and endangered species and communities. P/NP or letter grading.

M127. Soils and Environment. (4) (Same as Ecology and Evolutionary Biology M127 and Environment M127.) Lecture, three hours; discussion, one hour; field trips. General treatment of soils and environmental implications: soil development, morphology, and worldwide distribution of soil orders; physical, chemical, hydrologic, and biological properties; water use, erosion, and pollution; management of soils as related to plant growth and distribution. P/NP or letter grading.

M128. Global Environment and Development: Problems and Issues. (4) (Same as Urban Planning CM166.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Questions of population, resource use, Third World poverty, and environment. Analysis of global economic restructuring and its connections to changing organization of production and resulting environmental impacts. Case studies from Africa, Latin America, Asia, and U.S. P/NP or letter grading.

129. Seminar: Environmental Studies. (4) Seminar, three hours; reading period, two hours. Preparation: one course each from natural and human systems cores, three environmental studies cluster courses. Limited to seniors. Qualitative/quantitative analysis of problems associated with rational protection and use of selected environmental systems (urban, rural, forest, desert, coastal, water, soil, or others). P/NP or letter grading.

130. Geographical Discovery and Exploration. (4) Lecture, three hours; reading period, one hour. Requirements: courses 1, 3. Designed for juniors/seniors. Survey of history of exploration from earliest times to modern, with emphasis on period from Marco Polo to present. P/NP or letter grading.

M131. Environmental Change. (4) (Same as Environment M130.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of natural forces producing environmental changes over past two million years. How present landscape reflects past conditions. Effects of environmental change on people. Increasing importance of human activity in environmental modification. Focus on impact of natural and anthropogenic changes on forests. P/NP or letter grading.

132. Food and Environment. (4) Lecture, three hours. Designed for juniors/seniors. Thematic orientation to food systems and their role in environmental and cultural transformations. P/NP or letter grading.

133. Cultural Geography of Modern World. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors and graduate students. Historical and structural approach to cultural geography of modern world system, with particular emphasis on structure and functioning of its core, semi-periphery, and periphery. P/NP or letter grading.

135. African Ecology and Development. (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Overview of contemporary ecological and development issues in sub-Saharan Africa. P/NP or letter grading.

M137. Historical Geography of American Environment. (4) (Same as Environment M137.) Lecture, three hours. Designed for juniors/seniors. Study of systematic changes of natural environment in U.S. during historical time, with emphasis on interplay between and among natural factors of climate, soils, vegetation, and landforms, and human factors of settlement, economic activity, technology, and cultural traits. P/NP or letter grading.

138. Place, Identity, and Networked World. (4) Lecture, three hours; reading period, one hour. Communications technologies, such as personal computers and Internet, seem to be connected to dramatic changes in identities of people, groups, and places. Exploration of those changes and their implications for social institutions and human values and practices. P/NP or letter grading.

139. Japan in World: Culture, Place, and Global Connections. (4) Lecture, three hours; reading period, one hour. Focus on questions of culture and place in Japan. Exploration of ways that these questions—and Japan itself—have been shaped by histor-

ical and contemporary interactions involving people in both Japan and other parts of world. P/NP or letter grading.

140. Political Geography. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Spatiality of political activity, spatial constitution of political power, control over space as central component to political struggles. Studies at local, national, state, and global scales. P/NP or letter grading.

141. Uneven Development Geographies: Prosperity and Impoverishment in Third World. (4) Lecture, three hours. Geographical perspective on part of globe commonly called Third World (global South). How development has shaped livelihood possibilities and practices, by global processes stretching back centuries, and transformative possibilities of Third World agency. World societies seek to transform Third World into their own image through theories and practices of colonialism, development, and globalization. Study of those theories and Third World alternatives to examine how they have shaped livelihood possibilities. Social differences between stagnant livelihood possibilities for Third World majority and minorities that prosper massively, as well as geographical differences (culturally, environmentally, and socially) across Third World. Examination of possibilities of Third World agency, ranging from interstate collaboration to village activism, asking whether such agency and alternative imaginaries can enable Third World residents to break with First World developmentalism. P/NP or letter grading.

142. Population Geography. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of social and behavioral perspectives influencing people in their patterns of demographic change, migration, and mobility, with special emphasis on spatial relationships and selected case studies. P/NP or letter grading.

143. Population in Interacting World. (4) Lecture, three hours. Provides multidisciplinary understanding of and appreciation for human population phenomena and problems in different parts of world and at different geographical scales—from local to global. Particular emphasis on understanding and critically reflecting on (1) contemporary population problems at global, national, and local scale, including both dramatic decline and persistence of high levels of fertility in parts of developing world, record low fertility and population aging in highly industrialized countries, increasing levels of international migration, refugee crises, massive rural to urban migrations, and creation of mega-cities in less developed world, (2) policies adopted to address these problems, such as family planning policies to reduce fertility, immigration policies, and so on, and (3) gender dimension of contemporary population problems and policies. P/NP or letter grading.

144. Ethnicity in American Cities. (4) Lecture, three hours; reading period, two hours. Limited to juniors/seniors. Designed to encourage and facilitate critical thinking about geographical aspects of ethnicity in contemporary America. Use of comparative perspective to explain changing distribution, social, economic, and political behavior, and adjustment problems ethnic groups face in contemporary American cities. P/NP or letter grading.

145. Slavery and Human Trafficking. (4) Lecture, three hours; reading period, one hour. Enforced requisite: one course from 3, 4, Anthropology 9, Gender Studies 10, or Sociology 1. Limited to juniors/seniors. Exploration of how, why, and to what ends human trafficking has been conceptualized as global problem that warrants international response. Examination of recent activist, governmental, scholarly, and media responses, and reflection on what is and is not accomplished by them. Questions of human trafficking are implicitly geographical, requiring consideration of ways freedom is spatially defined and how movement across borders is encouraged and regulated. How questions of labor, migration, sexuality, rights, ethics, embodiment, representation, and governance pertain to human trafficking. What people mean when they speak of human trafficking as slavery. Meanings of slavery and freedom in world today using examples

from U.S. and Europe, with focus on Philippines as case study for exploring both contemporary examples and historical forms of enslavement. P/NP or letter grading.

M146. Feminist Geography. (4) (Same as Gender Studies M146.) Lecture, three hours; discussion, one hour. Critical engagement of gender as concept of geographic inquiry. Gender as spatial process, analysis of feminist geographic theory and methods, landscapes of gender, challenges of representing gender. Spaces of femininity, masculinity, and sexuality. P/NP or letter grading.

147. Social Geography. (4) Lecture, three hours; discussion, one hour. Study of spatiality of social differences such as race, class, gender, age, sexuality, location. Critical explorations of identity, social categories, and spatial structures. Importance of space and place in social life. P/NP or letter grading.

148. Economic Geography. (4) Lecture, three hours; reading period, one hour. Requisite: course 4. Designed for juniors/seniors. Geographical aspects of economic production and growth. General theory of space-economy. Land-use processes. Location of industry. Regional development. P/NP or letter grading.

M149. Transportation Geography. (4) (Same as Urban Planning M150.) Lecture, three hours. Requisite: course 3 or 4. Designed for juniors/seniors. Study of geographical aspects of transportation, with focus on characteristics and functions of various modes and on complexities of intra-urban transport. P/NP or letter grading.

150. Urban Geography. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Analysis of development, functions, spatial patterns, and geographic problems of cities. P/NP or letter grading.

151. Cities and Social Difference. (4) Lecture, three hours; discussion, one hour. City landscapes embody best and worst of U.S. society: diversity and poverty, opportunity and violence. Study of urban spaces, social differences, inequality, and conflicts over uses and meanings of city space. Social urban geography. P/NP or letter grading.

152. Cities of Europe. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Urbanization of Europe, growth of city systems and internal spatial structure, functions, and geographic problems of contemporary European cities. Particular attention to historical development and landscapes of capital cities such as Rome, Paris, and Berlin. P/NP or letter grading.

M153. Past People and Their Lessons for Our Own Future. (5) (Same as Anthropology M158Q and Honors Collegium M152.) Lecture, two hours; discussion, two hours. Examination of modern and past people that met varying fates, as background to examination of how other modern people are coping or failing to cope with similar issues. Letter grading.

155. Industrial Location and Regional Development. (4) Lecture, three hours. Requisite: course 4 or Economics 1 or 2 or 5 or 11. Designed for juniors/seniors. Reexamination of industrial location theory in light of contemporary theories of industrial organization and local labor markets. Consideration of empirical patterns of industrialization and regional growth, with special reference to Frostbelt/Sunbelt shifts and offshore relocation. P/NP or letter grading.

156. Metropolitan Los Angeles. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of origins, growth processes, internal structure and pattern, interactions, environmental and spatial problems of Los Angeles metropolitan area. P/NP or letter grading.

158. Korean Urban Experience. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors with previous coursework in geography or East Asian studies. Study of cities by geographers entails analysis of evolution, functions, spatial patterns, and other geographical problems of urban societies throughout history. Examination of Korean urban experience as found in Seoul, South Korea, along with other cities in both Koreas and overseas where

Korean diaspora resides. Korean experience to be juxtaposed against responses by other cities of world to similar challenges. Geography of housing and associated processes of urban redevelopment whereby built environment is continuously being reproduced and transformed. Current urban debates, as well as topics showing interplay between competing visions of city. P/NP or letter grading.

159A-159E. Problems in Geography. (4 each) Discussion, three hours; reading period, one hour. Preparation: completion of three courses in one concentration. Limited to seniors. Seminar course in which students carry out intensive research projects developed from courses within one concentration. P/NP or letter grading. **159A.** Urban and Regional Development Studies; **159B.** Spatial Demography and Social Processes in Cities; **159C.** Culture and Environment in Modern World; **159D.** Physical Geography; **159E.** Biogeography.

Procedures

162. Glacier Environments of California's High Sierra. (4) Fieldwork, 10 hours; discussion, four hours. Introduction to alpine glacial environment through three hours of introductory lecture followed by intensive seven-day field trip to California's High Sierra. Students carry out laboratory exercises, as well as data collection for research projects designed around their individual interests. Presentation of additional evening lectures, using presentation facilities at Sierra Nevada Aquatic Research Laboratory (SNARL). Offered in summer only. P/NP or letter grading.

163. Field Analysis in Biogeography. (4) Fieldwork, eight hours. Requisites: courses 2, 5, 108, 112. Examination of field procedures and intellectual concepts used in observation, measurement, analysis, and interpretation of phenomena pertinent to biogeography and interrelated human influences. P/NP or letter grading.

166. Environmental Modeling. (4) Lecture, one hour; laboratory, two hours. Presentation of basic concepts related to computer modeling of biogeochemical cycles, geomorphic processes, and other phenomena relevant to changing Earth and its inhabitants. Laboratory exercises include building basic computer models and working with existing models. P/NP or letter grading.

167. Cartography. (4) Lecture, two hours; laboratory, four hours. Enforced requisite: course 7. Designed for juniors/seniors. Survey of field of cartography. Theory and construction of map projections, compilation procedures, principles of generalization, symbolization, terrain representation, lettering, drafting and scribing, and map reproduction methods. P/NP or letter grading.

168. Intermediate Geographic Information Systems. (4) Lecture, two hours; laboratory, two hours. Enforced requisite: course 7. Extension of basic concepts presented in course 7. How geographic and spatial analyses inform, integrate, and extend scientific inquiry in physical, life, and social sciences. Discussion of range of decisions and critical judgments necessary to carry out sound spatial analyses. Development of technical proficiency within geographic information systems (GIS) environment. P/NP or letter grading.

169. Satellite Remote Sensing and Imaging Geographic Information Systems. (4) Lecture, two hours; laboratory, one hour. Enforced requisite: course 7. Introduction to fast-growing field of environmental monitoring from space. Application of Landsat, radar, Global Positioning System (GPS), and Earth Observing System satellites to land-use change, oceanography, meteorology, and environmental monitoring. Introduction to digital image-processing and imaging geographic information systems (GIS) software. P/NP or letter grading.

170. Advanced Geographic Information Systems. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 168. Introduction to full geographic information systems (GIS) functionality, using

ARC/INFO on UNIX workstations. Spatial manipulation, query, and computation of datasets carried out in project-oriented approach. P/NP or letter grading.

M171. Introduction to Spatial Statistics. (4) (Same as Statistics M171.) Lecture, three hours; laboratory, one hour. Requisite: one course from Statistics 10, 11, 12, 13, or 14. Introduction to methods of measurement and interpretation of geographic distributions and associations. P/NP or letter grading.

172. Remote Sensing: Digital Image Processing and Analysis. (4) Lecture, three hours; laboratory, one hour. Enforced requisite: course 169. Digital processing methods for manipulating and analyzing image data. Topics include statistical description, geometric and radiometric correction, classification, image enhancement and filtering, and change detection schemes. Reinforcement of procedures presented in lecture with laboratory exercises and student project. P/NP or letter grading.

173. Geographic Information Systems Programming and Development. (4) Lecture, two hours; laboratory, two hours. Enforced requisite: course 168. Introduction to fundamental concepts and architecture of programming objects in widely used geographic information systems (GIS), and programming in GIS environment. Topics include GIS customization and development using variety of programming languages. Lectures followed by laboratory exercises. P/NP or letter grading.

174. Advanced Remote Sensing. (5) Lecture, three hours; laboratory, two hours. Enforced requisites: courses 169, 172. Remote sensing in visible and infrared wavelength regions to understand basic concepts of radiation propagation and interaction with matter, how digital remote sensing images are acquired, and constraints on available data and data analysis. P/NP or letter grading.

177. Field Methods in Physical Geography. (5) Lecture, three hours; laboratory, three hours. Not open for credit to students with credit for course M127. Examination of field procedures and concepts used in observation, measurement, analysis, and interpretation of physical phenomena pertinent to natural and built environment. Topics vary from year to year and may include soils, geomorphology, and field methods in geographic information science. May be repeated for credit with topic change. P/NP or letter grading.

Regions

180. North America. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Delimitation and analysis of principal geographic regions of U.S. and Canada. P/NP or letter grading.

181. Mexico, Central America, Caribbean. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of geographic factors, physical and cultural, that are basic to understanding historical development of Middle America and contemporary economic and cultural geography of Mexico and countries of Central America and West Indies. P/NP or letter grading.

182A. Spanish South America. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of geographic factors, physical and cultural, that are basic to understanding historical development of Spanish South America and contemporary economic and cultural geography of individual Spanish-speaking countries. P/NP or letter grading.

182B. Brazil. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of geographic factors, physical and cultural, that are basic to understanding historical development of Portuguese South America and contemporary economic and cultural geography of Brazil. P/NP or letter grading.

184. California. (4) Lecture, three hours; reading period, one hour. Limited to juniors/seniors. Systematic and regional treatment of geography of California, including physical, cultural, and economic aspects and detailed studies of various regions. P/NP or letter grading.

185. South and Southeast Asia. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Regional synthesis with varying emphasis on people of South or Southeast Asia in their physical, biotic, and cultural environment and its dynamic transformation. P/NP or letter grading.

186. Contemporary China. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Systematic geographic analysis of elements of landscape, resources, population, and socioeconomic characteristics of People's Republic of China. Dynamics that have led to China's major role in East Asian and international scene, with special attention to China-Japan and Sino-American relations and their geographic bases. P/NP or letter grading.

Special Studies

191. Variable Topics Research Seminars: Geography. (4) Seminar, three hours. Research seminars on selected topics in geography. Some sections may require prior coursework. Consult Schedule of Classes for topics and instructors. May be repeated for credit and may be applied as elective units toward departmental majors and minors. P/NP or letter grading.

194. Research Group Seminars: Geography. (2) Seminar, two hours; research group meeting, two hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May meet concurrently with graduate research seminar. May be repeated for credit with topic change. P/NP grading.

C194A. Research Group Seminars: Issues in Biophysical Geography. (1) Seminar, one hour. Designed for undergraduate students who are part of research group. Bimonthly seminar to discuss current research in biophysical geography. Topics vary from year to year. May be repeated for credit. Concurrently scheduled with course C296A. P/NP grading.

195. Community or Corporate Internships in Geography. (4) Tutorial, four hours. Limited to juniors/seniors. Internship of eight to 10 hours per week in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP grading.

198A-198B. Honors Research in Geography I, II. (4-4) Tutorial, to be arranged. Preparation: 3.25 grade-point average overall, at least five upper division geography courses with 3.5 grade-point average. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of one or two faculty members. May be repeated for maximum of 16 units. Individual contract required. Letter grading.

199. Special Studies. (2 to 8) Tutorial, to be arranged. Limited to juniors with B average in major or seniors. May be repeated for maximum of 16 units. P/NP or letter grading.

Graduate Courses

Environment

200. Advanced Topics in Geomorphology. (4) Lecture, two hours; discussion, one hour; reading period, eight hours. Preparation: two courses from 101, 103, 105, M107. Requisite: course 100. Analysis of geomorphic theories since scientific revolution, with emphasis on catastrophism, uniformitarianism, glacial theories, isostasy and eustasy, evolution and cyclicity, thermodynamics and mechanics, quantification, and current paradigms. View of each theme in its contemporary milieu. S/U or letter grading.

204. Advanced Climatology. (4) (Formerly numbered 204A.) Lecture, three hours; laboratory, one hour. Preparation: first year of calculus and acquaintance with Fortran IV. Requisite: course 104. Introduction to tools and concepts of environmental physics of relevance to natural and man-made landscapes. Such basic intellectual, mathematical, and computer pro-

gramming tools are of special concern to physical geographers, ecologists, and architects. S/U or letter grading.

205. Seminar: Climatology. (4) Seminar, three hours; reading period, one hour. Requisite: course 204. Selected topics. May be repeated for credit. S/U or letter grading.

M206. Introduction to Biophysical Modeling of Land Surface Processes and Land/Atmosphere Interactions. (4) (Same as Atmospheric and Oceanic Sciences M206.) Lecture, two hours; laboratory, one hour; reading period, one hour. Designed for graduate students. Presentation of introductory knowledge for graduate students to understand nature, principles, and scope of biophysical modeling of land surface processes, including ideal canopy model, radiation, heat and CO₂ fluxes transfer, and satellite data application. Laboratory sessions included. S/U or letter grading.

207. Regional Climate and Terrestrial Surface Processes. (4) Seminar, three hours. Designed for graduate students. Physical concepts and basic principles of land-surface/atmosphere interactions. Exploration of topics in terms of regional and global perspective and implications. Human activities cause changes in land cover, which in turn affect regional climate. Some regions, in particular, appear to be hot spots. Regions to be studied in detail. S/U or letter grading.

208. Advanced Topics in Biogeography. (4) Lecture, two hours; discussion, one hour; reading period, one hour. Requisites: courses 108, and 110 or 116. Intensive review and analysis of physical and cultural factors influencing plant distributions. S/U or letter grading.

213. Seminar: Biogeography. (4) Seminar, three hours; reading period, two hours. Requisite: course 208. Related research projects growing out of course 208 or former course 212. May be repeated for credit. S/U or letter grading.

215. Advanced Topics in Environmental Change. (4) Seminar, three hours; reading period, two hours; fieldwork, three hours. Preparation: at least one course from 200 through 205 or one appropriate graduate course in atmospheric and oceanic sciences or Earth, planetary, and space sciences. Analysis of changing physical environment of Quaternary period. May be repeated for credit. S/U or letter grading.

218. Advanced Medical Geography. (4) Lecture, two hours; discussion, one hour; reading period, one hour. Requisite: course 118. In-depth study of selected topics in medical geography and intense review of recent research. S/U or letter grading.

223. Seminar: Humid Tropics. (4) Seminar, three hours; reading period, two hours. Designed for graduate students. Selected topics. Biophysical and cultural complexes of the humid tropics, with emphasis on problems related to human settlement and livelihood. May be repeated for credit. S/U or letter grading.

227. Land Degradation. (4) Seminar, three hours. Discussion on impact of human activities and institutions on terrestrial ecosystems and goods and services they provide. Topics vary from year to year. May be repeated for credit with topic change. S/U or letter grading.

228. Human Security and Environmental Change. (4) Seminar, three hours. Discussion of impact of environmental change on food, water, and physical security of human populations and societies' adaptations to environmental change. Topics vary from year to year. S/U or letter grading.

M229A. Development Theory. (4) (Same as Urban Planning M234A.) Lecture, three hours. Review of basic literature and schools of thought on development theory through analysis of impact of mercantilism, colonialism, capitalism, and socialism on various urban and rural social and economic structures in Third World. Presentation, through evaluation of theoretical writings and case studies, of complexity and diversity of developing countries. Emphasis on linkages between policy and rural and urban impacts.

Gives students important background for courses M229B, M229C, and many other planning courses addressing Third World issues. Letter grading.

M229B. Ecological Issues in Planning. (4) (Same as Urban Planning M234B.) Lecture, three hours. Recommended preparation: Urban Planning M265. Science and politics of modern environmentalism and planning in light of transformations inherent in global change, including how to address these questions in ways that go beyond green consumerism and bifurcation of wild, ecological, and human environments. American environmentalism has become dominant model for many conservation practices. Informed by Muirist model of idea of untrammeled nature with people-less set-asides for spiritual and scientific contemplation of nature; this approach used in environmental policy and as key idea in conservation and fragment biology. At opposite end is environmental planning devoted to infrastructure in hyper-human habitats (cities). Exploration of these competing models and many reasons to be skeptical of both in 21st century. Letter grading.

M229C. Resource-Based Development. (4) (Same as Urban Planning M234C.) Lecture, three hours. Recommended preparation: course M229A. Some major issues associated with development of specific natural resources. Topics include nature of particular resource (or region associated with it), its previous management, involvement of state, corporations, and local groups, and environmental and social impact of its development. Letter grading.

Human Geography

231. Advanced Topics in Economic Geography. (4) Seminar, three hours; reading period, three hours. Designed for graduate students. Advanced study of economic theories and principles S/U or letter grading.

232. Advanced Topics in Cultural Geography. (4) Seminar, two hours; discussion, one hour; reading period, one hour. Requisite: course 133. Lectures and discussions around specific aspects of development of cultural landscape in different geographic environments. S/U or letter grading.

233. Seminar: Cultural Geography. (4) Seminar, three hours; reading period, two hours. Discussions on particular topics in cultural geography. Content may vary from year to year. May be repeated for credit. S/U or letter grading.

235. Seminar: Social Geography. (4) Seminar, three hours; reading period, one hour. Process of doing social/cultural geography entails conceptualizing, adapting, and reformulating social and critical theories of space, subject, and power. Examination of this process by considering theoretical themes that shape concepts of social space and social research. Theoretical discussions of recent research in social/cultural geography, particularly around topics of gender, race sexuality, subjects and spatiality resistance and agenda, and social difference and identity. S/U or letter grading.

M236A. Theories of Regional Economic Development I. (4) (Same as Public Policy M240 and Urban Planning M236A.) Lecture, three hours; discussion, one hour. Introduction to theories of location of economic activity, trade, and other forms of contact between regions, process of regional growth and decline, reasons for different levels of economic development, relations between more and less developed regions. Letter grading.

M236B. Globalization and Regional Development. (4) (Same as Urban Planning M236B.) Lecture, three hours. Requisite: course M236A. Application of theories of regional economic development, location, and trade learned in course M236A to contemporary process known as globalization. Examination of nature and effects of globalization on development, employment, and social structure, along with implications for policy. Letter grading.

237. Seminar: Historical Geography. (4) Seminar, three hours; reading period, two hours. Theory and practice of historical geography in North America and Europe. May be repeated for credit. S/U or letter grading.

240. Advanced Political Geography: Geopolitics. (4) Lecture, two hours; discussion, one hour; reading period, one hour. Intensive study of theories and principles of geopolitics. Selected regions used as examples of differing techniques of study in geopolitics. S/U or letter grading.

M241. Seminar: Political Geography of Italy. (4) (Same as Italian M241.) Seminar, three hours; reading period, two hours. Themes in political geography with particular emphasis on Italy. May be repeated for credit. S/U or letter grading.

242. Advanced Population Geography. (4) Lecture, three hours; reading period, one hour. Requisite: course 142. Study of population dynamics and migration, spatial variation in population composition, and population resource problems, diffusion, and epidemiology. S/U or letter grading.

M243. International Migration. (4) (Same as Sociology M236B.) Lecture, three hours. Further exploration of key current theoretical debates in study of international migration, with emphasis on exploring both theoretical debates of field and empirical data and case studies on which those debates hinge, to encourage students to undertake research in field. S/U or letter grading.

250. Advanced Topics in Urban Geography. (4) Seminar, two hours; discussion, one hour; reading period, one hour. General study of hierarchy of urban places, including diffusion within urban hierarchy and theories to account for location and size distribution of cities. S/U or letter grading.

251. Seminar: Urban Geography. (4) Seminar, three hours; reading period, two hours. Requisite: course 250. Related research projects growing out of course 250. May be repeated for credit. S/U or letter grading.

Procedures

260. Advanced Field and Laboratory Methods in Biophysical Geography. (4) Laboratory, five hours; fieldwork, five hours. Examination of advanced field and laboratory procedures used in contemporary biophysical geography research. May be repeated for credit with instructor change. S/U or letter grading.

262. Advanced Field Analysis: Biogeography. (8) Fieldwork, 10 hours. Observation, measurement, and analysis of biogeographic phenomena, including identification and evaluation of biotic populations and communities and their modifications resulting from impact of human activity. S/U or letter grading.

M265. Environmentalisms. (4) (Same as Urban Planning M265.) Lecture, three hours; discussion, one hour. Review of environmental theories and their practices in dynamic U.S. and international contexts. Issues of climate change, scenario planning, and matrix ecology and its implications in both urban and rural settings. Exploration of problematics of increasing internationalization (or international implications) of environmental practices as part of both green and black economies. What does integrated environmental planning look like in this century? Letter grading.

268. Advanced Projects in Geographic Information Systems (GIS)/Remote Sensing. (4) Lecture, one hour; laboratory, three hours. Recommended requisite: course 169 or 170 or Earth, Planetary, and Space Sciences 150. Familiarity with GIS or image processing package expected. Individualized research projects conducted on UNIX platforms within structured course environment. All aspects of modest but original project, including data acquisition, ingestion, and analysis; interpretation of results and presentation in publication-style format. Letter grading.

M270A-M270B-M270C. Seminars: Climate Dynamics. (2 to 4 each) (Same as Atmospheric and Oceanic Sciences M272A-M272B-M272C and Earth, Planetary, and Space Sciences M270A-M270B-M270C.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout geological past. Rheology and dynamics of climatic subsystems: atmosphere and oceans, ice sheets and marine ice, lithosphere and mantle. Climate of other planets. Modeling, simu-

lation, and prediction of modern climate on monthly, seasonal, and interannual time scale. May be repeated for credit. S/U or letter grading.

M272. Spatial Statistics. (4) (Same as Statistics M222 and Urban Planning M215.) Lecture, three hours. Designed for graduate students. Survey of modern methods used in analysis of spatial data. Implementation of various techniques using real data sets from diverse fields, including neuroimaging, geography, seismology, demography, and environmental sciences. S/U or letter grading.

277. Coastal Geography. (4) Seminar, three hours. Discussion of various coastal topics from biophysical, ecological, and human perspectives. Content may vary from year to year. May be repeated for credit. S/U or letter grading.

Regions

282. South America. (4) Seminar, three hours; reading period, two hours. Introduction to main issues in geography of South America, with focus mainly on cultural/historical geographical perspectives on national period; themes and periods can be adapted to individual interests. S/U or letter grading.

286. Geography of Contemporary China. (4) Seminar, three hours; reading period, two hours. Designed for graduate students. May be repeated for credit. S/U or letter grading.

292. Advanced Regional Geography: Selected Regions. (4) Lecture, three hours; discussion, one hour. Preparation: appropriate upper division regional course. Lecture series devoted to one specific region at discretion of instructor. May be repeated for credit. S/U or letter grading.

Seminars

295. Seminar: Geographic Thought. (4) Seminar, three hours; reading period, two hours. Designed for graduate students. Discussion and study of topics significant to growth of modern philosophy of geography. S/U or letter grading.

C296A. Research Group Seminars: Issues in Biophysical Geography. (1) Seminar, one hour. Bi-monthly seminar to discuss current research in biophysical geography. Topics vary from year to year. May be repeated for credit. Concurrently scheduled with course C194A. S/U grading.

296B. Cultural Geography Methods Workshop. (1) Seminar, two hours. Biweekly forum for presentation and discussion of new concepts, theories, and methods at juncture of geography, humanities, and environmental study. Principal focus on landscape, but scope of cultural study within geography also embraced. S/U grading.

296C. Political Geography Working Group. (1) Seminar, two hours. Limited to graduate students. Bi-weekly forum for analysis of current geopolitics, with emphasis on geographic impacts of recent global events. S/U grading.

296D. Agriculture and Food Studies Colloquium. (1) Seminar, one hour. Current scholarly debates surrounding topics on agriculture and food. Interdisciplinary discussion, with focus on research that explores confluence of production and consumption studies vis-à-vis agriculture and food. Group discussion of recently published work, works-in-progress by participants, and distinguished guest speakers. S/U grading.

296E. Research Group Seminars: Issues in Human Geography. (1) Seminar, one hour. Bimonthly seminar to discuss current research in human geography. Topics vary from year to year. May be repeated for credit. S/U grading.

Core Courses

297A. History and Structure of Modern Geography. (4) Lecture, three hours; reading period, one hour. Evolution of field of geography in 19th and 20th centuries, with emphasis on professionalization of geography and its emergence as modern academic discipline. S/U or letter grading.

297B. Physical Basis of Geography. (4) Lecture, three hours; reading period, one hour. Critical evaluation of formative influences, paradigm shifts, and present challenges of physical geography, illustrated from historical developments and changing research frontiers in geomorphology, climatology, oceanography, hydrology, and soils. S/U or letter grading.

297C. Evolution, Ecology, Environmentalism, and Roots of Modern American Geography. (4) Seminar, three hours; reading period, one hour. Discussion of how contemporaneous development of modern concepts of evolution, ecology, and environmentalism influenced, and were influenced by, development of modern geography as academic discipline. S/U or letter grading.

298A. Seminar: Geographical Inquiry. (1) Seminar, one hour. Discussion of geographical research within context of philosophical debates concerning nature of scientific inquiry. S/U grading.

299A. Statistical Methods for Geographic Research. (4) Lecture, three hours; laboratory, two hours. Requisite: course M171. Use of linear models, discriminant functions, and factor analysis to analyze problems in geography. S/U or letter grading.

299B. Geographic Data Visualization and Analysis. (4) Lecture, three hours; laboratory, two hours. Requisites: course 168, Statistics 12. Development of broad base of knowledge and set of skills that foster conduct of high-quality geographic data analysis. S/U or letter grading.

299C. Qualitative Methods and Methodology. (4) Seminar, three hours; laboratory, two hours. Examination of definition and use of qualitative methodology and methods in social-cultural geographic research. Exploration of relationship between methodology and epistemology; review of range of research methods and techniques, including interviewing and focus groups, observation, action research, ethnography, and interpretation of material culture, and consideration of ethical and practical issues of conducting qualitative research. S/U or letter grading.

299D. Research Design in Geography. (4) Lecture, four hours. Introduction to logic of geographic inquiry. Topics include questions surrounding philosophy of science, research design issues, and range of methodologies available to and implemented by geographers to enable students to evaluate geographic literature critically. S/U or letter grading.

299E. Remote Sensing of Environment. (4) Laboratory, three hours; independent study, two hours. Requisite: course 167. Study of aerial photographs and other remote sensing images as tools for geographical research. Particular attention to analysis of landscapes and interpretation of interrelationships of individual features in their physical and cultural complex. S/U or letter grading.

299F. Physical, Mathematical, and Computational Basis of Remote Sensing. (5) Lecture, three hours; laboratory, two hours. Enforced requisites: courses 169, 172. Intensive review and analysis of fundamental physics, mathematics, and computer science that underlie modern remote sensing and application of this knowledge to modern geographical problems. May be repeated for credit with topic change. S/U or letter grading.

Special Studies

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching College Geography. (2) Seminar, one hour; laboratory, three hours. Classroom practice in teaching, with individual and group instruction on related educational methods, materials, and evaluation. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U grading.

597. Preparation for PhD Qualifying Examinations. (2 to 8) Tutorial, to be arranged. Independent study. May be repeated for credit. S/U grading.

598. Research for and Preparation of MA Thesis. (2 to 8) Tutorial, to be arranged. Independent study. May be repeated for credit. S/U grading.

599. Research for and Preparation of PhD Dissertation. (2 to 12) Tutorial, to be arranged. Independent study. May be repeated for credit. S/U grading.

GERMANIC LANGUAGES

College of Letters and Science

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Robert S. Kirsner, PhD
James A. Schultz, PhD

Associate Professor

Christopher M. Stevens, PhD

Assistant Professor

David D. Kim, PhD

Lecturer

Magdalena Tarnawska Senel, PhD

Scope and Objectives

The Department of Germanic Languages offers an array of courses in languages, literatures, and cultures. The broad range of studies offers training in specialized fields such as film, linguistics, and critical theory. Courses prepare students for a variety of careers, including education, law, business, international relations, and publishing.

Undergraduate majors earn a Bachelor of Arts degree by completing one of three plans. An undergraduate minor is also available. Language, literature, and culture studies are available in Afrikaans and Dutch, in addition to German.

The graduate program offers Master of Arts and PhD degrees. Refer to the Scandinavian Section later in this catalog for information about the degrees in Scandinavian studies.

The program also provides opportunity for study, workstudy, and internships.

Undergraduate Study

The German major is a designated capstone major. During their senior year, students com-

plete a capstone seminar under the guidance of a faculty member. In the seminar they reflect both individually and collaboratively on prior coursework for the major and draw out common themes. Students identify key ideas that interest them while demonstrating analytical thinking, synthesized knowledge, collaborative spirit, and a keen awareness of the German language and German-speaking cultures.

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in Afrikaans, Dutch, German, and Yiddish grammar and/or composition.

German BA

Capstone Major

Preparation for the Major

Required: German 1, 2, 3, 4, 5, 6, or equivalent. Students who have completed one year of college-level German language courses should enroll in course 4. Students who are in doubt as to their level of language proficiency or who are native speakers should consult the language program supervisor.

Transfer Students

Transfer applicants to the German major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of German.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Three plans are offered by the department:

Plan I: German Studies

Required: Six upper division German courses, three upper division elective courses in fields relevant to Germanic languages to be selected in consultation with the director of undergraduate studies, and German 191C. Each course must be taken for a letter grade.

Plan II: Germanic Language and Literature

Required: German 140, 141 (or C142), 152, 153 (or 158), 191C, and six upper division German courses, two of which may be from outside the department with approval of the director of undergraduate studies. Each course must be taken for a letter grade.

Plan III: Germanic Linguistics

Required: German 140, 141, C142, 152, 153, 191C, one upper division elective course in the department, and three upper division elective courses in fields relevant to Germanic languages to be selected in consultation with the director of undergraduate studies.

Honors Program

To qualify for graduation with departmental honors, students must earn a cumulative grade-point average of 3.6 or better in upper division German courses and a 3.3 overall GPA, and complete German 199 with a grade of A. Contact the departmental honors adviser

for procedures, special arrangements, possible exceptions, and other information.

German Minor

To enter the German minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (8 units): German 5 and 6 or equivalent.

Required Upper Division Courses (at least 20 units): Any five upper division courses in the department.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Germanic Languages offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Germanic Languages and a Master of Arts (MA) degree in Scandinavian (see Scandinavian Section).

Afrikaans

Lower Division Course

40. From Oppressed to Oppressor and Beyond: Literature in Afrikaans from Preapartheid to Postapartheid Era in English Translation. (5) Lecture, four hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H. Development of all literature in Afrikaans, with special attention to authors and poets who protested apartheid—Brink, Breytenbach, Van Heerden, Jonker, Joubert, Krige, Krog, Leroux, Rabie, Small, and Willems. Additional readings by Coetzee, De Lange, Krog, and others on censorship, imprisonment, South African history, and postcolonial literary theory. P/NP or letter grading.

Upper Division Courses

105A. Elementary Afrikaans. (4) Lecture, four hours; language laboratory. Introduction to sister language of modern Dutch and one national language of South Africa. Grammar, practice in listening, speaking, reading, and writing. P/NP or letter grading.

105B. Intermediate Afrikaans. (4) Lecture, four hours; language laboratory. Requisite: course 105A. Grammatical exercises; reading and linguistic analysis of texts from both literary and nonliterary sources. P/NP or letter grading.

135. Introduction to Afrikaans Literature. (4) Discussion, three hours. Requisite: course 105B. Analysis of selected works from founding of Genootskap van Regte Afrikaners in 1875 to present time, in-

cluding novels by recent writers such as Leroux and Brink, as well as work of poets such as Eybers, Opperman, W.E.G. Louw, Van Wyk Louw, and Breytenbach. P/NP or letter grading.

199. Directed Research or Senior Project in Afrikaans. (4) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

596. Directed Individual Study or Research in Afrikaans. (4) Tutorial, to be arranged with faculty member who directs study or research (course section to be identified by two-letter code using initials of sponsoring instructor—see department for ID number). May be repeated once. S/U grading.

597. Preparation for PhD Qualifying Examinations. (4) Tutorial, to be arranged with instructor (see department for ID number). S/U grading.

Dutch

Lower Division Course

10. Contemporary Dutch Society and Culture: Beyond Rembrandt, Cheese, and Wooden Shoes. (5) Lecture, three hours. Lectures and readings in English. Country known as Holland, or more correctly, The Netherlands (in Dutch: Nederland) has played crucial role in both American history and American current events. It was first country to set up official diplomatic relations with U.S. (in 1782) and is major investor in U.S. and staunch ally of its foreign policy. Piercing of tourist aura surrounding The Netherlands by actively comparing and contrasting contemporary Dutch culture and society with contemporary American culture and society. How life would be different growing up in The Netherlands. Letter grading.

Upper Division Courses

103A-103B. Elementary Dutch. (4-4) Lecture, four hours; language laboratory. Course 103A is requisite to 103B. Introduction to standard language of Netherlands and one of three standard languages of Belgium. Practice in grammar, listening, speaking, reading, and writing. P/NP or letter grading.

103C. Intermediate Dutch. (4) Lecture, four hours; language laboratory. Requisite: course 103B. Grammatical exercises, conversation, reading and analysis of simple texts. P/NP or letter grading.

104A-104B. Accelerated Dutch. (6-6) Lecture, four hours; discussion, one hour; laboratory, two hours. Covers material in courses 103A, 103B, 103C in two terms rather than three. Letter grading.

113. Modern Dutch and Flemish Literature in Translation. (4) Lecture, three hours. Readings and analysis of works by selected authors of Netherlands and northern (Flemish) Belgium such as Boon, Claus, Couperus, Hermans, Mulisch, Multatuli, and Reve and selected poets such as Campert, Gezelle, Gorter, Kloos, Lucebert, Nijhoff, Van Ostaijen, and Vroman. Letter grading.

120. Introduction to Dutch Studies. (4) Lecture, three hours. Brief review of Dutch grammar. Reading and discussion of selections from contemporary Dutch literature, contemporary Dutch literary criticism, and modern Dutch linguistics. Emphasis on developing reading skill and on acquiring familiarity with and appreciation of scope of 20th-century Nederlandstiek. P/NP or letter grading.

131. Introduction to Modern Dutch Literature. (4) Discussion, three hours. Requisite: course 103B or 120. Selected works of literature of Netherlands and northern (Flemish) Belgium from mid-1850s to present, including novels by such writers as Multatuli, Couperus, Hermans, Mulisch, and Reve and poetry by such groups as symbolist Beweging van Tachtig and post-War Beweging van Vijftig. P/NP or letter grading.

199. Directed Research or Senior Project in Dutch. (4) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

596. Directed Individual Study or Research in Dutch. (4) Tutorial, to be arranged with faculty member who directs study or research (course section to be identified by two-letter code using initials of sponsoring instructor—see department for ID number). May be repeated once. S/U grading.

597. Preparation for PhD Qualifying Examinations. (4) Tutorial, to be arranged with faculty member who directs study (see department for ID number). S/U grading.

German

Lower Division Courses

1. Elementary German. (4) Lecture, five hours; laboratory, one hour. P/NP or letter grading.

1G. Elementary German for Graduate Students. (4) Lecture, four hours. Preparation for Graduate Division foreign language reading requirement. May not be applied toward degree requirements. S/U grading.

2. Elementary German. (4) Lecture, five hours; laboratory, one hour. Enforced requisite: course 1. P/NP or letter grading.

2G. Elementary German for Graduate Students. (4) Lecture, four hours. Enforced requisite: course 1G. Preparation for Graduate Division foreign language reading requirement. May not be applied toward degree requirements. S/U grading.

3. Elementary German. (4) Lecture, five hours; laboratory, one hour. Enforced requisite: course 2. P/NP or letter grading.

4. Intermediate German. (4) Lecture, five hours; laboratory, one hour. Enforced requisite: course 3. P/NP or letter grading.

5. Intermediate German. (4) Lecture, four hours; laboratory, one hour. Enforced requisite: course 4. P/NP or letter grading.

6. Intermediate German. (4) Lecture, four hours; laboratory, one hour. Enforced requisite: course 5. P/NP or letter grading.

8. Elementary German: Intensive. (12) Lecture, 15 hours; laboratory, five hours. Intensive basic course in German equivalent to courses 1, 2, and 3. P/NP or letter grading.

50A-50B. Great Works of German Literature in Translation. (4-5) Lecture. May not be applied toward completion of major in German. P/NP or letter grading:

50A. Medieval Period through Classicism. (4) Lecture, three hours. Study and analysis of selected masterworks in English translation, including works from earliest period, such as heroic and courtly epic, to authors such as Grimmelshausen, Lessing, Schiller, and Goethe. P/NP or letter grading.

50B. Romanticism to Present. (5) Lecture, three hours; discussion, one hour. Study and analysis of selected masterworks in English translation, including authors such as E.T.A. Hoffmann, Heine, Fontane, Rilke, Kafka, Brecht, Thomas Mann, Hesse, Grass, Böll, and Christa Wolf. P/NP or letter grading.

56. Figures Who Changed World. (5) Lecture, three hours; discussion, one hour. Introduction to strains of German philosophy and political thought that resonated internationally. Use of version of “great man” model of history to move beyond such models in its understanding of how, exactly, intellectual currents actually ferment change in world. P/NP or letter grading.

57. Hollywood and Germany. (5) Lecture/screenings, five hours; discussion, one hour. Examination of images of Germany generated by Hollywood, cultural/

historical interface between Hollywood and Germany, and contemporary critiques of long-standing relationship between these cultural sites. Discussion of how and why cultural stereotypes are generated and maintained, and why film is a uniquely powerful tool in ideological discourse. P/NP or letter grading.

58. Knights and Ladies, Sex and Power at Medieval Court. (5) Lecture, three hours; discussion, one hour. Introduction to culture of high medieval court, one of great achievements of European Middle Ages. P/NP or letter grading.

59. Holocaust in Film and Literature. (5) Lecture/screenings, five hours; discussion, one hour. History of Holocaust and its present memory through examination of challenges and problems encountered in trying to imagine its horror through media of literature and film. P/NP or letter grading.

60W. War. (5) Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Reflection on cultural history of war—on its significance from anthropological, cultural, and philosophical perspectives rather than from perspective of political and historical gains and losses. Emphasis on World War I, war in which political and military confrontation seemed particularly attuned to sense of confrontationalism and scandal in cultural life. Satisfies Writing II requirement. Letter grading.

61A. Modern Metropolis: Berlin. (5) Lecture, three hours; discussion, one hour. Cultural, political, architectural, and urban history of one of most vibrant and significant cities in world. Exploration of city over 800 years, using innovative mapping tools to understand how Berlin evolved from fortified mercantile town into global city. P/NP or letter grading.

61B-61C-61D. Modern Metropolis. (5 each) Lecture, three hours; discussion, one hour. Historical exploration of major Central European cities and their cultures. P/NP or letter grading. **61B.** Weimar; **61C.** Vienna; **61D.** Prague.

M70. Origin of Language. (5) (Same as Communication Studies M70 and Indo-European Studies M70.) Lecture, three hours; discussion, one hour. Theoretical and methodological issues surrounding origin of language. Topics include evolutionary theory, evolution of man, how language is organized in brain, and science of language, including physiology of speech, phonetics, and comparative reconstruction. Letter grading.

88. Lower Division Seminar. (4) Seminar, three hours. Course of variable content limited to topics of current interest and offered whenever staff member is available. P/NP or letter grading.

Upper Division Courses

102. War, Politics, Art. (5) Lecture, three hours; discussion, one hour. Taught in English. Analysis of interrelationship between politics, social conditions, and arts with respect to war. World Wars I and II and German history to be used as model for principal questions of society and philosophical thinking. P/NP or letter grading.

103. German Film in Cultural Context: Early German Film. (4) Lecture, two hours; discussion, one hour. Taught in English. Survey of German film between 1919 and 1945. Analysis of technological and stylistic development of film from silent Expressionist films to Nazi propaganda and entertainment films. Film discussions enhanced by interactive media. Letter grading.

104. German Film in Cultural Context, 1945 to Present. (4) Lecture, two hours; discussion, one hour. Taught in English. Survey of German film since 1945 in its thematic and stylistic diversity. How did German filmmakers grapple with aftermath of World War II and Holocaust, economic recovery, Cold War and division of Germany, reunification, and growth of minority communities? Film discussions enhanced by interactive media. Letter grading.

M105. Tristan, Isolde, and History of Heterosexuality. (4) (Same as Gender Studies M119.) Lecture, three hours. Taught in English. German, French, and English versions of Tristan and Isolde story from Middle Ages to 20th century. Particular attention to relation between representation of heterosexual love in each text and contemporaneous ideas about human sexuality. P/NP or letter grading.

109. Jewish Question and German Thought. (4) Lecture, three hours. Taught in English. Analysis of works that represent process of Jewish assimilation, disenfranchisement, and extermination, including authors such as Mendelssohn, Heine, Kafka, Paul Celan, Nelly Sachs, Anne Frank, and others. Letter grading.

110. Special Topics in Modern Literature and Culture. (4) Lecture, three hours. Taught in English. Content varies with instructor and may include works by authors such as Thomas Mann, Rilke, Kafka, Brecht, Christa Wolf, and others. May be repeated for credit. Letter grading.

111. Thomas Mann, Hesse, Böll, and Grass: German Nobel Prize Winners in English. (4) Lecture, three hours. Taught in English. Survey of Nobel Prize-winning German texts with eye for degree to which these authors' visions reflect Nobel's ideals of peace and progress of human race. Texts include *Weavers* (Hauptmann), excerpts from *Buddenbrooks* (Mann), and *Siddharta* (Hesse). Viewing of films based on *Lost Honor of Katharina Blum* and *Tin Drum*. Letter grading.

112. Feminist Issues in German Literature and Culture. (4) Lecture, three hours. Taught in English. Analysis of major issues in German feminism today (e.g., status, creative work, and reception of women writers in various periods such as Romanticism, Fascism, and/or divided/unified Germanies). Letter grading.

113. German Folklore. (4) Lecture, three hours. Taught in English. Survey of various folklore genres in cultural context, including legends, proverbs, and cultural enactments such as carnival. Letter grading.

114. Fairy Tales and Fantastic. (5) Lecture, three hours; discussion, one hour. Taught in English. History and reception of folklore collections in Europe, with particular attention to ideology and influence of Grimms' tales. Interpretation of selected tales and their transformations and appropriation in literature, film, advertising, and pedagogy. P/NP or letter grading.

115. 19th-Century German Philosophy. (4) Lecture, three hours; discussion, one hour. Taught in English. German philosophy, which may generally be characterized as philosophy that takes activity rather than passive subsistence to be fundamental nature of all things, is one of Germany's greatest gifts to humanity. Exploration of first half of two-century history of German philosophy—period from Kant to Nietzsche, including Hegel, Kierkegaard, and Marx. Letter grading.

116. 20th-Century German Philosophy. (4) Lecture, three hours; discussion, one hour. Taught in English. German philosophy, which may generally be characterized as philosophy that takes activity rather than passive subsistence to be fundamental nature of all things, is one of Germany's greatest gifts to humanity. Exploration of second half of two-century history of German philosophy—period from Nietzsche through Habermas, including Heidegger, Gadamer, Jaspers, and Frankfurt School theorists. Letter grading.

117. German Exile Culture in Los Angeles. (4) Lecture, three hours. Taught in English. Cultural and historical exploration of exile as site of creative activity for German writers and other artists during and after World War II. General questions of cultural migration and cultural transfer to be thematized. P/NP or letter grading.

118L. Between Memory and History: Interviewing Holocaust Survivors. (4) Seminar, two hours; fieldwork, two hours. Strongly recommended requisites: prior European and Holocaust history courses. Examination of historical value of eyewitness testimony of Holocaust through unique service opportunities that bring students together with survivors. Question of

testimony approached from number of perspectives, including legal, historical, and ethical, to examine vexed relationship between history and memory. Examination of survivor testimony through classic memoirs in field, such as Primo Levi's *The Drowned and the Saved* and Ruth Kluger's *Still Alive*. Through collaboration with Jewish Family Services, 1939 Club, and Los Angeles Museum of Holocaust, students meet and work with Holocaust survivors and undertake collaborative research projects and oral histories. Students also research and curate series of interactive tours through Museum of Holocaust. Letter grading.

140. Language and Linguistics. (4) Lecture, three hours. Enforced requisite or corequisite: course 6. Taught in English with German proficiency required. Theories and methods of linguistics, with emphasis on structure of modern standard German, its phonology, morphology, syntax, semantics, and pragmatics. Other topics include diachronic, spatial, and social variation of German (i.e., its historical development, dialectology, and sociolinguistic dimensions). Letter grading.

141. Current Topics in Germanic Linguistics. (4) Lecture, three hours. Enforced requisite: course 152. Taught in English with German proficiency required. In-depth investigation of one topic in field of Germanic linguistics, such as phonetics and phonology, morphology and syntax, semantics and pragmatics, social and spatial variation (i.e., sociolinguistics and dialectology of German), or history of German. May be repeated for credit. Letter grading.

C142. Linguistic Theory and Grammatical Description. (4) Lecture, three hours. Enforced requisite: course 140 or Linguistics 20. Taught in English with German proficiency required. Problems in structure of Dutch and German, considered from theoretical frameworks such as sign-oriented linguistics, functional linguistics, discourse grammar, and cognitive linguistics. Discussion of formal linguistic approaches. Concurrently scheduled with course C238. Letter grading.

150. German Play Production Act I. (5) Lecture, four hours. Enforced requisite: course 3. Taught in German. Introduction to four German plays (readings variable) and to different types of drama and drama theory. Reading, discussion, and analysis of plays in detail, practice in performing roles in class, and writing of short responses in German. May be repeated for credit. Letter grading.

151. German Play Production Act II. (5) Lecture, four hours. Requisites: courses 3 (enforced), 150. Taught in German. Staging of German play. Students responsible for various aspects of theater production, including acting and technical jobs (costumes, sets, and programs). Intensive pronunciation practice. Two public performances take place at end of term. May be repeated for credit. Letter grading.

152. Conversation and Composition on Contemporary German Culture and Society I. (4) Lecture, three hours. Requisite: course 6. Taught in German. Structured around themes as they emerge in contemporary German texts ranging from news magazine articles to literature, with emphasis on speaking and writing proficiency. Presentation software featured. P/NP or letter grading.

153. Conversation and Composition on Contemporary German Culture and Society II. (4) Lecture, three hours. Requisite: course 6. Taught in German. Structured around themes as they emerge in contemporary German texts ranging from news magazine articles to literature, with emphasis on speaking and writing proficiency. Presentation software featured. P/NP or letter grading.

154. Business German. (4) Lecture, three hours. Requisite: course 6. Taught in German. Specialized language course that teaches German business administration, practices, and correspondence, with attention to cultural nuances. Ongoing developments in European Union analyzed via newspaper articles and Internet. P/NP or letter grading.

155. Advanced German Language through Cultural History and Current Affairs. (4) Lecture, three hours. Requisites: courses 152, 153. Taught in German. Advanced German language course that juxtaposes cultural history with current affairs to teach complex speaking and writing skills of interpretation, analysis, and criticism. Readings may include selections from Luther, Heine, Freud, and current authors. Students create their own interactive media presentations. Letter grading.

157. Contemporary German Cinema: Advanced Conversation and Composition. (4) Lecture, three hours. Taught in German. Development of advanced speaking skills and thorough grounding in essay writing in German by considering issues of style, structure, grammar, and vocabulary. Introduction to contemporary German cinema to expose students to slice of German (and European) culture and history, with focus on notion of boundary. Examination of different types of boundaries and borders (e.g., physical borders between countries; boundaries created by various political ideologies; socially created boundaries of class, race, and gender; boundary between memory and experience), ways in which people cross them, and their reasons for these transgressions. Analysis of movies to better understand various cinematic techniques. P/NP or letter grading.

158. Introduction to Study of Literature. (4) Lecture, three hours. Taught in German. Introduction to most important terms and resources of literary analysis to help students develop and improve skills in close and critical reading of literary texts, develop basic research techniques, acquire familiarity with basics of literary and cultural analysis, and find pleasure in pursuit of literary and cultural study. Letter grading.

159. German Cultural Studies. (4) Lecture, three hours. Requisite: course 152 or 153. Taught in German; some theoretical readings in English. Exploration of German culture in different historical contexts. Examination of various cultural spaces, practices, and standpoints as staged in literary and nonliterary texts, with emphasis on constructions of sex and gender, memory and national identity, and ethnicity and race. Analysis of ways of seeing, thinking, and talking about these issues as manifested in several cultural debates that dominated public discussions in Germany (and Europe) for several weeks, months, or even years (e.g., debates about admission of women to universities at end of 19th century, reconstructing/preserving sites of memory in postwar Germany, and headscarf and integration in contemporary Germany). Letter grading.

160. Introduction to German Poetry. (4) Lecture, three hours. Requisite: course 152 or 153. Taught in German. Close reading of representative examples of German lyric poetry from early as well as recent literary periods, including systematic consideration of poetic conventions and forms, diction, imagery, symbolism, and metrics. Letter grading.

161. Introduction to German Drama. (4) Lecture, three hours. Requisite: course 152 or 153. Taught in German. Analysis of selected dramatic genres (e.g., tragedy, comedy, one-act play, lyric drama, lyric theater, historical drama, etc.), including systematic review of dramatic forms, techniques, and theories. Texts selected from both contemporary and earlier periods. Letter grading.

162. Introduction to German Narrative Prose. (4) Lecture, three hours. Requisite: course 152 or 153. Taught in German. Analysis of narrative prose genres (e.g., short story, novella, fairy tales, etc.), including systematic review of narrative forms, techniques, and styles. Texts selected from both contemporary and earlier periods. Letter grading.

163. Project of Enlightenment. (4) Lecture, three hours. Requisite: course 152 or 153. Taught in German. Topics in Enlightenment literature, social history, and culture. Works by Goethe, Lessing, Schiller, Kant, Mozart, and others. Letter grading.

164. Introduction to 19th-Century Studies. (4) Lecture, three hours. Requisite: course 152 or 153. Taught in German. Presentation of major texts from Romanticism to realism. Works by Kleist, Büchner, Heine, Fontane, and others. Letter grading.

165. Introduction to Modern Literature. (4) Lecture, three hours. Requisite: course 152 or 153. Taught in German. Analysis of selected modern works written between 1890 and 1945, including texts by authors such as Thomas Mann, Kafka, Rilke, Brecht, and others. Letter grading.

166. Introduction to Contemporary Literature. (4) Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Analysis and discussion of German, Austrian, Swiss, and ex-GDR literatures from 1945 to present. Examination of writers such as Heinrich Böll, Günther Grass, Friedrich Dürrenmatt, Elfriede Jelinek, and Christa Wolf with view to their specific political and cultural context. Letter grading.

169. Studies in German Literature before 1750. (4) Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Readings and analysis of major works from Middle Ages to baroque. Letter grading.

170. Goethe. (4) Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Reading and discussion of representative works (except *Faust*) from Goethe's early period through maturity and old age. Letter grading.

171. Goethe's *Faust*. (4) Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Detailed interpretation of Goethe's major work, Parts I and II, together with general consideration of other treatments of *Faust* theme in European literature. Letter grading.

172. Romanticism. (4) Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Reading and analysis of major works by German Romantics, including Friedrich Schlegel, Novalis, E.T.A. Hoffmann, and Eichendorff. Letter grading.

173. Advanced Study of Modern Literature. (4) Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Naturalism, Expressionism, and other early 20th-century literary movements and works. Letter grading.

174. Advanced Study of Contemporary Literature and Culture. (4) Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Literature after 1945 in German-speaking countries, including issues such as national borders, ethnic identity, gender relations, and commercialization of culture. Letter grading.

175. Intercultural Germany: Literature, Politics, Migration, and Culture. (4) Lecture, three hours. Taught in German. Most readings in German; some theoretical readings in English. Exploration of issues surrounding immigration and intercultural identity in Germany since 1960, with focus on period after 1990. Examination of various cultural spaces, practices, and standpoints as staged in literary and nonliterary texts, with emphasis on constructions of ethnicity, nation, race, class, and gender. Analysis of several political and cultural debates that dominated media and public discussions in Germany and Europe for several weeks. Discussion of several literary texts by Turkish German and other minority/intercultural writers. Examination of hip-hop minority music and culture as voices in political debates. Exploration of contemporary controversies around Islam in Germany. Reading of several theoretical pieces that examine relationships between immigration, globalization, culture, and identity. P/NP or letter grading.

187. Undergraduate Seminar. (4) Seminar, three hours. Required of all German majors who are candidates for general secondary instructional credential. Content varies by instructor and may include advanced work in folklore, film, and German studies. Letter grading.

191A. Variable Topics Research Seminars: German. (4) Seminar, three hours. Requisite: course 6. Taught in German. Research seminars on topics to be announced each term. Topics include major writers,

genres, cultural movements, or theoretical practices. May be repeated for credit with consent of major adviser. P/NP or letter grading.

191C. Capstone Seminar. (2) Seminar, three hours. Limited to senior German majors. Collaborative discussion of and reflection on courses already taken for major, drawing out and synthesizing larger themes and culminating in paper or other final project. Must be taken in conjunction with one course numbered 140 or higher. Letter grading.

197. Individual Studies in German. (2 to 4) Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in German. (4) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

201C. Theories of Literary Interpretation. (4) Lecture, three hours. Advanced analysis and discussion of various models of literary interpretation and schools of thought such as hermeneutics, psychoanalytic criticism, social historical approaches, semiotics, structuralism, and poststructuralism. Topics vary with instructor. Letter grading.

202A. Middle High German. (4) Lecture, three hours. Introduction to Middle High German language, with particular emphasis on developing facility in reading. Study of grammar, syntax, and vocabulary combined with introduction to poetic forms and cultural context. Letter grading.

202B. Readings in Middle High German Literature. (4) Lecture, three hours. Introduction to medieval German literature and literary history and to use of contemporary theory in study of medieval texts. Continued practice in reading Middle High German, although most texts to be read in modern translation. Letter grading.

204. Early Modern German Literature. (4) Lecture, three hours. Selected readings from 1500 to 1700, with introduction to development of German as modern literary language and to literary genres and cultural models. Impact of Thirty Years' War on German literary production and reception in German baroque. Letter grading.

206. Studies in Enlightenment Literature and Culture. (4) Lecture, three hours. Analysis of major 18th-century German texts from philosophic, social-historical, psychohistorical, and literary perspectives. Letter grading.

207. Weimar Classicism. (4) Lecture, three hours. Reading and interpretation of major works of German classicism. May include problems in reception of classicism by later authors and cultural theorists. Letter grading.

208. Romanticism. (4) Lecture, three hours. Analysis of selected works and theories of German Romantics such as Friedrich Schlegel, Novalis, and Hoffman, with attention to relationship between Romanticism and other periods. Letter grading.

209C. 19th-Century Narrative Prose. (4) Lecture, three hours. Analysis of prose works between Romanticism and naturalism. Discussion of development of literary realism and form of novella. Letter grading.

210A. Naturalism, Symbolism, and Expressionism. (4) Lecture, three hours. Analysis of selected works (poetry, drama, prose) of early modernism from Hauptmann to Kafka. Discussion of sociological spectra and pluralism of styles and forms. Letter grading.

210B. 20th-Century Novel to 1945. (4) Lecture, three hours. Prose works in first half of 20th century as they express war experience, crisis of consciousness, and cultural conflicts between wars, as well as innovations in narrative technique. Letter grading.

211. Postwar Literature. (4) Lecture, three hours. Study of major works by German-speaking authors writing since World War II. Examination of issues such as identity crises, nationalism and divided Germany, gender expectations, and social-political attitudes. Letter grading.

212. Contemporary Literature and Culture. (4) Lecture, three hours. Analysis of current cultural issues and their relation to literary production and interpretation. Topics may include areas such as feminism, postcolonialism, postmodernism, and contemporary theories of textuality. Letter grading.

213. Topics in Literature and Film. (4) Lecture, three hours. With focus on two different modes of cultural representation, examination of topics in German literature and film from Weimar Republic to present. Study of media theory, feminist film theory, and interrelationships between film, literature, and social history. Letter grading.

217. History of German Language. (4) Discussion, three hours. Historical survey of development of standard literary German language from time of Indo-European unity through proto-Germanic, West Germanic, medieval period, Reformation, baroque period, and Enlightenment until its final codification at end of 19th century. S/U or letter grading.

230. Survey of Theory in Historical Linguistics. (4) Lecture, three hours. Systematic overview of theories of historical linguistics. Letter grading.

231. Gothic. (4) Discussion, three hours. Systematic study of phonology and grammar of Gothic language, with readings in Wulfila's translation of Bible and introduction to history of Goths and their place in development of modern Europe. S/U or letter grading.

232. Old High German. (4) Discussion, three hours. Introduction to earliest phases of German literature, with extensive readings in major documents of that period (750 to 1050). Emphasis on grammatical interpretation of these documents and identification of dialects used in their composition. S/U or letter grading.

233. Old Saxon. (4) Discussion, three hours. Introduction to study of earliest documents in Old Low German. Readings in *Heiland* and study of *Old Saxon Genesis*. S/U or letter grading.

C238. Linguistic Theory and Grammatical Description. (4) Lecture, three hours. Enforced requisite: course 140 or Linguistics 20. Taught in English with German proficiency required. Problems in structure of Dutch and German, considered from theoretical frameworks such as sign-oriented linguistics, functional linguistics, discourse grammar, and cognitive linguistics. Discussion of formal linguistic approaches. Concurrently scheduled with course C142. Graduate students meet as group one additional hour each week and write research papers of greater length and depth. Letter grading.

251. Seminar: Germanic Linguistics. (4) Seminar, three hours. Current topics in synchronic or diachronic linguistics, such as specific issues in generative grammar, sociolinguistics and dialectology, or language contact. Letter grading.

252. Seminar: Historical and Comparative Germanic Linguistics. (4) Seminar, three hours. Topics selected from field of historical German phonology and syntax according to needs and preparation of students enrolled (e.g., West Germanic problem and classification of Germanic languages, development of Germanic verbal and nominal morphology, proto-Germanic syntax). S/U or letter grading.

253. Seminar: Medieval Literature. (4) Seminar, three hours. Investigation of selected topic or particular theoretical issue that arises in study of medieval literature. Letter grading.

256. Seminar: Enlightenment. (4) Seminar, three hours. Selected problems in cultural, literary, and philosophic history. May include modern critiques of Enlightenment thought. Letter grading.

257. Seminar: Age of Goethe. (4) Seminar, three hours. Selected topics in literature and culture between 1775 and 1832, with special emphasis on work of Goethe and Schiller as it relates to philosophic texts such as Hegel's *Phänomenologie des Geistes* or as it relates to historical events such as French and American Revolutions. Letter grading.

258. Seminar: Romanticism. (4) Seminar, three hours. Discussion of specific author or topic from Romantic period, possibly in close connection with course 208. Critical review of secondary works. S/U or letter grading.

259. Seminar: 19th-Century Literature. (4) Seminar, three hours. Discussion of specific author or topic of 19th-century literature, possibly in close connection with course 209A, 209B, or 209C. Critical review of secondary works. S/U or letter grading.

260. Seminar: Modern Period. (4) Seminar, three hours. In-depth analysis of one particular issue in pre-1945 German literature and culture. Letter grading.

261. Seminar: Contemporary Literature. (4) Seminar, three hours. In-depth analysis of one particular issue in post-1945 German literature and culture. Letter grading.

263. Seminar: Literary Theory. (4) Seminar, three hours. Special focus on particular theoretical school or interpretive paradigm. Content varies with instructor. Letter grading.

264. Topics in Communicative, Cognitive, and Functional Approaches to Linguistic Analysis. (4) (Formerly numbered M264.) Seminar, three hours. Requisite: course C142 or C238. Readings, discussion, analyses, and validation procedures within sign-based linguistics, cognitive grammar, and discourse-functional approaches to language. Consideration of impact of grammaticalization theory on various non-formal approaches to synchronic linguistics. Discussion of work by Contini-Morava, Diver, Garcia, Goldberg, Janssen, Lakoff, Langacker, and Verhagen, as well as Bybee, Traugott, Hopper, and others. S/U or letter grading.

265. German Philosophy. (4) Seminar, three hours. German philosophical tradition is one of most influential, difficult, and problematic Western world has known. Beginning with Kant's *Critique of Pure Reason* and continuing through Hegel, Marx, Nietzsche, and Heidegger to Arendt and thinkers of Frankfurt school, German philosophers have explored, more deeply and rigorously than any other Western thinkers, nature and limits (if any) of human mental activity. Results have been basic to social, political, and aesthetic theory as well as to philosophy itself. Exploration of thought of one member of that tradition by concentrating yearly on one exemplary text. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Approaches to Foreign Language Pedagogy. (4) Seminar, one hour; discussion, two hours. Issues include development of current theories of second-language acquisition, effects of these theories on language teaching, psycholinguistics, sociolinguistics, assessment techniques, use of multimedia in foreign language pedagogy, and design of syllabi for basic foreign language courses. S/U grading.

596. Directed Individual Study or Research. (4) Tutorial, three hours. To be arranged with faculty member who directs study or research. Required research paper must be filed with department chair. S/U grading.

597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations. (4) Tutorial, three hours. To be arranged with faculty member who directs examination preparation. S/U grading.

598. Research for and Preparation of MA Thesis. (4 to 12) Tutorial, three hours. To be arranged with faculty member who directs research for and preparation of thesis. S/U grading.

599. Research for and Preparation of PhD Dissertation. (4 to 12) Tutorial, three hours. To be arranged with faculty member who directs study. May be repeated. S/U grading.

Yiddish

Lower Division Course

10. From Old World to New: Becoming Modern as Reflected in Yiddish Cinema and Literature. (5) Lecture, three hours; discussion, one hour. Use of media of Yiddish cinema (classic films and documentaries) as primary focal points to examine ways in which one heritage culture, that of Ashkenazic Jews, adapted to forces of modernity (urbanization, immigration, radical social movements, assimilation, and destructive organized anti-Semitism) from late-19th century to present. Exploration of transformational themes in depth through viewing of selected films, readings, research and weekly papers, and in-class discussions. P/NP or letter grading.

Upper Division Courses

101A. Elementary Yiddish. (4) Lecture, four hours. Introduction to grammar; instruction in listening, speaking, reading, and writing skills. P/NP or letter grading.

101B. Elementary Yiddish. (4) Lecture, four hours. Requisite: course 101A. P/NP or letter grading.

101C. Elementary Yiddish. (4) Lecture, four hours. Requisite: course 101B. P/NP or letter grading.

102A. Intermediate Yiddish. (4) Lecture, three hours. Requisite: course 101C. Grammatical exercises, reading and linguistic analysis of texts, conversation. P/NP or letter grading.

102B-102C. Intermediate Yiddish. (4-4) Lecture, three hours. Requisite: course 102A. Course 102B is requisite to 102C. Grammatical exercises, reading and linguistic analysis of texts, conversation. P/NP or letter grading.

121A. 20th-Century Yiddish Poetry in English Translation. (4) Lecture, three hours. Designed for juniors/seniors. Readings in 20th-century Yiddish poetry and drama. P/NP or letter grading.

121B. 20th-Century Yiddish Prose and Drama in English Translation. (4) Lecture, three hours. Designed for juniors/seniors. Readings in 20th-century Yiddish prose. P/NP or letter grading.

121C. Special Topics in Yiddish Literature in English Translation. (4) Lecture, three hours. Varying topics of importance and relevance to Yiddish literary study. Reading and analysis of wide range of 19th- and 20th-century literature. P/NP or letter grading.

130. Introduction to Yiddish Culture and Language through Film. (4) Lecture, three hours. Introduction to Yiddish language and culture, with focus on classic Yiddish films and documentaries as integral tools for accessing culture associated with this heritage language. Viewing and discussion to gain deeper understanding and appreciation of complexity and scope of Yiddish culture and in particular of annihilated Yiddish civilization of 20th century. These films represent most accessible way available to hear Yiddish spoken in fluent, natural manner. P/NP or letter grading.

131A. Modern Yiddish Poetry. (4) Lecture, three hours. Requisite: course 102A. Readings in modern Yiddish poetry. P/NP or letter grading.

131B. Modern Yiddish Prose and Drama. (4) Lecture, three hours. Requisite: course 102A. Readings in modern Yiddish prose and drama. P/NP or letter grading.

131C. Special Topics in Yiddish Literature. (4) Lecture, three hours. Requisite: course 131A or 131B. Varying topics of importance and relevance to Yiddish literary study. Reading and analysis of wide range of 19th- and 20th-century literature. P/NP or letter grading.

197. Individual Studies in Yiddish. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study or more specialized investigation of topics in Yiddish, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

596. Directed Individual Study or Research in Yiddish. (4) Tutorial, to be arranged with faculty member who directs study or research (course section to be identified by two-letter code using initials of sponsoring instructor—see department for ID number). May be repeated once. S/U grading.

597. Preparation for PhD Qualifying Examinations. (4) Tutorial, to be arranged with faculty member who directs study (see department for ID number). S/U grading.

GERONTOLOGY

*Interdisciplinary Minor
Meyer and Renee Luskin School of
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David B. Reuben, MD, Chair

Faculty Committee

Janet C. Frank, DrPH (*Community Health Sciences*)
Michael R. Irwin, MD, *in Residence* (*Psychiatry and Biobehavioral Sciences, Psychology*)
Lené F. Levy-Storms, PhD, MPH (*Social Welfare*)
David B. Reuben, MD (*Medicine*)
Theodore F. Robles, PhD (*Psychology*)
Gary W. Small, MD (*Psychiatry and Biobehavioral Sciences*)
Fernando M. Torres-Gil, PhD (*Public Policy, Social Welfare*)
Steven P. Wallace, PhD (*Community Health Sciences*)

Scope and Objectives

The worldwide expansion of the older adult population ensures that issues regarding aging will dominate our environmental, economic, social, political, psychological, and medical concerns and endeavors well into the twenty-first century. The undergraduate minor in Gerontology (1) provides a foundation understanding of the current state of science related to human aging, (2) enables students to assess longevity's potential contribution and challenge to contemporary society, and (3) provides an appreciation of opportunities to contribute, personally and professionally, to a diverse aging society.

Undergraduate Study

Gerontology Minor

To enter the Gerontology minor, students must have an overall grade-point average of 2.0 or better and a grade of B or better in Gerontology M108.

Required Upper Division Courses (28 to 32 units): Gerontology M108, four courses from M104C, M104D, M119O, M119X, M142SL, M150, M165, Psychology 124C, 150, and two courses from Gerontology 195, 199A, 199B.

Students who have completed General Education Clusters 80A with a grade of B or better may petition to have the course applied toward the gerontology core course requirement. Students who have completed General Education Clusters 80CW may petition to have the course applied toward one of the elective requirements.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Gerontology

Upper Division Courses

M104C. Diversity in Aging: Roles of Gender and Ethnicity. (4) (Same as Chicana and Chicano Studies M106B, Gender Studies M104C, and Social Welfare M104C.) Lecture, four hours. Exploration of complexity of variables related to diversity of aging population and variability in aging process. Examination of gender and ethnicity within context of both physical and social aging, in multidisciplinary perspective utilizing faculty from variety of fields to address issues of diversity. Letter grading.

M104D. Public Policy and Aging. (4) (Same as Social Welfare M104D.) Lecture, four hours. Examination of theoretical models and concepts of policy process, with application to aging policy. Analysis of decision-making processes that affect aging policy. Description of history of contemporary aging policy. Exploration of current policy issues affecting elderly. P/NP or letter grading.

M104E. Social Aspects of Aging. (4) (Same as Social Welfare M104E.) Lecture, four hours. Topics include theories of aging, economic factors, changing roles, social relationships, and special populations. Weekly seminars organized around key aspect of social gerontology. P/NP or letter grading.

M108. Biomedical, Social, and Policy Frontiers in Human Aging. (5) (Same as Social Welfare M108.) Lecture, four hours. Limited to juniors/seniors. Course of human aging charted in ways that are based on variety of recent research frontiers. Use of conceptual frameworks to increase relevance of aging to students' lives and enhance their critical thinking—biopsychosocial approach that is based on recognition that aging is inherently interdisciplinary phenomenon, and life course perspective that is distinguished by analytical framework it provides for understanding interplay between human lives and changing social structures, and allows students to understand how events, successes, and losses at one stage of life can have important effects later in life. Focus on individuals as they age within one particular sociohistorical context. Letter grading.

M119O. Psychology of Aging. (4) (Same as Psychology M119O.) Lecture, four hours. Requisite: Psychology 115. Designed for juniors/seniors. Aging refers to developmental changes occurring at end stages of life. Some alterations that occur represent improvement, others are detrimental. Examination of impact of aging process on mental phenomena and exploration of ways in which positive changes can be maximally utilized and impact of detrimental alterations minimized. P/NP or letter grading.

M119X. Biology and Behavioral Neuroscience of Aging. (4) (Same as Psychology M119X.) Lecture, three hours. Designed for juniors/seniors. Biologic mechanisms of aging process and its terminal phase, death, have been increasingly studied in recent years. Establishment of what is known experimentally about biology and behavioral neuroscience of aging and evaluation of theories developed to account for this knowledge. P/NP or letter grading.

120. Sex and Aging. (4) Lecture, three hours. Sexuality in aging from psychological, psychobiological, physical, and psychosocial perspectives, with emphasis on differences between females and males concerning physical and social changes that occur with aging and how this impacts on emotional well-being and human sexual response. P/NP or letter grading.

M142SL. Intergenerational Communication across Lifespan. (4) (Same as Social Welfare M142SL.) Lecture, three hours; fieldwork, one hour. Limited to juniors/seniors. What do you say to your parents in conversation? How do you talk to your grandparents? Does your family talk well to one another as group? How do you communicate well with boss who is 30 years older than you? Individuals of all ages interact with one another, and their interactions have significance throughout their lives. Introduction to psychological, interpersonal, and societal issues related to intergenerational communication across lifespan. Letter grading.

M150. Sociology of Aging. (4) (Same as Sociology M150.) Lecture, three hours; discussion, one hour. Study of sociological processes shaping definition, experience, and response to aging in contemporary society. Topics include race, class, and gender in aging over life course; interpersonal relations and social worlds of aged; caregiving relations and institutions; professions concerned with aged and aging. Letter grading.

M165. Disability Policy and Services in Contemporary America. (4) (Same as Disability Studies M130 and Social Welfare M165.) Lecture, three hours. Limited to juniors/seniors. Growing numbers of people of all ages with disabilities are leading active and productive lives in American communities. Many others are struggling to lead such lives. Who are people with disabilities in contemporary America? How has U.S. responded over time to various needs and aspirations of people with disabilities, young and old? What demands have been made over time by disability advocates? How has government addressed demands of advocates for various disability populations? What do we know about extent to which public policies and programs are responsive to people in need? How do demographics, economics, and politics continue to influence evolving public policy responses? P/NP or letter grading.

195CE. Community or Corporate Internships in Gerontology. (4) Tutorial, one hour; internship (approved community setting), eight hours. Requisites: course M108, or GE Clusters 80A and 80B. Limited to juniors/seniors. Internship in applications of gerontology in supervised setting in community agency or business coordinated by Center for Community Learning. Students meet on regular basis with internship coordinator and must submit weekly writing assignments and final paper at end of term. Eight units of 195CE (or 199) are required for successful completion of Gerontology minor. Individual contract with supervising placement sponsor required. Information and contracts may be obtained from Gerontology Advising Office, 310-206-8966, paul@spa.ucla.edu. Letter grading.

199. Directed Research or Senior Project in Gerontology. (4) Tutorial, to be arranged. Requisites: course M108, or GE Clusters 80A and 80B. Limited to juniors/seniors. Supervised individual research under guidance of gerontology faculty mentor. Submission of weekly writing assignments and research paper at end of term. Eight units of 199 (or 195CE) required for

successful completion of minor. Individual contract required. Information and contracts may be obtained from Gerontology Advising Office. Letter grading.

GLOBAL HEALTH

Interdisciplinary Minor College of Letters and Science

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Michael A. Rodriguez, MD, MPH, Chair

Faculty Committee

David H. Gere, PhD (*World Arts and Cultures/Dance*)
Michael F. Lofchie, PhD (*Political Science*)
Ninez A. Ponce, MPP, PhD (*Health Policy and Management*)
Michael A. Rodriguez, MD, MPH (*Family Medicine*)

Scope and Objectives

The Global Health minor allows students to develop an interdisciplinary understanding of health issues in a global context. Students take courses that provide opportunity to become familiar with approaches to global health from the perspective of the social sciences, arts, and humanities, as well as the physical and biological sciences. The minor is appropriate for students from all majors.

Undergraduate Study

Global Health Minor

To be admitted to the minor, students must be in good academic standing (overall grade-point average of 2.0 or better) and have completed all lower division minor courses with a GPA of 2.0 or better in those courses.

After satisfying these requirements, students may declare the minor in consultation with the academic counselor.

Required Lower Division Courses (10 units): Two courses from Civil and Environmental Engineering 58SL, Community Health Sciences 91, General Education Clusters 80A, 80B, 80CW, Global Studies 1, History 3D, Honors Collegium 1, 14, 26, International and Area Studies 1, Molecular, Cell, and Developmental Biology 60, 70, Nursing 50, Statistics 13, World Arts and Cultures 2, 33.

Required Upper Division Courses (20 to 25 units): Global Health 100 and four courses from the following theme areas, with a maximum of two courses from any single area:

Art: World Arts and Cultures 144, C158, C159, 160.

Biological Sciences: Psychology 179B.

Community Health: Community Health Sciences 100, 161, CM170, 187A, 187B, 195, Health Policy and Management 140, Medicine

M160A, M160B, Nursing 152W, Psychiatry and Biobehavioral Sciences 175, Psychology 150.

Environmental Health: Environment 166, M167, Environmental Health Sciences 100, C185A, C185B.

Genetics: Honors Collegium 141, Society and Genetics 162, 163.

Globalization and Development: Community Health Sciences 132, International Development Studies 110, Nursing C155.

Health Humanities and Communication: English Composition 131C, History 179A, 179B.

Policy: Civic Engagement 175SL, Economics 130, 131, Gerontology M108, Health Policy and Management 100, Honors Collegium 105, Public Policy C101, Sociology M164.

Society and Cultural Health: American Indian Studies C121, CM168, American Sign Language M115, Asian American Studies M129, 140SL, Chicana and Chicano Studies CM106, Disability Studies 101W, M121, Gender Studies 104, 105, 125, CM143, Honors Collegium 124, Psychology 129C, M163, Sociology 143, 170.

Statistics and Modeling: Biomathematics 170A, Biostatistics 100A, 100B, 110A, 110B, Economics 140, Sociology 116, Statistics 130.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Global Health

Upper Division Courses

100. Global Health and Development. (4) (Formerly numbered International Development Studies 140.) Lecture, three hours; discussion, one hour (when scheduled). Interdisciplinary examination of key issues in area of global health, with focus on developing world. Provides basis for understanding current debates that frame global health problems and actions in and across nations with strikingly different political-economic contexts. Discussion of how local and international communities attempt to address challenges of global health problems and how interventions play out through range of policy and programmatic approaches. P/NP or letter grading.

110A-110B. Field Studies in Global Health. (4-4) Seminar, three hours. Enforced corequisite for course 110A: course 110B. Exploration of issues regarding global health in important locations around world. Hands-on experiential courses offered for students participating in UCLA Travel Study Program. Field trips included to gain first-hand experience. May be repeated with topic and/or location change. Offered in summer only. P/NP or letter grading.

199. Directed Research in Global Health. (4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be applied toward requirements via petition. May be repeated for credit. Individual contract required. Letter grading.

GLOBAL STUDIES

Interdepartmental Program
College of Letters and Science

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Michael F. Thies, PhD, Chair

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David D. Kim, PhD (*Germanic Languages*)
Purnima Manekkar, PhD (*Asian American Studies; Film, Television, and Digital Media; Gender Studies*)
Saloni Mathur, PhD (*Art History*)
Kau Raustiala, JD, PhD (*Law*)
David L. Rigby, PhD (*Geography, Statistics*)
Michael F. Thies, PhD (*Political Science*)
Dominic R. Thomas, PhD (*Comparative Literature, French and Francophone Studies*)
Yunxiang Yan, PhD (*Anthropology*)

Scope and Objectives

The Global Studies Interdepartmental Program provides undergraduate students with a rigorous interdisciplinary education in the principal issues confronting today's globalized world. Housed in the UCLA International Institute, Global Studies offers a research-oriented undergraduate major leading to a Bachelor of Arts degree, as well as an undergraduate minor. The curriculum features three thematic pillars that capture the principal dimensions of the unprecedented depth and breadth of interconnections among nation-states, ethnic and religious groups, and individuals. *Culture and society* courses concentrate on the tensions between local ways of life with deep historical, linguistic, ethnic, and religious roots and today's pressures for transnational cultures and multiple identities, fueled by the communication of ideas and the movement of people all around the world. *Governance and conflict* courses focus on challenges to the nation-state from forms of governance above (regional and global forms of governance) and below (autonomy and secessionist movements) and from security threats beyond interstate warfare (ethnic conflict, terrorism, civil wars). *Markets* courses address the interactions among global, regional, national, and subnational economic processes and market dynamics, their effects on different societies with respect to economic growth, poverty, inequality, and the interactions among market forces, political institutions, and public policy.

The curriculum draws on insights from disciplines across the humanities and social sciences to give students the theoretical and methodological skills and knowledge base necessary to understand this complex and rapidly changing world.

Undergraduate Study

The Global Studies major is a designated capstone major. As students progress through the major, they move from a set of broad themes, theories, and perspectives to a more specialized focus about which they develop a specific research expertise and write a thesis. In completing the capstone, students should demonstrate an appropriate mastery of a specialized area of global studies and a critical understanding of current scholarly concerns, literatures, and debates. They should also be able to identify and analyze primary sources and use those sources and appropriate scholarly literature to design and carry out a research project.

Global Studies BA

Capstone Major

Admission

Admission to the Global Studies major is by application only and is highly competitive, with only a limited number of students admitted each year. To be eligible to apply, UCLA students must have completed all nonlanguage preparation for the major courses and one modern foreign language equivalent to level 3 by the end of the term in which they are applying. Any remaining language courses may be completed after students have been accepted to the major. Each preparation for the major course must be taken for a letter grade, and the UC grade-point average for all preparation courses must be a minimum of 3.25. In addition, students must have earned a grade of B or better in Global Studies 1.

The application period is once per year, and students must apply no later than the end of fall quarter of their junior year.

Meeting the above minimums does not guarantee admission to the program. Admission is on a competitive basis, using the above qualifications as minimum standards for consideration.

Global Studies Premajor

Incoming freshman and transfer students may be admitted as Global Studies premajors on acceptance to UCLA. Premajor students must apply for the major at the end of fall quarter of their junior year; they are not automatically accepted into the major.

Preparation for the Major

Required: Global Studies 1 with a grade of B or better; one statistics course selected from Political Science 6, 6R, Statistics 10, or 12; demonstrated proficiency equivalent to level 6 at UCLA in one modern foreign language; and five additional courses as follows: (1) one *culture and society* course selected from Anthropology 9, Comparative Literature 1C or 2CW, 1D or 2DW, 4CW or 4DW, Ethnomusicology 25, Gender Studies 10, Geography 3, 6, History 2B, World Arts and Cultures 20, or 33, (2) one *governance and conflict* course selected from Environment 12, History 10B, 22, Political Science 10, 20, 30, 50, 50R, or Sociology 1, and (3) one *markets* course selected from Economics 1 or 2. The remaining two courses,

taken from two separate categories, may be selected from the three lists above. One course from the following list may be applied toward the *culture and society* category: Asian 70C, Asian American Studies 10, Chicana and Chicano Studies 10B, French 14, 14W, History 8A, International and Area Studies 31, Italian 42A, 42B, Middle Eastern Studies 50C, Russian 90B, 90BW, Spanish 42, or 44. A minimum grade-point average of 3.25 is required in these courses.

Transfer Students

Transfer applicants to the Global Studies pre-major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one modern world history course, one major world region languages and cultures course, one international politics course, one macroeconomics or microeconomics course, one statistics course, and demonstrated proficiency equivalent to level 3 at UCLA in one modern foreign language. Transfer students must apply for the major by the end of fall quarter of their junior year.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Global Studies 100A, 100B, and seven elective courses, with at least two from each of the following categories and at least three in one category: (1) *culture and society*—Anthropology M154Q, M158Q, 167, Asian American Studies M130C, 170, M172A, M172C, Chicana and Chicano Studies 120, 143, CM147, Comparative Literature 100, English 131, 133, 134, French 121, 142, Gender Studies 102, M147C, M154Q, M162, Geography 133, 138, 139, 141, Political Science M184A, Sociology 151, 154, M162, 191F, World Arts and Cultures 102; (2) *governance and conflict*—Asian American Studies 171A, M171D, 171E, Chicana and Chicano Studies 151, Environment M132, Geography M109, 140, History 121E, 121F, 144, M186A, Honors Collegium 125, Political Science 120A, 120B, 122A, M122B, 123A, 125A, 126, 128A, 132A, M132B, 137A, 138B, 169, Sociology 182; (3) *markets*—Anthropology 153P, Chicana and Chicano Studies M125, 176, Economics 121, 122, Environment M134, Geography M128, 148, History 131A, 134C, International Development Studies M120, Political Science 124A, 151B, M167C, 167D, Sociology 183.

After successful completion of Global Studies 100A and 100B, students are expected to attend a summer Global Learning Institute at one of several locations around the world in which they enroll in Global Studies 110A and 110B.

During their senior year, students must also take four capstone courses—Global Studies 191 and 194 in fall quarter, followed by 199A and 199B. Courses 199A and 199B culminate in a capstone senior thesis of 35 to 50 pages.

Honors Program

To qualify for departmental honors, students must (1) have a grade-point average of 3.5 or better in upper division courses in the major, (2) have a cumulative GPA of 3.25 or better, and (3) complete Global Studies 199B with a grade of A- or better. Honors or highest honors may be granted at the discretion of the faculty sponsor and the faculty committee to students demonstrating exceptional ability on the senior thesis.

Global Studies Minor

The Global Studies minor offers students a multidisciplinary curriculum in the humanities and social sciences through which they can explore the complex and multifaceted interconnections that characterize the contemporary world. The minor is designed to complement and enrich studies in their major.

To enter the minor, students must (1) be in good academic standing (minimum 2.0 grade-point average) and (2) have completed Global Studies 1 and one course in two of the following three categories: (a) *culture and society*—Anthropology 9, Asian 70C, Asian American Studies 10, Chicana and Chicano Studies 10B, Comparative Literature 1C or 2CW, 1D or 2DW, 4CW or 4DW, Ethnomusicology 25, French 14, 14W, Gender Studies 10, Geography 3, 6, History 2B, 8A, International and Area Studies 31, Italian 42A, 42B, Middle Eastern Studies 50C, Russian 90B, 90BW, Spanish 42, 44, World Arts and Cultures 20, or 33, (b) *governance and conflict*—Environment 12, History 10B, 22, Political Science 10, 20, 30, 50, 50R, or Sociology 1, and (c) *markets*—Economics 1 or 2.

Required Courses (22 to 25 units): Global Studies 100A, 100B, and one course selected from each of the following three categories: (1) *culture and society*—Anthropology M154Q, M158Q, 167, Asian American Studies M130C, 170, M172A, M172C, Chicana and Chicano Studies 120, 143, CM147, Comparative Literature 100, English 131, 133, 134, French 121, 142, Gender Studies 102, M147C, M154Q, M162, Geography 133, 138, 139, 141, Political Science M184A, Sociology 151, 154, M162, 191F, or World Arts and Cultures 102; (2) *governance and conflict*—Asian American Studies 171A, M171D, 171E, Chicana and Chicano Studies 151, Environment M132, Geography M109, 140, History 121E, 121F, 144, M186A, Honors Collegium 125, Political Science 120A, 120B, 122A, M122B, 123A, 125A, 126, 128A, 132A, M132B, 137A, 138B, 169, or Sociology 182; (3) *markets*—Anthropology 153P, Chicana and Chicano Studies 125, 176, Economics 121, 122, Environment M134, Geography M128, 148, History 131A, 134C, International Development Studies M120, Political Science 124A, 151B, M167C, 167D, or Sociology 183.

After completing Global Studies 100A and 100B, Global Studies minors are highly encouraged to participate in a summer Global Learning Institute at one of several locations around the world. The courses offered, Global Studies 110A and 110B, may be applied toward any two of the elective categories (*culture and society, governance and conflict, and markets*).

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

basis with readings, discussions, papers, and development of culminating project. May not be repeated for credit. Letter grading.

192. Undergraduate Practicum in Global Studies. (2) Seminar, two hours; practicum, to be arranged. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to serve as undergraduate course assistants in global studies courses. Students assist in preparation and presentation of materials and development of innovative programs with guidance of faculty members. May not be applied toward major requirements. May be repeated for credit. P/NP grading.

194. Research Group Seminars: Global Studies. (2) Seminar, two hours. Requisites: courses 110A, 110B. Limited to senior Global Studies majors. Discussion of research methods regarding various approaches to analysis and evaluation of globalization and current literature in field in preparation for senior thesis. May be repeated for credit. Letter grading.

199. Directed Research in Global Studies. (4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be applied toward requirements via petition. May be repeated for credit. Individual contract required. Letter grading.

199A-199B. Directed Individual Research in Global Studies. (2-4) Tutorial, one hour. Limited to senior Global Studies majors. Supervised individual research or investigation under guidance of faculty mentor. Individual contract required. **199A.** Requisite: course 191. Research, discussion, and planning of senior thesis. In Progress grading (credit to be given only on completion of course 199B). **199B.** Requisite: course 199A. Final drafting and submission of senior thesis. Culminating paper of 35 to 50 pages required. Letter grading.

Global Studies

Lower Division Courses

1. Globalization: Markets. (5) Lecture, three hours; discussion, one hour. Exploration of world economy. Topics include trade, colonialism, Industrial Revolution, and ever-increasing integration of local and national markets into truly global economy. P/NP or letter grading.

10. International Diplomacy and Foreign Affairs. (2) Lecture, 15 hours; discussion, 15 hours. Limited to high school students participating in Model United Nations (UN) Summer Institute. One-week intensive summer course, including lectures in international relations and outside study. Development of position papers in simulation of United Nations and final presentation in respective UN committees. Particular emphasis on public speaking and cooperative debate. May be repeated for credit without limitation. Offered only as part of Summer Institute. P/NP grading.

Upper Division Courses

100A. Globalization: Governance and Conflict. (5) Lecture, three hours; discussion, one hour. Enforced requisite: course 1. Exploration of globalization of governance and its effect on world affairs, sovereignty, and international system of nation-states. Topics may also include roles of international institutions and emergence of new global actors, as well as development of global norms concerning such issues as human rights, gender equality, and human security. Letter grading.

100B. Globalization: Culture and Society. (5) Lecture, three hours; discussion, one hour. Enforced requisite: course 100A. Investigation of circulation of peoples, goods, and media to examine interactions of globalization with local culture and formation of global cultures through practices and processes of globalization. Letter grading.

110A. Globalization in Context. (5) Lecture, six hours. Requisite: course 100B. Corequisite: course 110B. Culture, economy, history, and politics of different locations around world and how they are affected by globalization. Field trips included to gain first-hand experience of these processes. Offered in summer only. P/NP or letter grading.

110B. Globalization in Context Research Seminar. (5) Seminar, six hours. Requisite: course 100B. Corequisite: course 110A. Individual research projects on different aspects of globalization process in locations around world. Offered in summer only. P/NP or letter grading.

160. Selected Topics in Global Studies. (4) Lecture, three hours; discussion, one hour (when scheduled). Examination of one or more topics related to global studies. May be repeated for credit with topic change. P/NP or letter grading.

188A-188B. Special Studies in Global Studies. (4-4) Seminar, three hours. Program-sponsored experimental or temporary courses, such as those taught by resident or visiting faculty members. May be repeated for credit with topic change. Letter grading.

191. Variable Topics Research Seminars: Global Studies—Senior Seminar. (4) Seminar, three hours. Enforced requisites: courses 110A, 110B. Limited to senior Global Studies majors. Organized on topics

Graduate Course

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

HEAD AND NECK SURGERY

David Geffen School of Medicine

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<http://headandnecksurgery.ucla.edu>

Chair

Gerald S. Berke, MD (Victor Goodhill, MD, Professor of Head and Neck Surgery), Chair

Scope and Objectives

The Department of Head and Neck Surgery academic programs consist of a nationally recognized residency program, medical school education, prestigious fellowships, and ongoing continuing medical education. A critical success factor in these academic efforts is the high level of clinical expertise demonstrated by all faculty members. Additionally, department faculty members have an active commitment to basic science and clinical research as an in-

tegral component of the program of instruction. These tenets not only ensure quality at every educational level, but also provide a superior milieu for the development of teacher-investigators.

The residency program is incorporated into the department's patient care and research activities in six affiliated medical centers and exposes residents to all of the subspecialties during the course of their training. Medical student teaching is a combined effort by faculty members, fellows, and residents and consists of lectures, didactic learning, and hands-on experience in clinical and research settings. The department offers one- and two-year fellowships.

For further details on the Department of Head and Neck Surgery and a listing of the courses offered, see <http://headandnecksurgery.ucla.edu>.

HEALTH POLICY AND MANAGEMENT

Jonathan and Karin Fielding School of Public Health

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Corrina Mouderaud, ScD

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Julie A. Elginer, MBA, DrPH
Michael Galper, MPH, CPA
William C. Nicholas, MPH, PhD
Jennifer S. Wortham, MPH, DrPH

Adjunct Professors

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Burton Cowgill, MPH, PhD
Bruce N. Davidson, MPH, MPI, PhD
Peter V. Long, PhD
Robert J. Nordyke, PhD
Lori S. Pelliccioni, JD, PhD

Scope and Objectives

The field of health policy and management examines the organization and financing of various activities to prevent and treat disease. This includes programs in both the public and private sectors at all levels—local, state, and federal.

Faculty members come from such diverse fields as economics, management, law, statistics, operations research, planning, medicine, history, sociology, and political science. These diverse backgrounds are harmonized by their devotion to the analysis of problems in the financing and delivery of health policy and management, with focus on populations rather than individual patients.

The Department of Health Policy and Management offers both practice-oriented and research-oriented graduate programs. The primary professional degree, the Master of Public

Health (MPH), includes training in various aspects of health administration such as policy formulation, health planning, organization, and management. For information on the MPH and concurrent degree programs, see Public Health Schoolwide Programs. Admission to the DrPH program has been suspended.

For those interested in careers in research and teaching, the department offers MS and PhD degrees in Health Policy and Management. These programs maintain close ties with related activities in the Schools of Dentistry and Medicine, including the Robert Wood Johnson Clinical Scholars Program, the Program in Prevention, and the Cancer Control Division. The RAND/UCLA Center for Health Policy Study and the RAND/UCLA Center for Healthcare Financing Research afford opportunities for joint activities with the RAND Health Sciences Program. Graduates of the academic degree programs pursue careers in universities, as well as in public and private agencies involved in health services research and health policy analysis.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Health Policy and Management offers Master of Science (MS), Doctor of Philosophy (PhD), and Executive MPH (EMPH) degrees in Health Policy and Management.

Health Policy and Management

Upper Division Courses

100. Introduction to Health Policy and Management. (4) Lecture, four hours; discussion, one hour. Preparation: 4 units of social sciences. Structure and function of American healthcare system; issues and forces shaping its future. P/NP or letter grading.

M110. Ethnic, Cultural, and Gender Issues in America's Healthcare Systems. (4) (Same as Asian American Studies M161.) Lecture, three hours. Designed for juniors/seniors. Introduction to study of gender, ethnicity, and cultural diversity related to health status and healthcare delivery in U.S. Letter grading.

C121. Tobacco: Prevention, Use, and Public Policy. (4) Lecture, four hours. Designed for juniors/seniors. Study of tobacco use and its health consequences, including interplay of historical, biological, sociocultural, political, and economic forces with knowledge, attitudes, and behavior choices of individuals. Introduction to prevention interventions, cessation interventions, anti-tobacco efforts in U.S., and international trends in tobacco use. Concurrently scheduled with course C221. Letter grading.

140. Foundations of Maternal and Child Health. (4) Seminar, four hours. Introduction to field of maternal and child health, with focus on major issues affecting health and well-being of children and families over life course. Emphasis on health, prevention, and supportive programs at different stages of child's life; ap-

plication of life course health development framework to understand health disparities and implications for policy and practice. Letter grading.

M168. Healthcare for American Indians. (4) (Same as American Indian Studies CM168.) Lecture, two hours; discussion, one hour. Identification of traditional health beliefs, health practices, and healthcare systems of American Indian tribes to understand role of U.S. government in healthcare services for Indian people. Description of health problems that have affected American Indian people and definition of contemporary health issues and measures taken to raise health status of American Indian people. Letter grading.

197. Individual Studies in Health Services. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A-200B. Health Systems Organization and Financing. (4-4) Lecture, three hours; discussion, one hour. Limited to graduate health services students. In-depth analysis of health services systems in U.S., using relevant theories, concepts, and models. S/U or letter grading.

M202. Qualitative Research Design and Methodology for Indigenous Communities. (5) (Same as American Indian Studies M202 and Nursing M221.) Seminar, three hours. Introduction to some key theoretical themes in American Indian studies and exploration of methods that can be used to incorporate them in research on American Indian cultures, societies, languages, and other issues. Quantitative methods (design, appropriate use), with emphasis on qualitative research methods, ethics, and special considerations in conducting research in American Indian country. Design of research and exploration of feasibility of researching topics. Letter grading.

203A. Applied Microeconomics. (4) Lecture, four hours. Requisite: Mathematics 3A or 3B or 31A. Course 203A is requisite to 203B. Basic concepts of microeconomics, with emphasis on their application to actual situations and their use in problem solving and focus on theory of choice. Extensive use of differential calculus. Letter grading.

203B. Applied Microeconomics. (4) Lecture, four hours. Requisites: course 203A and one course from Mathematics 3A, 3B, or 31A. Basic concepts of microeconomics, with emphasis on their application to actual situations and their use in problem solving and focus on theories of firms and markets. Extensive use of differential calculus. Letter grading.

M204A-M204B-M204C. Seminars: Pharmaceutical Economics and Policy. (1-1-2) (Same as Economics M204L-M204M-M204N.) Seminar, three hours every other week. Requisite: course M236. Limited to graduate public health and economics students. Various topics in economics of pharmaceutical industry, including rates of innovation, drug regulation, and economic impact of pharmaceuticals. In Progress (M204A, M204B) and letter (M204C) grading.

205. Pharmaceutical Policy. (4) Lecture, three hours. Policy issues pertaining to pharmaceutical sector. Topics include determinants of expenditures on drugs, price setting in industry, health insurance coverage for pharmaceuticals, and research and development process. Letter grading.

206. Healthcare for Vulnerable Populations. (4) Lecture, three hours. Overview of health services issues associated with organization, financing, and delivery of healthcare services to vulnerable populations within domestic and international contexts to gain understanding of social, political, economic, and cultural issues that lead to disparities in access, quality, and cost of healthcare services that lead to vulnerability for particular population groups. Introduction to strategies that have been adopted to address these health

disparities. Analysis and development of policy and management options that serve needs of vulnerable populations within healthcare system. Letter grading.

207. Current Topics in Health Services: Practice and Policy Perspectives. (2) Seminar, two hours. Required of DrPH students. Examination and discussion of current health services topics in various practice sectors, with focus on organizational leadership and direction in addressing these issues. Journal club discussions of relevant scientific literature, presentations of dissertation work by advanced DrPH students, and interactive lectures/discussions by professionals in public health practice and healthcare management. S/U or letter grading.

214. Measurements of Effectiveness and Outcomes of Healthcare. (4) Lecture, three hours. Requisites: courses 200A, 200B, M422, Biostatistics 100A. Historical perspective for development of health status measures and their utilization in assessment of outcomes and effectiveness in medical care. Review of current methods in context of current research and practice. Letter grading.

215A. Healthcare Quality and Performance Management. (4) Lecture, four hours. Preparation: completion of summer internship requirement. Management and operations of individual units and organizations of American healthcare system. Exploration of ways in which they actually function and how to ensure their quality and effectiveness. Examination of roles, activities, and daily challenges of managers and how these challenges can best be met on day-to-day basis. Emphasis on applied practice with intent being improvement of student managerial competencies and on development of skills to manage operational processes in delivery of health services, primarily directed to improving effectiveness, efficiency, performance, and quality of healthcare services. Quality improvement (QI) techniques such as performance measurement, rapid cycle testing, breakthrough series, and interorganizational collaboration benefit quality and productivity. Letter grading.

215B. Applied Methods for Improvement/Implementation Science. (4) Lecture, four hours. Enforced requisite: course 215A. Planning and management of improvement programs in current work of students and future roles as change agents and leaders of healthcare systems. Training in skills and analytic methods for applying improvement science in clinical settings and health systems. Completion of improvement projects that demonstrate student competence in improvement science. Emphasis on case studies and applications so students gain skills in improvement project design and implementation. Analyses of cases, individual improvement projects, and class discussions to allow students to apply this knowledge to organizational examples. Letter grading.

216. Special Topics in Health Services: Quality Assessment and Assurance. (4) Seminar, four hours. Fundamental issues in quality assessment, quality assurance, and measurement of health status. S/U or letter grading.

217. Evidence-Based Medicine and Organizational Change. (4) Lecture, three hours. Requisites: courses 200A, 200B, M422. Designed for graduate students in public health or other health sciences disciplines. Participation of students in critical review and discussion of selected papers dealing with course topics, including clinical trials, meta-analysis, small and large area variations in care, and development and implementation of clinical guidelines. Emphasis on implications for health policy. Letter grading.

C221. Tobacco: Prevention, Use, and Public Policy. (4) (Formerly numbered CM221.) Lecture, four hours. Designed for juniors/seniors and graduate students. Study of tobacco use and its health consequences, including interplay of historical, biological, sociocultural, political, and economic forces with knowledge, attitudes, and behavior choices of individuals. Introduction to prevention interventions, cessation interventions, anti-tobacco efforts in U.S., and international trends in tobacco use. Concurrently scheduled with course C121. Letter grading.

225A-225B. Health Services Research Design. (6-6) Lecture, four hours; laboratory, two hours. Limited to departmental MS and PhD students. Letter grading. **225A.** Introduction to scope of health services research, conceptualization and design of health services research, choice and assessment of measures for such research, and methods for studies involving direct data collection. Broad overview to conducting health services research, alternative research paradigms, building conceptual models of what students are trying to study, designing and testing measures, and direct data collection issues of survey and questionnaire design, sampling, community engagement, and research ethics. **225B.** Requisite: course 225A. Development of conceptual models for health services research, identification and use of secondary data sources, study design, and its operationalization through regression models.

225C. Research Methods for Improvement/Implementation Science. (4) Lecture, four hours. Enforced requisite: course 215A or 215B. Design and implementation of studies of dynamic interventions, including improvement initiatives and pragmatic clinical trials. Provides skills in research methods for improvement and implementation studies in clinical settings (including community-based settings) and health systems. Completion of improvement research projects that demonstrate student competence in design and implementation. Fundamentals in research design and methods for conducting rigorous inferential evaluation in real world of implementation science, with emphasis on methods for generalizing results of improvement and implementation studies involving dynamic testing. Emphasis on case studies and applications so students gain skills in design and implementation. Letter grading.

226A-226B. Readings in Health Services Research. (2-2) Seminar, two hours. Limited to departmental MS and PhD students. Introduction to research literature in health services research, including literature on key conceptual models, classic empirical studies, and current research illustrating cutting-edge methods or findings. In Progress (226A) and S/U (226B) grading.

227A. Special Topics in Health Services: Current Research Issues. (2 to 4) Seminar, two hours. Designed for doctoral students. Review of articles in health services journals nominated as best published during 1990. Analysis of articles to determine contribution to theory, methods, and/or implications for management or policy in health services organizations or health services as field. May be repeated for credit with topic change. Letter grading.

227B. Special Topics in Health Services: Seminar Series. (2 to 4) Seminar, two hours. Designed for doctoral students. Presentation of proposed or ongoing research projects by faculty members and students, with discussion to determine relevant methodological and policy issues, as well as to offer constructive criticism. May be repeated for credit with topic change. Letter grading.

230. Principles of Organization Leadership. (4) Lecture, four hours. Designed for graduate students. Examination of principles and models of organization leadership, including presentation by current leaders in fields of health and welfare. Theories and empirical investigations of leadership qualities. Letter grading.

231. History of Public Health. (4) Discussion, three hours. Designed for doctoral students. Emphasis on topics which illuminate current issues in public health policy. Discussion of historical perspectives on healthcare providers, healthcare institutions, healthcare reform movements, public health activities, child-birth, and AIDS. S/U or letter grading.

232. Leadership Capstone Seminar. (4) Seminar, four hours. Preparation: completion of summer internship requirement. Designed for graduate students completing their master's training in health management and health policy. Examination of leaders and leadership in healthcare and other organizations to provide broad introduction to literature on skills, behaviors, and characteristics of organizational leaders. Relationship and importance of vision, values,

change, strategy, and communication. Identification of characteristics of successful leaders. Students evaluate their own leadership style and identify opportunities to further develop their leadership abilities. Letter grading.

M233. Health Policy Analysis. (4) (Same as Community Health Sciences M252.) Lecture, three hours. Requisites: courses 100 or 200A, M236, M287. Conceptual and procedural tools for analysis of health policy, emphasizing role of analysis during various phases of lifecycle of public policy. Letter grading.

234. Health Services Organization and Management Theory. (4) Lecture, four hours. Preparation: two upper division social sciences courses. Requisite: course 100. Application of contemporary organization and management theory to systems that provide personal healthcare services. Environmental characteristics, missions/goals, structure, and processes of health services organizations. S/U or letter grading.

235. Law, Social Change, and Health Service Policy. (4) Lecture, four hours. Preparation: two upper division political science or sociology courses. Requisite: course 100. Legal issues affecting policy formulation for environmental, preventive, and curative health service programs. S/U or letter grading.

M236. Microeconomic Theory of Health Sector. (4) (Same as Public Policy M268.) Lecture, four hours; discussion, two hours. Preparation: intermediate microeconomics. Requisite: Biostatistics 100A. Microeconomic aspects of healthcare system, including health manpower substitution, choice of efficient modes of treatment, market efficiency, and competition. Letter grading.

237A. Special Topics in Health Services Research Methodology. (6) Lecture, four hours; discussion, two hours. Requisite: Biostatistics 200A. Approaches to conceptualization, modeling, design, literature reviews, sampling, data collection, and research. Development of health services research proposal required. Letter grading.

237B. Special Topics in Health Services Research Methodology. (6) Lecture, four hours; discussion, two hours. Requisites: Biostatistics 200A, and 200B or 201. Introduction to multivariate analysis techniques in health services research. Model specification and estimation, regression diagnostics, variable transformations, instrumental variables. Application of statistical software using large-scale national database. Letter grading.

237C. Issues in Health Services Methodologies. (6) Lecture, four hours; discussion, two hours. Requisites: courses 237A, 237B, Biostatistics 200A, 200B (or 201). Designed for doctoral students. Intended to train students in statistical and economic methods used in health services research, with focus on practical application of advanced regression models. Letter grading.

239A. Special Topics in Health Services: Introduction to Decision Analysis and Cost-Effectiveness Analysis. (4) Lecture, four hours. Requisites: courses 200A and 200B, or M233. Techniques to assess broad spectrum of medical technologies: therapeutic and diagnostic tests and procedures, clinical practice patterns, public health interventions, and pharmaceuticals. Demonstration of how decision analysis provides basic framework for conducting various economic evaluations. May be repeated for credit with topic change. Letter grading.

239B. Special Topics in Health Services: Advanced Topics in Decision Analysis and Cost-Effectiveness Analysis. (4) Lecture, four hours. Requisite: course 239A. How to conduct uncertainty analyses, understand methods used to construct quality-adjusted life years (QALYs), conduct Markov analyses, critically analyze large-scale published cost-effectiveness analyses (CEAs), effectively present strengths and limitations of published CEAs to peers, and use advanced features of TreeAge software to construct and analyze CEA models, including Markov models. May be repeated for credit with topic change. Letter grading.

240. Healthcare Issues in International Perspective. (4) Lecture, four hours. Preparation: two health administration courses, two upper division social sciences courses. Analysis of crucial issues in healthcare; manpower policy, economic support, health facilities, patterns of health service delivery, regulation, planning, and other aspects of healthcare systems probed in settings of European welfare states, developing nations, and socialist countries. S/U or letter grading.

241. Economics of Health Policy. (4) Lecture, four hours. Requisite: course M236 or doctoral standing. Second-level health economics course, with emphasis on health policy applications, designed to provide more nuanced view of health economics than does course M236. Provides more training for master's students interested in policy, as well as material and insights for doctoral students who may find it useful in thinking about dissertation topics. Emphasis on special characteristics of health and healthcare and how these characteristics can result in market failure and various policy tools that can be used to deal with these failures. Because U.S. is only developed country that has traditionally relied on private insurance, course goes into more detail on that topic. Alternative conceptual models to traditional market one, discussion of proposed U.S. reforms, and examination of systems in selected other countries. Letter grading.

M242. Determinants of Health. (4) (Same as Community Health Sciences M232.) Lecture, three hours; discussion, one hour. Designed for graduate students. Critical analysis of models for what determines health and evidence for social, economic, environmental, genetic, health system, and other factors that influence health of populations and defined subgroups. Letter grading.

247. Research Topics in Health Economics. (4) Lecture, four hours. Requisites: courses 100, M236. Seminar in economic analysis of current health services issues. Critical examination of studies pertaining to health manpower, healthcare costs and controls, diffusion of technology, and cost-benefit analysis of health programs. S/U or letter grading.

249A-249Z. Special Topics in Health Services. (2 to 4 each) Hours to be arranged. Requisites for each offering announced in advance by department. Advanced seminars covering current issues and special topics in health policy, health financing, and organization and administration of health services. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change:

M249E. Advanced Topics in Health Economics. (4) (Same as Public Policy M266.) Seminar, four hours. Requisites: courses 200A, 200B, M236. Advanced treatment of number of topics in health economics, including mental health economics, pharmaceutical economics, and relationship between labor supply, welfare, and health. Letter grading.

M249Q. Editorial Board Apprenticeship. (2) (Same as Psychiatry M210.) Seminar, two hours. Designed for postdoctoral fellows and advanced PhD students. Participation in peer review process for academic journal, *Health Psychology*, with consideration of interface between behavioral science, health, and medicine. Reading and discussion of submissions and advising of editor on suitability for full review. S/U or letter grading.

249R. Cancer Prevention and Control Research. (2) Seminar, two hours. Limited to graduate students. Presentations by faculty members and outside speakers, as well as students, on research topics in cancer prevention and control as well as career development issues such as grant writing, scientific review process, research funding, and other academic issues. Presentation of student research in progress as well as solicitation of feedback from class regarding grant proposals, manuscript submissions, and future directions for research. Possible reviews of assigned articles, with focus on particular topics in cancer prevention and control. S/U grading.

249S. Introduction to Science of Implementing Evidence-Based Practice. (4) Seminar, four hours. Requisites: courses 200A, 200B. Designed to provide basic understanding of science of implementing evidence-based practice. Through series of didactic teaching and interactive case discussions, introduction to integrated framework to understand key issues related to implementing evidence-based practice and set of tools to apply evidence base to improving healthcare quality. Guest lecturers included who are nationally recognized experts in topic content areas. Interactive discussion and case analyses based on materials closely related to lecture material. S/U or letter grading.

251. Quality Improvement and Informatics. (4) Lecture, four hours. Requisites: course 100, Biostatistics 100A. Introduction to concepts of healthcare quality measurement, process improvement, and information systems, as well as organizational aspects of implementing them. Letter grading.

M252. Medicare Reform. (4) (Same as Public Policy M267.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Analytical and managerial skills learned earlier to be used to analyze problems with existing Medicare program and to develop specific options for reforming features of program to accommodate coming pressures generated by retirement of baby-boom generation. Letter grading.

M255. Obesity, Physical Activity, and Nutrition Seminar. (4) (Same as Community Health Sciences M234.) Seminar, three hours; outside study, one hour. Designed for graduate students. Multidisciplinary introduction at graduate level to epidemiology, physiology, and current state of preventive and therapeutic interventions for obesity in adults and children, including public health policy approaches to healthy nutrition and physical activity promotion. S/U or letter grading.

260. World Health. (2) (Formerly numbered 260B.) Lecture, two hours. Designed for graduate students. Overview of world health, with emphasis on healthcare outside U.S. Key areas include burden of infectious diseases, health economics, and impact of healthcare policy on healthcare delivery. Letter grading.

265. Challenges in Clinical Health Services Research. (4) Lecture, four hours. Requisites: courses 200A, 200B. Designed to prepare students for challenges involved in conducting health services research on clinical topics and populations. Topics include formulating appropriate questions, identifying sources, mechanism of conducting field studies, identifying funding sources, writing grants, and publishing findings. S/U or letter grading.

266A-266B. Community-Based Participatory Health Research: Methods and Applications. (4-4) Lecture, one hour; discussion, one hour; fieldwork, two hours. Limited to clinical scholars fellows. Mentoring of field experiences with introduction to critical issues in conducting research in community settings. Review of assignments, interventions, and evaluation designs for community settings and discussion of practical issues in partnering with communities. Letter grading.

M269. Healthcare Policy and Finance. (4) (Same as Public Policy M269.) Seminar, three hours; outside study, nine hours. Exploration of demand for health insurance, policies for public insurance (Medicaid and Medicare), uninsured, and health insurance reform. Examination of effects of managed care on health and costs, consumer protection movement, and rise of competitive healthcare markets. Letter grading.

M274. Health Status and Health Behaviors of Racial and Ethnic Minority Populations. (4) (Same as Psychology M274.) Lecture, two hours; discussion, one hour. Limited to graduate students. Overview of physical and mental health behaviors and status of major racial/ethnic groups in U.S. Where appropriate, discussion of international issues as well. S/U or letter grading.

280. Health Reform: Policy, Research, and Implementation Issues. (4) Seminar, three hours. Requisites: courses 200A, 200B. Limited to second-year MPH and doctoral students. Analysis of components of major federal healthcare reform legislative initiative to identify important policy, research, and implementation issues. Application of principles of stakeholder analysis to understand how and why this legislation was constructed and how it passed Congress. Conducting of policy analyses of selected components through completion of written assignments. Examination of respective roles of federal and state government in implementing and administering various components. Identification of significant implementation and administrative challenges at federal and state levels and development of possible strategies for addressing those challenges. Letter grading.

M285. Ethical Theory and Applications in Public Health. (4) (Same as Community Health Sciences M249L.) Lecture, four hours. Requisites: courses 200A, 200B. Introduction to ethical theories and critical ethical issues pertaining to healthcare policy and healthcare management. Research, writing, and discussion on variety of topics related to health and human rights to enhance professionalism, leadership, and systems thinking and improve student sensitivity to needs of patients, coworkers, and fiduciary shareholders. How ethics are foundation of leadership. Letter grading.

286. American Political Institutions and Health Policy. (4) Lecture, three hours; discussion, one hour. To effectively participate in policy process as analyst, policymaker, advocate, or citizen, it is necessary to understand institutional and political context within which policy is made. Introduction to federal and state policy-making, with focus on health policy. Discussion of federalism and constitutionalism. Examination of stakeholders, public, interest groups, and nature of issue space for health policy. Structure and process of political institutions at federal level, Congress, President, executive agencies, courts, and administrative law. State responsibilities and federal/state relations. How analysis enters policy process with examination of roles of federal analytic agencies and private research and advocacy groups. Letter grading.

M287. Politics of Health Policy. (4) (Same as Community Health Sciences M287.) Lecture, three hours; discussion, one hour. Requisites: courses 200A and 200B, or Community Health Sciences 210. Examination of politics of health policy process, including effects of political structure and institutions; economic and social factors; interest groups, classes, and social movements; media and public opinion; and other factors. Letter grading.

288. Role and Impact of Technology on Health Services. (4) Lecture, four hours. Examination of role and impact of technology on health services in the U.S. from point of view of system itself. Exploration of various types of technologies for their policy, economic, and organizational impact. S/U or letter grading.

289. Healthcare Disparities. (4) Seminar, three hours. Limited to graduate students. Exploration of what constitutes and explains disparity in healthcare. Emphasis on understanding history of disparities in U.S. to understand current state of disparities, and on evaluating effectiveness of ongoing strategies to eliminate them, such as increasing insurance coverage and delivery of culturally competent healthcare. Examination of sociological models that explain disparities in healthcare and evaluation and expansion on these models. Letter grading.

M290. Evolving Paradigms of Prevention: Interventions in Early Childhood. (4) (Same as Community Health Sciences M237.) Seminar, three hours; fieldwork, one hour. Designed for graduate students. Introduction to use of early childhood interventions as means of preventing adverse health and developmental outcomes. Concepts of developmental vulnerability, approaches to assessment, models of service delivery, evaluation and cost-benefit issues, funding, and other policy issues. Letter grading.

400. Field Studies in Health Services. (4) Fieldwork, to be arranged. Preparation: summer internship. Required of all graduating MPH students. Continuation of summer placement in organizations for delivery, financing, and evaluation of health services. Preparation of consulting report based on organizational problem or project from summer internship. Exposure to selected professional development issues. Letter grading.

401. Public Health Informatics. (4) Lecture, three hours. Preparation: general familiarity and understanding of basic information technologies. Recommended requisite: course 251. Introduction to field of public health informatics and examination of impact of information technology on practice of public health. Entire process, from systems conceptualization and design to project planning and development to system implementation and use. Letter grading.

403. Healthcare Financial Accounting. (4) Lecture, four hours. Introduction to basic concepts of accounting, providing basis for understanding of language of business. Letter grading.

M411. Issues in Cancer Prevention and Control. (4) (Same as Community Health Sciences M411.) Lecture, four hours. Designed for juniors/seniors and graduate students. Introduction to causes and characteristics of cancer epidemic, cancer control goals for nation, and interventions designed to encourage smoking cessation/prevention, cancer screening, and other dietary, psychosocial, and lifestyle changes. Letter grading.

415. Organizational Analysis. (4) Seminar, four hours. Introduction to important questions and perspectives relevant to understanding organizational behavior and change in healthcare and public health environments. Active paradigms in organizational theory, particularly perspectives important for understanding delivery system change. Examination of empirical research to clarify how important organizational constructs have been operationalized and to highlight methodology-related challenges of studying organizations in healthcare/public health. Letter grading.

M420. Children with Special Healthcare Needs: Systems Perspective. (4) (Same as Community Health Sciences M420 and Social Welfare M290L.) Lecture, three hours; fieldwork, one hour. Examination and evaluation of principles, policies, programs, and practices that have evolved to identify, assess, and meet special needs of infants, children, and adolescents with developmental disabilities or chronic illness and their families. Letter grading.

M422. Practices of Evaluation in Health Services: Theory and Methodology. (4) (Same as Sociology M402.) Lecture, four hours. Requisites: courses 200A, 200B. Introduction to evaluation of health services programs and policies. Exposure to basic theoretical concepts and specific evaluation methodologies and designs. Letter grading.

423. Advanced Evaluation Theory and Methods for Health Services. (4) Lecture, four hours. Designed for departmental MS and PhD students. Familiarity with current theoretical concepts in evaluation to gain skills in integrating theory into program implementation and evaluation design. Development of student ability to apply various evaluation methodologies most appropriate to variety of settings both within and outside health care and public health, and consideration of advantages and disadvantages of potential design. Examination of shift in field of evaluation over past decade from principal focus on program efficacy (i.e., internal validity) to more balanced approach considering efficacy in content of feasibility, reach, cost, and sustainability (i.e., external validity) and evaluation designs that have emerged (e.g., pragmatic and adaptive trials). Letter grading.

424. Proposal Writing for Health Services Research. (4) Seminar, four hours. Requisites: courses 225A, 225B. Designed for MS and PhD students. Introduction to conceptualizing and writing fundable research proposals. How review process—culture, structure, procedures, timetables, and outcomes—operates in different research environments. Application of grant writing principles and skills to develop research proposals following National Institutes of Health guidelines. S/U or letter grading.

M428. Child and Family Health Program Community Leadership Seminar. (2) (Same as Community Health Sciences M428.) Seminar, two hours. Designed for graduate students. Examination of characteristics of community-based organizations (CBOs) and role of leadership in decision-making process involved in major issues facing maternal and child health in Los Angeles County. Focus on specific leadership competencies that are or should be employed by organizations effective in shaping maternal and child health programs and policies (or any population-level policies and programs). Leaders from CBOs in Los Angeles meet with students, comment on their practical experiences, and underscore community leadership concepts demonstrated by those CBOs. S/U or letter grading.

430. Healthcare Innovations and E-Health. (4) Lecture, four hours. Introduction of new technologies in healthcare e-commerce/Internet/new media area, with emphasis on general background, review of applications, and discussion of organizational and managerial issues dealing with successful use and implementation of technologies. S/U or letter grading.

431. Organizational Behavior and Human Resources in Healthcare Organizations. (4) Lecture, four hours. Managerial skills and behaviors applied to components of organizations at several levels: individual, interpersonal, group, intergroup, and system. Core human resources skills required by managers. Unique features of health services organizations stressed as applications are presented. Letter grading.

432. Management of Healthcare Delivery Organizations. (4) Seminar, four hours. Preparation: summer internship, work experience in health services. Readings, case analyses, and term papers concerned with operations, performance management, and service quality of healthcare delivery institutions. S/U or letter grading.

433. Healthcare Strategy. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 200A, 200B, 234, M236, Biostatistics 100A, Management 403. Conceptual, analytical, and technical aspects of policy and strategy formulation in health services organizations. Special attention to structure and dynamics of competitive markets, corporate-level strategic planning and marketing, managerial ethics and values, organizational creativity/innovation. Letter grading.

M434. Building Advocacy Skills: Reproductive Health Focus. (4) (Same as Community Health Sciences M430.) Seminar, three hours. Recommended requisite: one prior health policy course such as Community Health Sciences 247 or Health Policy 235. Designed for School of Public Health graduate and doctoral students. Skills-building course to develop competency in assessing, developing, and implementing advocacy strategies for reproductive health initiatives. Introduction to legislative and community advocacy initiatives and to policymaking process, including policy analysis and development of resources necessary for legislative advocacy. Identification of advocacy goals and objectives, development of advocacy plan, coalition building, organizational capacity building, media relations, and message development for various audiences. Students learn about range of former and current reproductive health advocacy campaigns. Letter grading.

435. Innovations and Current Trends in Ambulatory Care. (4) Lecture, three hours. Requisites: courses 200A, 200B. Examination of U.S. ambulatory care delivery system, with focus on more recent trends that are highlighted under Patient Protection and Affordable Care Act of 2010. Structure of ambulatory care service delivery system, infrastructure challenges, financing and quality of care, role of healthcare reform in shaping future of ambulatory care, concepts of chronic care/disease management, medical home,

and accountable care organizations, measurement, implementation, and impact of these models. Letter grading.

436. Healthcare Financial Management. (4) Lecture, four hours. Requisites: courses 234, 403. Application of financial management and accounting principles to healthcare facilities, including unique financial characteristics of healthcare facilities, third-party reimbursement, cost finding and rate setting, operational and capital budgeting, auditing, and risk management. S/U or letter grading.

437. Legal Environment of Health Services Management. (2) Lecture, two hours. Requisites: courses 200A, 200B. General survey of legal aspects of health services management, including governance, agency, informed consent, medical malpractice, and contracts. S/U or letter grading.

438. Issues and Problems of Local Health Administration. (4) Lecture, three hours. Preparation: one health services course. Requisites: course 100, Epidemiology 100. Overview of administrative issues currently faced by local health departments, including providing public health programs during fiscal constraint, quality improvement, interagency relationships and partnerships, and political and public interactions. Letter grading.

439. Dental Care Administration. (4) Lecture, three to four hours. Requisites or corequisites: Biostatistics 100A, Epidemiology 100. In-depth examination of several specific dental care policy issues: manpower, relationship of treatment to disease, national health program strategies, and evaluation mechanisms. Letter grading.

440A. Healthcare Information Systems and Technology. (4) Lecture, four hours. Preparation: completion of summer internship. Provides strong foundation in health information technology (HIT) for those working in healthcare, with emphasis on development of knowledge and skill to plan, manage, and implement HIT systems in healthcare delivery organizations with clinical and business partners and evolving HIT spaces. Background and evolution of HIT; how it is planned, implemented, and managed; and how it can be productively used by healthcare delivery organizations, external research organizations, regulatory organizations, providers, and patients/consumers. Fundamentals of technology, electronic medical records (EMR), electronic health records (EHR), personal health records (PHR), meaningful use, interoperability, and health information exchanges (HIE). Letter grading.

440B. Health Information Systems: Organization and Management. (4) Lecture, two hours; laboratory, three hours. Requisite: course 440A. Health and administrative research using clinical records. Principles of planning for routine and special studies. Individual investigation in methods of obtaining and processing data to meet needs of programs in institution and agency. Introduction to principles of medical auditing; analysis of medical and health services. S/U or letter grading.

441. Health Analytics: Identifying, Collecting, and Analyzing Big Data in Healthcare. (4) Lecture, four hours. Use of technology for data collection and processing, as well as data delivery from patients to healthcare providers, administrators, and analysts. Exploration of sources of big data in healthcare, including electronic medical record data warehouses, social media databases, wireless biosensors, and patient-provider-portal metadata. Review of associated analytic techniques for each data source, including data acquisition and management from data warehouses, hands-on data manipulation in Excel and Access, natural language processing of medical record and social media text, cloud networking for wireless biosensors, and queuing models for evaluating patient throughput. Letter grading.

442. Integrated Health Systems. (4) Lecture, four hours. Requisites: courses 200A, 200B. Position of integrated health systems in U.S. and how they function. Introduction to important technical and organiza-

tional developments. Exploration of changes in organization and delivery of healthcare as result of growth of integrated health systems. Letter grading.

445. Healthcare Marketing. (2 to 4) Lecture, two hours. Requisites: courses 200A, 200B. Introduction to concepts of healthcare marketing. Exploration of principles of market-driven decision-making process. Examination of development of key elements in annual marketing process and of consumer, competitor, company analysis, market segmentation, and target markets. Letter grading.

M449A-M449B. Child Health, Programs, and Policies. (4-4) (Same as Community Health Sciences M436A-M436B.) Lecture, four hours. Requisite: course 100. Course M449A is requisite to M449B. Examination of history of child health policy trends and determinants of health, structure, and function of health service system; needs, programs, and policies affecting especially at-risk populations. Letter grading.

450. Healthcare Financial Applications. (2) Lecture, two hours. Requisites: courses 200A, 200B. Study of healthcare financial management, including variables of cost of funds, availability of physicians to provide necessary patients, efficiency of operations, and legal constraints. Letter grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward MPH and MS minimum total course requirement. May be repeated for credit. S/U or letter grading.

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

598. Master's Thesis Research. (2 to 8) Tutorial, to be arranged. Only 4 units may be applied toward MPH and MS minimum total course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

599. Doctoral Dissertation Research. (2 to 12) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

HISTORY

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Janice L. Reiff, PhD (Waldo W. Neikirk Term Professor)
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 Michael Salman, PhD
 Peter J. Stacey, PhD
 Albion M. Urdank, PhD
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Senior Lecturer S.O.E.

S. Scott Bartchy, PhD, *Emeritus*

Lecturers

Mary F. Corey, PhD
 John S. Langdon, PhD

Adjunct Associate Professor

Amir Alexander, PhD

Scope and Objectives

History is the study of the past of our own society and how it emerged out of the traditions that produced it. At the same time, self-knowledge for students of history comes not only from self-discovery, but from a comparison of their own tradition and experience with those of others. It is only by studying the history of other civilizations and cultures that we can hope to gain perspective on our own.

The course offerings in the Department of History at UCLA are designed to bring about an understanding of the forces that have shaped the many cultures of this country and the world. UCLA has one of the largest, most distinguished, and most diverse history faculties in the country. Its main emphasis is on the many aspects of social history, but intellectual, cultural, and political history are also strongly represented.

Of all undergraduate majors, History is probably the most flexible and far-reaching. Leading to a Bachelor of Arts degree, it is excellent preparation for a wide variety of careers—law, teaching, business, the communications media, public services, and medicine.

The graduate program leads to the PhD degree in History (a master's degree may be earned in the process of completing PhD requirements). Traditionally, the MA and PhD in History have

led to careers in high school, college, and university teaching. Increasingly, they are also being put to use in government service, international business, museum and archival work, and journalism.

Undergraduate Study

The History major is a designated capstone major. Undergraduate students take a capstone seminar in which they demonstrate mastery of a specialized area of history and a critical understanding of current scholarly concerns, literature, and debate, then design and complete a research project using those primary sources and literature.

History BA

Capstone Major

The History Department's undergraduate program consists of 16 courses in history (six lower division—the Preparation for the Major, including the premajor requirements; 10 upper division—the Major). Each course must be taken for a letter grade.

Preparation for the Premajor and Major

Required for the Premajor: Three courses, including two in Western civilization (History 1A, 1B, 1C) or two in world history (courses 20, 21, 22), and one course from 96W or 97A through 97O.

After completing the three courses with a minimum grade-point average of 2.0, students should petition to enter the major at the undergraduate counselor's office in 6248 Bunche Hall.

Required for the Major: Three additional lower division history courses.

Transfer Students

Transfer applicants to the History major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one semester or two quarters of history of Western civilization or world history, one historical practice course, and three additional lower division history courses.

Transfer credit for the premajor courses is subject to department approval. Transfer students should consult the undergraduate counselor before enrolling in any courses for the major.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: At least 10 upper division history courses, including (1) two courses in U.S. history, (2) two courses in non-Western history from the same area (i.e., Latin America, Asia, Near East, Africa), (3) two courses in European history or in history of science, and (4) one capstone seminar from the History 191 series.

The requirements for U.S., non-Western, and European history may be fulfilled with either upper or lower division courses, but majors are required to take a minimum of 10 upper division history courses.

There is no language requirement for the major; however, students wishing to enter the honors program or planning to do graduate work in history are urged to pursue language study early in their undergraduate careers.

Advanced Placement Credit in History

Effective fall quarter 2002 for entering freshmen, no course credit is granted for any AP Examination.

Honors Program

The honors program is designed for History majors who are interested in completing a year-long research project that culminates in an honors thesis. A 3.5 departmental grade-point average is required for admission. To graduate with departmental honors, students must have a cumulative or overall GPA of at least 3.0 in all University-level coursework and at least a 3.5 GPA in all coursework required for the major.

The honors thesis must be completed in three terms, on the basis of work carried out in History 198A, 198B, and 198C. Students must register their intention to undertake an honors thesis with the undergraduate affairs vice chair no later than spring quarter of their junior year.

When students register for honors, they must provide the undergraduate affairs vice chair with a two-paragraph description of their thesis project, which must be approved in writing by the faculty member who agrees to act as their adviser. The undergraduate affairs vice chair must also approve the proposed project in writing.

The faculty adviser is primarily responsible for guiding the thesis work to its completion and assigns grades for the honors courses after the thesis is complete. The honors thesis should be 40 to 60 pages in length and be based on primary source material. Determination of the level of honors awarded (no honors, honors, or highest honors) is made by the undergraduate affairs vice chair, acting in conjunction with the honors committee, at the end of the term in which the thesis is completed.

History of Science and Medicine Minor

The History of Science and Medicine minor is designed for students who wish to augment their major, perhaps in one of the sciences, with a series of courses that analyze the historical growth, impact, and significance of science and medicine in Western and world culture. The minor consists of a choice of lower division courses that expose students to overviews of science and medicine in large time periods or to specific thematic concerns. Upper division courses offer more focused and often smaller classes that explore crucial episodes or areas with a more rigorous and sophisticated content and methodology.

To enter the minor, students must be in good academic standing (2.0 grade-point average), have completed 45 units and at least one lower division course in the history of science or

medicine for a letter grade, and file a petition with the minor adviser in 6265 Bunche Hall.

Required Lower Division Courses (12 units): Three courses from History 2B, 2D, 3A through 3D, Philosophy 8.

Required Upper Division Courses (20 units): Five courses from Anthropology 182, History 179A through 180C, any upper division Honors Collegium courses with history of science or history of medicine content, Neurobiology M168 (or Physiological Science M168), Philosophy 124.

Each year certain undergraduate seminars in the History 191 sequence are designated as applicable to the upper division minor requirements. Students may also petition to have other relevant courses, including those from other departments, applied toward the upper division requirements.

At least one upper division course, to be selected and approved in consultation with the undergraduate or faculty adviser, must involve writing a research or interpretative paper of significant length and intellectual content. Transfer credit for courses may be subject to departmental approval.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

One course may be taken on a Passed/Not Passed basis; each of the other minor courses must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of History offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in History.

History

Lower Division Courses

1A-1B-1C. Introduction to Western Civilization. (5-5-5) Lecture, three hours; discussion, two hours. Broad, historical study of major elements in Western heritage from world of Greeks to that of 20th century, designed to further beginning students' general education, introduce them to ideas, attitudes, and institutions basic to Western civilization, and acquaint them, through reading and critical discussion, with representative contemporary documents and writings of enduring interest. P/NP or letter grading. **1A.** Ancient Civilizations, Prehistory to circa A.D. 843; **1B.** Circa A.D. 843 to circa 1715; **1C.** Circa 1715 to Present.

1AH-1BH-1CH. Introduction to Western Civilization (Honors). (5-5-5) Lecture, three hours; discussion, two hours. Honors sequence parallel to courses 1A, 1B, 1C. P/NP or letter grading. **1AH.** Ancient Civilizations, Prehistory to circa A.D. 843 (Honors); **1BH.** Circa A.D. 843 to circa 1715 (Honors); **1CH.** Circa 1715 to Present (Honors).

2A. Power, Ethics, and Technological Change. (4) Lecture, three hours; discussion, two hours. Examination of historical and theoretical relationships between ethical behavior, corporate power, and technological change. Topics include engineering practice and business profits, gender and engineering cultures, product liability and consumer safety, and engineering and computer ethics. Historical case studies include Three Mile Island, Chernobyl, the DC-10, and Challenger Disaster. P/NP or letter grading.

2B. Social Knowledge and Social Power. (5) Lecture, three hours; discussion, two hours. History of social knowledge and social power in the 19th and 20th centuries. Everyday ideas and practices about human nature, common sense, and community and relation of those practices to social thought, social engineering, and social science. Themes include development of social knowledges through public activities and discourses; how social knowledge differs in agricultural, mercantile, industrial, and information-based political economies; and how social science addresses these issues. P/NP or letter grading.

2C-2D. Religion, Occult, and Science. (5-5) Lecture, three hours; discussion, two hours. P/NP or letter grading:

2C. Mystics, Heretics, and Witches in Western Tradition, 1000 to 1600. (5) Lecture, three hours; discussion, two hours. Specific aspects of elite and popular culture in medieval and early modern Europe. Manner in which men and women sought to explain, order, and escape terrors of their lives by embracing transcendental religious experiences and dreaming of apocalypse and witchcraft. Examination of experiences in context of genesis of the state, birth of a new science, and economic and social change. P/NP or letter grading.

2D. Science, Magic, and Religion, 1600 to Present. (5) Lecture, three hours; discussion, two hours. Science and religion as historical phenomena that have evolved over time. Examination of earlier mind-set before 1700 when into science fitted elements that came eventually to be seen as magical. How Western cosmologies became "disenchanted." Magical tradition transformed into modern mysticisms. Political implications of these movements; science in totalitarian settings as well as "big science" during the Cold War. Discussion of anti-science and cult movements. P/NP or letter grading.

3A-3B-3C. Introduction to History of Science. (5-5-5) Lecture, three hours; discussion, two hours. History majors may not apply these courses on science general education requirements. P/NP or letter grading:

3A. Scientific Revolution. (5) Lecture, three hours; discussion, two hours. Survey of beginnings of physical sciences involving transformation from Aristotelian to Newtonian cosmology, mechanization of natural world, rise of experimental science, and origin of scientific societies. P/NP or letter grading.

3B. History of Science from Newton to Darwin. (5) Lecture, three hours; discussion, two hours. In this period science became part of Enlightenment campaign for reason and of culture of an Industrial Revolution. New social science and evolutionary debates about science and religion demonstrate its rising intellectual and practical significance. P/NP or letter grading.

3C. History of Modern Science, Relativity to DNA. (5) Lecture, three hours; discussion, two hours. Ranging from startling new physics of relativity and the quantum, and of nuclear weapons, to molecular reductionism in biology and campaigns for statistical objectivity, examination of involvement of science in technological, military, intellectual, and political changes of the 20th century. P/NP or letter grading.

3CH. Introduction to History of Science: History of Modern Science, Relativity to DNA (Honors). (5) Lecture, three hours; discussion, two hours. Honors course parallel to course 3C. P/NP or letter grading.

3D. Themes in History of Medicine. (5) Lecture, three hours; discussion, two hours. Examination, through illustrated lectures and focused discussion of primary sources, of five important themes in development of modern medicine: nature of diagnosis, emergence of surgery, epidemics, conception and treatment of insanity, and use of medical technology. P/NP or letter grading.

M4. Introduction to History of Religions. (5) (Same as Religion M4.) Lecture, three hours; discussion, two hours. Comparative study of eight major religious traditions, with emphasis on their beginnings and subsequent decisive changes in their respective historical developments and interactions. Equips students with intellectual tools necessary for thinking analytically, empathetically, and comparatively about fascinating human phenomena identified as religious, such as sacred acts, places, words, and persons in their varied historical contexts. Development of student skills in critical thinking, analyzing documents, and making persuasive arguments based on historical evidence. P/NP or letter grading.

5. Holocaust: History and Memory. (5) Lecture, three hours; discussion, two hours. Holocaust, murder of six million Jews by Germans in Nazi-occupied Europe during World War II, is one of crucial events of modern history. Examination of origins of Holocaust, perpetrators and victims, and changing efforts to come to terms with this genocide. Exploration of forces that led to Holocaust, including emergence of scientific racism, anti-Semitism, and machinery of modern state. Consideration of debates about implementation of genocide, including significance of gender and sexuality, relationship between war and genocide, meanings of resistance and culpability, and political and philosophical implications of Holocaust. Exploration of how genocide of European Jewry was intertwined with targeting of other victims of Nazi rule, including Roma, Slavs, black Germans, disabled, homosexuals, and political opponents of National Socialism. P/NP or letter grading.

8A. Colonial Latin America. (5) Lecture, three hours; discussion, two hours. General introduction to Latin American history from contact period to independence (1490s to 1820s), with emphasis on convergence of Native American, European, and African cultures in Latin America; issues of ethnicity and gender; development of colonial institutions and societies; and emergence of local and national identities. Readings focus on writings of Latin American men and women from the period studied. P/NP or letter grading.

8AH. Colonial Latin America (Honors). (5) Lecture, three hours; discussion, two hours. Honors course parallel to course 8A. P/NP or letter grading.

8B. Modern Latin America. (5) Lecture, three hours; discussion, one hour. Introductory survey of social, political, and economic history of Latin America after independence, region that includes Mexico, Central and South America, and Caribbean. Formation of independent nation states and political regimes and quest for sovereignty and its challenges in shadow of U.S., approached from bottom up through lens of social history, everyday life, and popular culture. P/NP or letter grading.

8BH. Modern Latin America (Honors). (5) Lecture, three hours; discussion, one hour. Honors course parallel to course 8B. P/NP or letter grading.

8C. Latin American Social History. (5) Lecture, three hours; discussion, two hours. Historical and contemporary perspective of role of ordinary people in Latin American society. Each lecture/film session centers on a major Latin American movie illustrative of a theme in social history. P/NP or letter grading.

8CH. Latin American Social History (Honors). (5) Lecture, three hours; discussion, two hours. Honors course parallel to course 8C. P/NP or letter grading.

9A-9E. Introduction to Asian Civilizations. (5 each) Lecture, three hours; discussion, two hours. P/NP or letter grading:

9A. History of India. (5) Lecture, three hours; discussion, two hours. Introductory survey for beginning students of major cultural, social, and political ideas, traditions, and institutions of Indic civilization. P/NP or letter grading.

9C. History of Japan. (5) Lecture, three hours; discussion, two hours. Survey of Japanese history from earliest recorded time to the present, with emphasis on development of Japan as a cultural daughter of China. Attention to manner in which Chinese culture was Japanized and aspects of Japanese civilization which became unique. Creation of the modern state in the last century and impact of Western civilization on Japanese culture. P/NP or letter grading.

9CH. History of Japan (Honors). (5) Lecture, three hours; discussion, two hours. Honors course parallel to course 9C. P/NP or letter grading.

9D. History of Middle East. (5) Lecture, three hours; discussion, two hours. Introduction to history of Muslim world from advent of Islam to present day. P/NP or letter grading.

9E. Southeast Asian Crossroads. (5) Lecture, three hours; discussion, two hours. Overview history of a region united by its wet tropical environment and divided by great religious, cultural, and political pluralism, with focus on Vietnamese, Thai, Filipino, Khmer, Burmese, and Malayo-Indonesian patterns. P/NP or letter grading.

M10A-10B. History of Africa. (5-5) P/NP or letter grading. **M10A.** To 1800. (Same as African American Studies M10A.) Lecture, three hours; discussion, one hour. Exploration of development of African societies from earliest times to late 18th century. **10B.** 1800 to Present. Lecture, three hours; discussion, two hours. Not open for credit to students with credit for course 10BH or 10BW. Survey of social, economic, and political developments in Africa since 1800, with focus on slave trade, imperialism and colonialism, and nationalism and independence. Attention to different ideologies (nationalism, socialism, apartheid), rural/urban tensions, changing role of women.

10BH. Introduction to Civilizations of Africa (Honors). (4) Lecture, three hours; discussion, two hours. Not open for credit to students with credit for course 10B or 10BW. Honors course parallel to course 10B. P/NP or letter grading.

10BW. Introduction to Civilizations of Africa since 1800. (5) Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 10B or 10BH. Survey of social, economic, and political developments in Africa since 1800, with focus on slave trade, imperialism and colonialism, and nationalism and independence. Attention to different ideologies (nationalism, socialism, apartheid), rural/urban tensions, changing role of women. Four papers required. Satisfies Writing II requirement. Letter grading.

11A-11B. History of China. (5-5) Lecture, three hours; discussion, one hour. P/NP or letter grading. **11A.** To 1000. Survey of early history of China—genesis of characteristic Chinese institutions and modes of thought from antiquity to 1000. Focus on social, political, intellectual, and economic aspects of early and middle empires. **11B.** Circa 1000 to 2000. Survey of later history of China—evolution of characteristic Chinese institutions and modes of thought from circa 1000 to 2000. Focus on social, political, intellectual, cultural, and economic aspects of early modern regimes and empires and rise of modern China into contemporary era.

11AH-11BH. History of China (Honors). (5-5) Lecture, three hours; discussion, two hours. Honors sequence parallel to courses 11A, 11B. P/NP or letter grading. **11AH.** To 1000 (Honors); **11BH.** 1000 to 1950 (Honors).

12A. Inequality: History of Mass Imprisonment. (5) Lecture, three hours; discussion, one hour. Beginning with end of U.S.-Mexican War (1848) and ending with beginning of World War II, historical analysis from days when Los Angeles first became U.S. town until 1940s when Los Angeles first became global epicenter of human confinement. Exploration of major eras and turning points in city's rise as both national and global leader in human incarceration, with review of historical foundations of mass imprisonment in Los Angeles. Introduction to current social and political landscape of imprisonment in Los Angeles. P/NP or letter grading.

12B. Inequality: History of Neoliberalism. (5) Lecture, three hours; discussion, one hour. Exploration of origins, ideas, and consequences of neoliberalism—theory that society is best organized on principles of free trade, deregulation, and privatization. Combination of political, economic, and intellectual history to construct genealogy of neoliberal thinking by attending to 18th- and 19th-century liberalism, colonialism, imperialism, rise of social democracy and military Keynesianism, and Mount Pelerin Society's Cold War resuscitation of 19th-century liberalism. Coverage of economic crisis of 1970s, restructuring of global political economy in U.S., Europe, global south—specifically debt, structural adjustment policies, environmental destruction, and military intervention. Tracing of colonial roots of global north-south divide to reveal how neoliberal policies represent longer process of accumulation by dispossession and enclosure rather than sudden radical break from Keynesian model. P/NP or letter grading.

13A-13B-13C. History of the U.S. and Its Colonial Origins. (5-5-5) Lecture, three hours; discussion, two hours. Strongly recommended for History majors planning to take more advanced courses in U.S. history. Cultural heritages, political institutions, economic developments, and social interactions which created contemporary society. P/NP or letter grading. **13A.** Colonial Origins and First Nation Building Acts; **13B.** 19th Century; **13C.** 20th Century.

20. World History to A.D. 600. (5) Lecture, three hours; discussion, two hours. Examination of earliest civilizations of Asia, North Africa, and Europe—Mesopotamia, Egypt, Israel, India, China, Greece, and Rome—from development of settled agricultural communities until about A.D. 500, with focus on rise of cities, organization of society, nature of kingship, writing and growth of bureaucracy, varieties of religious expression, and linkage between culture and society. P/NP or letter grading.

21. World History, circa 600 to 1760. (5) Lecture, three hours; discussion, two hours. Outline of world history from rise of Islam to start of Industrial Revolution, structured around a broad chronological narrative of salient developments. Use of thematic and comparative approaches, with certain recurring themes and institutions that modulate from culture to culture. Reading of variety of contemporary accounts to look at way people perceived cultures outside their own. P/NP or letter grading.

22. Contemporary World History, 1760 to Present. (5) Lecture, three hours; discussion, two hours. Broad thematic survey of world history since the mid-18th century. Examination, through lecture and discussion, of global implications of imperialism, total war, nationalism, cultural change, decolonization, changes in women's rights and roles, and eclipse of world communism. Designed to introduce students to historical study, help them understand issues and dilemmas facing the world today, and prepare them for more in-depth work in history of specific regions or countries of the world. P/NP or letter grading.

88. Sophomore Seminars: History. (4) Seminar, three hours. Limited to maximum of 20 lower division students. Readings and discussions designed to introduce students to current research in discipline. Culminating project may be required. P/NP or letter grading.

88GE. Sophomore Seminar: Special Topics in History. (5) Seminar, four hours. Requisite: designated GE lecture course; see Schedule of Classes for specific requisite lecture and seminar topics. Designed for sophomores/juniors. Exploration of aspects of lecture topic through readings, images, and discussions. P/NP or letter grading.

94. History Research Methods and Strategies. (1) Seminar, one hour. Development of competency with identifying, locating, critically evaluating, and using information in print, electronic, and other formats. Flow of information in variety of disciplines, how to approach research problems systematically, how to access and evaluate information in variety of formats, and how to formulate effective searches and search in electronic databases and on Internet. P/NP or letter grading.

96W. Introduction to Historical Practice. (5) Seminar, three hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for former course 99W. Introduction to study of history, with emphasis on historical theory and research methods. Satisfies Writing II requirement. Letter grading.

97. Historical Practices Adjunct Seminar. (1) Seminar, one hour. Corequisite: any course from History 97A through 97O. Limited to History majors. Exploration of topics covered in courses 97A through 97O in greater depth through supplemental readings, discussions, or other activities. P/NP grading.

97A-97O. Introduction to Historical Practice: Variable Topics. (4 each) Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics courses; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading. **97A.** Ancient History; **97B.** Medieval History; **97C.** European History; **97D.** U.S. History; **97E.** Latin American History; **97F.** Near Eastern History; **97G.** East Asian History; **97I.** History of Science/Technology; **97J.** African History; **97K.** History of Religion; **97L.** Jewish History; **97M.** Southeast Asian History; **97N.** Indian History; **97O.** World History.

Upper Division Courses

100. History and Historians. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of historiography, including intellectual processes by which history is written, results of these processes, and sources and development of history. Attention also to representative historians. P/NP or letter grading.

101. Topics in World History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of specific historical themes from world historical perspective. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

C101A-C101B. Variable Topics: Interdisciplinary Studies. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Course C101A is not requisite to C101B. Designed for juniors/seniors. Topics may include gender, world history, masculinity, and economic history. May be repeated for credit with topic change. Concurrently scheduled with courses C208A-C208B. P/NP or letter grading.

102A. Iran and Persianate World. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Development of model of Persianate world to bring together histories of Iran, India, and central Asia (including Afghanistan) between circa 1200 and 2000. Movement and interaction of different peoples between major cultural centers where Persian was used as common language of intellectual, religious, social, and political exchange. Weekly focus on one particular theme, with lecture material supplemented by translations of writings of princes, poets, tribesmen, travelers, and mystics who created Persian republic of letters between Shiraz, Samarqand, and Delhi, and even as far as Siberia and China. Examination of why and how various ethnic

and professional groups made Persian into one of most important languages in world history. P/NP or letter grading.

M103A-M103B. Ancient Egyptian Civilization. (4-4) (Same as Ancient Near East M103A-M103B.) Lecture, three hours; discussion, one hour (when scheduled). Course M103A is not requisite to M103B. Designed for juniors/seniors. Political and cultural institutions of ancient Egypt and ideas on which they were based. P/NP or letter grading. **M103A.** Chronological discussion of Prehistory, Old and Middle Kingdom. **M103B.** New Kingdom and Late period until 332 B.C.

M104A. History of Ancient Mesopotamia and Syria. (4) (Same as Ancient Near East M104A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political and cultural development of Fertile Crescent, including Palestine, from Late Uruk to neo-Babylonian period. P/NP or letter grading.

M104B. Sumerians. (4) (Same as Ancient Near East M104B.) Lecture, three hours. Designed for juniors/seniors. Overview of Sumer and related cultures of Greater Mesopotamia in 4th and 3rd millennia B.C.E., with focus on rich cultural history of region and integration of archaeological, art historical, and written records. P/NP or letter grading.

M104C. Babylonians. (4) (Same as Ancient Near East M104C.) Lecture, three hours. Designed for juniors/seniors. Overview of Babylonia and cultural history of region from late 3rd millennium B.C.E. to invasion of Cyrus in 539 B.C.E., with focus on history and archaeology of region, urban structure, literature, and legal practices. P/NP or letter grading.

M104D. Assyrians. (4) (Same as Ancient Near East M104D.) Lecture, three hours. Designed for juniors/seniors. Overview of Assyrian cultural history from its origins to end of Neo-Assyrian period (circa 612 B.C.E.), with focus on rise, mechanics, and decline of Neo-Assyrian Empire, which at its peak ruled ancient Near East from Zagros to Egypt. P/NP or letter grading.

105A-105B-105C. Survey of Middle East, 500 to Present. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Background and circumstances of rise of Islam, creation of Islamic Empire, and its development. Rise of Dynastic Successor States and Modern Nation States. Social, intellectual, political, and economic development. P/NP or letter grading. **105A.** 500 to 1300; **105B.** 1300 to 1700; **105C.** 1700 to Present.

M106. Premodern Islam. (4) (Formerly numbered M106A.) (Same as Religion M106A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of early development of Islam with special attention to doctrine of nature of God, human responsibility, guidance, revelation and religious authority, duties of believers, ritual, law, sectarian movements, mysticism, and popular religion. P/NP or letter grading.

107A-107B-107C. Armenian History. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **107A.** Armenia in Ancient and Medieval Times, 2nd Millennium B.C. to A.D. 11th Century; **107B.** Armenia from Cilician Kingdom through Periods of Foreign Domination and National Stirrings, 11th to 19th Centuries; **107C.** Armenia in Modern and Contemporary Times, 19th and 20th Centuries. Armenian question and genocide, national republic, Soviet Armenia, and dispersion.

107D. Introduction to Armenian Oral History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Uses and techniques of Armenian oral history; preinterview, interview, and postinterview procedures; methods of compilation and evaluation. Field assignments, interviews, and summaries and/or paper based on interviews. P/NP or letter grading.

107E. Caucasus under Russian and Soviet Rule. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of political, economic, social, and cultural history of Caucasus region since 1801. Georgian, Armenian,

and Azerbaijani response to Russian rule; nationality question and Soviet national republics. P/NP or letter grading.

108A. History of North Africa from Islamic Conquest. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of political, social, economic, and religious history of Islamic West (Maghrib) from Muslim conquest in 7th and 8th centuries C.E. until 1578. P/NP or letter grading.

108B. History of Islamic Iberia. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of political, social, economic, religious, artistic, and literary history of Islamic culture in Western Europe. P/NP or letter grading.

M108C. Culture Area of Maghrib (North Africa). (4) (Same as Anthropology M171P and Arabic M171.) Lecture, three hours. Designed for juniors/seniors. Introduction to North Africa, especially Morocco, Algeria, Tunisia, and Libya, also known as Maghrib or Tamazgha. Topics include changing notions of personal, tribal, ethnic, linguistic and religious identities; colonialism; gender and legal rights, changing representations of Islam, and religions in region's public spaces. P/NP or letter grading.

109B. History of Israeli-Palestinian Conflict, 1881 to Present. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of origins of Arab-Israeli dispute from mid-19th century through founding of state of Israel and expulsion/flight of three quarters of million Palestinians from their homes. Exploration of social history of Palestine up to Zionist colonization, origins of Zionism and Palestinian nationalism, varieties of Zionism, Zionism and colonialism, seminal events and their consequent symbolic connotations Great Revolt and 1948 nakba (disaster), construction of national consensus in Israel, 1967 and its aftermath, intifada, and redefinition of conflict as result of Oslo. P/NP or letter grading.

M110A-M110B-M110C. Iranian Civilization. (4-4-4) (Same as Ancient Near East M110A-M110B-M110C and Iranian M110A-M110B-M110C.) Lecture, three hours; discussion, one hour (when scheduled). History of ancient Iran from rise of Elam to end of Sasanian dynasty—Elamite civilization and Mede, Achaemenid, Arsacid, and Sasanian Empires. Emphasis on ancient Iran, but may be offered for early Islamic period. P/NP or letter grading.

111A-111B-111C. Topics in Middle Eastern History. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading. **111A.** Premodern. Examination of major issues in history of Middle East. **111B.** Early Modern. Examination of Istanbul in Ottoman period (1453 to 1923); relationship between history and literary imagination and view of history as dialogue between past and present; scholarly debate on urban history of early-modern Middle East; introduction to corpus of theories (world economy paradigm) through discussion of Ottoman port cities. **111C.** Modern. Middle East underwent widespread social, economic, and cultural changes during 19th century that propelled society, at least portions of society and aspects of its social/cultural life, in entirely new direction. Examination of those changes to understand exactly what modernity meant for region.

112A-112B. History of Ancient Mediterranean World. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **112A.** Survey of history of ancient East from earliest times to foundation of Persian Empire. **112B.** History and institutions of Greeks from their arrival to death of Alexander.

M112C. History of Ancient Mediterranean World. (4) (Formerly numbered 112C) (Same as Classics M114A.) Lecture, five hours. Intensive on-site study of history and culture of ancient Rome from founding of city to conversion of Christianity. Part of UCLA Summer Travel Program. P/NP or letter grading.

112D. History and Monuments of Ancient Greece: Field Studies. (4) Fieldwork, three hours. Enforced corequisite: course 112B. Examination of history, art, and monuments of ancient Greece through daily lectures and field walks to museums and archaeological sites. Part of UCLA Summer Travel Program. P/NP or letter grading.

M112E. History and Monuments of Rome: Field Studies. (4) (Formerly numbered 112E.) (Same as Classics M114B.) Fieldwork, five hours. Enforced corequisite: course M112C. Examination of history, art, and monuments of ancient Rome through daily lectures and field walks to museums and archaeological sites. Field trips outside Rome to Pompeii, Hadrian's Villa, and ancient Ostia. Reception and ruins of Roman antiquity in medieval, Renaissance, and modern eras explored in their historical context. Part of UCLA Summer Travel Program. P/NP or letter grading.

113A-113B. History of Ancient Greece. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **113A.** Rise of Greek City-State. Emphasis on archaic period and early classical age through Persian Wars. **113B.** Classical Period. Clash between Athens and Sparta, consequent rise of Macedonia, and aftermath of Alexander the Great.

114A-114B-114C. History of Rome. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **114A.** To Death of Caesar. Emphasis on development of imperialism and on constitutional and social struggles of late republic. **114B.** From Death of Caesar to Time of Constantine. Early empire treated in more detail, supplemented by survey of social and economic changes in 3rd century. **114C.** Transformation of Classical World. Political, cultural, and religious history of Mediterranean in late antiquity, from crisis of Roman Empire in 3rd century to barbarian and Arab invasions and beginning of medieval states and societies in 7th century.

115. Topics in Ancient History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to topics in Greek and Roman history, including Roman law, ancient Greek and Roman slavery, world of Caesar Augustus, Greek democracy, and Alexander the Great. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

116A-116B. Byzantine History. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political, socioeconomic, religious, and cultural continuity in millennial history of Byzantium. Reforms of Diocletian. Byzantium's relations with Latin Europe, Slavs, Sassanids, Arabs, and Turks. P/NP or letter grading.

M116C. Power and Imagination in Byzantium. (4) (Same as Classics M170C.) Lecture, three hours; discussion, one hour (when scheduled). Requisites: courses 116A, 116B. Designed for juniors/seniors. Study of relations of authority and intelligentsia in highly centralized Byzantine Empire. Topics include criticism of emperor, iconoclasm, intellectual freedom, attempts at reform. Letter grading.

119A-119B. Medieval Europe. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Basic introduction to Western Europe from Latin antiquity to age of discovery, with emphasis on medieval use of Greco-Roman antiquity, history of manuscript book, and growth of literacy. P/NP or letter grading. **119A.** 400 to 1000; **119B.** 1000 to 1500.

119C. Medieval Civilization: Mediterranean Heartlands. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of Western Mediterranean Europe, social/economic/cultural within political framework, including its relation with other cultures. P/NP or letter grading.

119D. Topics in Medieval History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Special topics in history of Middle Ages, including religion in society, justice and law, politics of war and diplomacy, economic up-

heaval and renewal, and cultural representations. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

120A-120B. East-Central Europe. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading.

120A. Long 19th Century, 1780 to 1914. Analysis of characteristics of peripheral 19th-century capitalism, effort to modernize and catch up, and factors and consequences of its partial failure in economy, politics, and culture. **120B. Short 20th Century, 1918 to 1990.** Analysis and interpretation of stormy history of crisis zone of Europe where wars, revolts and revolutions, and different types of extremisms led to historical detour: 70 years of departure from Western values and at last effort to turn back to them.

120C. East-Central Europe in Transition, 1988 to 1993. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors.

State-socialism and Soviet domination collapsed in East-Central Europe in 1989. Analysis of cause and consequence of collapse, as well as road of transformation in seven (now 12) countries of region; international circumstances and domestic political, social, and economic processes. Ideology of transition versus reality of democratization, marketization, and privatization; free choice versus determinant factors. Scenarios for future. P/NP or letter grading.

120D. Film and History: Central and Eastern Europe, 1945 to 1989. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Postwar history of central and eastern Europe (1945 to 1989), using eight Czech, Polish, and Hungarian films to explore life under state socialist modernization dictatorship. P/NP or letter grading.

121A-121F. History of Modern Europe. (4 each) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading:

121A. Renaissance and Reformation, 1450 to 1660. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Reorganization of power, new forms of representation, and discourses about rule and obedience in Europe from mid-15th through 16th century; popular culture; peasant society; refashioning of religion and power; localization. P/NP or letter grading.

121B. Baroque Culture and Absolutist Politics, 1600 to 1715. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Changing nature of state and social domination; redeployment of military violence; strategies of population discipline; absolutism and baroque culture; new forms of bureaucratic intervention; representation of family, sexuality, and body; witch persecutions. P/NP or letter grading.

121C. Old Regime and Revolutionary Era, 1715 to 1815. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Enlightened absolutism and reform, challenge of new political and economic ideas, crisis of Old Regime, impact of French Revolution and Napoleonic empire. P/NP or letter grading.

121D. Bourgeois Century, 1815 to 1914. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Restoration politics, Industrial Revolution, uprisings of 1848, unification of Germany and Italy, imperialism, rise of socialism, population growth, changes in social structure, origins of World War I. P/NP or letter grading.

121E. Era of Total War, 1914 to 1945. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. World War I, interwar period, and World War II. Social, cultural, political, and economic aspects, with focus on strain between model of parliamentary democracy and dynamics of mass politics (e.g., Bolshevik Revolution, Italian Fascism, national socialism, and Spanish Civil War). P/NP or letter grading.

121F. World War II and Its Aftermath, 1939 to Present. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. World War II, origins and persistence of Cold War, reconstruction

in West, de-Stalinization, decolonization, crisis of welfare state, background to and course of 1989 revolutions, current political configuration. P/NP or letter grading.

122A-122F. Cultural and Intellectual History of Modern Europe. (4 each) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Climates of taste and climates of opinion. Educational, moral, and religious attitudes; art, thought, and manners of time in historical context. P/NP or letter grading.

122A. 15th Century. Renaissance cultural and intellectual history of Europe. Central themes include comparative history of ideas, theory and practice of art and architecture, civic and religious humanism, religious experience, and new cultural genres of history and philological scholarship. **122B. 16th Century.** **122C. 17th Century.** **122D. 18th Century.** **122E. 19th Century.** (Same as Art History M127C.) **122F. 20th Century.**

123A-123B-123C. War and Diplomacy in Europe. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading.

123A. 1650 to 1815. Survey of military and diplomatic history, seen in relation to social and economic developments and growth of state.

123B. 1815 to 1945. Changing patterns of warfare and diplomatic attempts to contain Great Power rivalries; wars of national unification; imperialism; shifting balance of power and alliances; origins, course, and effects of two World Wars. **123C. Cold War.** Relations of West, Soviet Union, and world from 1945 to 1991. Origins, development, and end of power-political, military, and ideological confrontations between superpowers and their allies and clients in Europe, Asia, and Latin America.

124A-124B-124C. History of France. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading.

124A. France, 1500 to 1715. Social history of 16th- and 17th-century France, including growth of monarchy, wars of religion, peasant uprisings, popular culture, Catholic resurgence, Louis XIV, and achievements in arts and literature.

124B. France, 1715 to 1871. *Ancien Régime* and time of revolutions. Critical discourse leading to French Revolution, collapse of state, Napoleonic era, reconstruction of society through monarchies and revolutions of 19th century.

124C. Making of Modern France, 1871 to Present. From oligarchy to democratic bureaucracy in two wars and three republics.

125A. Baroque and Enlightenment Germany. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Development of state institutions, culture, and society in Central Europe from end of Thirty Years' War to end of Napoleonic Wars. Consideration of absolutism as political system, and baroque and Enlightenment cultures as new discourses on power and hierarchy. P/NP or letter grading.

125B. Nationalism and Modernization in 19th-Century Germany. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors.

Problems of class society and state formation, emancipation, assimilation, growth of national consciousness, emergence of bourgeois public sphere, dynamics of gender in civil society and political life, post-Napoleonic tensions between reform and reaction, 1848, and national unification. P/NP or letter grading.

125C. 20th-Century Germany. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Transitions that Germany has faced during this century: two world wars, shift from monarchy to republic to national socialism to divided nation, and finally reunification. Consideration of political, social, economic, and cultural spheres. P/NP or letter grading.

125D. History of Low Countries. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of aspects of Dutch (and on occasion Belgian) history from medieval period to period after World War II, with emphasis on political and cultural history. Topics include Middle

Ages, Dutch Republic in 17th and 18th centuries, Low Countries from 1830 to 1918, Netherlands and Belgium in context of Europe after 1945. P/NP or letter grading.

126. Europe in Age of Revolution, circa 1775 to 1815. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Period from revolt of Thirteen Colonies to French Revolution of 1789, and Napoleonic regime, viewing social and political changes unleashed by these revolutionary movements in comparative and transnational perspective. P/NP or letter grading.

127A-127D. History of Russia. (4 each) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading:

127A. Origins to Rise of Muscovy. (4) (Same as Russian M118.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Kievan Russia and its culture, Appanage principalities and towns; Mongol invasion; unification of Russian state by Muscovy. Autocracy and its Servitors; serfdom. P/NP or letter grading.

127B. Imperial Russia from Peter the Great to Nicholas II. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Westernization of state and society; centralization at home and expansion abroad; peasant problem; beginnings of industrialization; movements of political and social protest; non-Russian peoples; political reforms and social changes; Revolution of 1905; Russia in World War I; fall of old regime. P/NP or letter grading.

127C. Revolutionary Russia and Soviet Union. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Revolutions of 1917, Civil War, consolidation of Bolshevik Regime; succession crisis and ascendancy of Stalin, collectivization and industrialization; foreign policy and World War II; death of Stalin, de-Stalinization, developments since; stagnation or stability? P/NP or letter grading.

127D. Culture and Society in Imperial Russia. (4) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: course 127B or Russian 90A or 119. Designed for juniors/seniors. Thematic examination of culture and society in Russia during era of state-sponsored Westernization (1689 to 1917). Topics include nobility, peasantry, and village life from serfdom to postemancipation era, urban society, working-class life and thought, women, clergy, religion, popular culture, accommodation, and resistance. P/NP or letter grading.

128A-128B-128C. History of Italy. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading.

128A. 1350 to 1559. Most important social, economic, political, and cultural developments in history of Italy during later Middle Ages and Renaissance.

128B. 1559 to 1848. Counter-Reformation and absolutism, Enlightenment reforms, revolutionary era, and first phase of Risorgimento.

128C. 1848 to Present. Political, economic, social, diplomatic, and ideological developments.

129A-129B. Social History of Spain and Portugal. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading.

129A. Age of Silver in Spain and Portugal, 1479 to 1789. Development of popular history in Iberian Peninsula. Emphasis on peasants and urban history, gold routes, slave trade, history of women, and development of different types of collective violence.

129B. Rebellion and Revolution in Modern Spain and Portugal, 1789 to Present. Spain's position in Europe and its potentialities for social change discussed through investigations of urban history, agrarian social structure, history of women, problems of slow industrial development, imperialism, anarchism, and labor history.

131A-131B. Marxist Theory and History. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Course 131A is generally requisite to 131B. Designed for juniors/seniors. Introduction to Marxist philosophy and method; conception of historical stages; competing Marxist analyses of transition from feudalism to capitalist economy via reading *Capital*;

theory of politics and state in relationship to historical interpretation of 19th-century European revolutions; capitalist crises. P/NP or letter grading.

132. Topics in European History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Integrated introduction to important aspects of European history, with emphasis on specific topic within broad framework. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

M133A-M133B. History of Women in Europe. (4-4) (Same as Gender Studies M133A-M133B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of social, political, and cultural roles of women in Western Europe from early Middle Ages to present. P/NP or letter grading. **M133A.** 800 to 1715; **M133B.** 1715 to Present.

M133C. History of Prostitution. (4) (Same as Gender Studies M133C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of prostitution from ancient times to present. Topics include toleration in medieval Europe, impact of syphilis, birth of courtesan, regulation in 19th-century Europe, white slavery scare, and contemporary global sex trade. Readings include novels, primary sources, and testimony by sex workers. P/NP or letter grading.

134B-134C. Economic History of Europe. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **134B.** 1780 to 1914. Analysis of emergence of European world economy, first Industrial Revolution, revolutionary changes in technology, demographic patterns, education, transportation, and interrelationship between Western core and European peripheries in process of industrialization. **134C.** 20th Century. Changing European economy after World War I and II and in 1990s; impact of fourth and fifth Industrial Revolutions; Great Depressions of century during 1930s, 1970s, and 1980s; and changing modernization strategies; import-substituting industrialization in peripheries; Soviet modernization dictatorship in East Central Europe and its collapse; integration process of second half of century and rise of European Union; modernization model at end of century.

135A-135B-135C. Europe and World. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading:

135A. Exploration and Conquest, 1400 to 1700. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. First phase of European expansion in Americas, Africa, and Eurasia. Analysis of motives and methods of expansion, differing patterns of European settlement, including plantation economy, and development of new commercial networks, including Atlantic slave trade. P/NP or letter grading.

135B. Colonialism, Slavery, and Revolution, 1700 to 1870. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Origins and gradual increase of European dominance of world trade, impact of European colonialism in New World, Africa, and Asia, influence of new revolutionary ideals that took shape in wake of Enlightenment of 18th century, and beginnings of industrialization. P/NP or letter grading.

135C. Imperialism and Postcolonialism, 1870 to Present. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of major European events and trends and their impact on world in modern period. Interrelationship of European and world history, from partition of Africa to founding of India and Pakistan. Global consequences of Cold War and new place of Europe in world. P/NP or letter grading.

136A-136B-136C. History of Britain. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Analysis of British economy, society, and polity, with focus on dynamics of both stability and change. P/NP or letter grading. **136A.** Tudor-Stuart Times, 1485 to 1715. Political, so-

cioeconomic, religious, and cultural history of Britain under Tudors and Stuarts. Topics include Reformation, transformation of economy, establishment of overseas colonies, 17th-century political upheavals and their impact on political and socioeconomic structures. **136B.** Making of Modern Britain, 1715 to 1867. Social, economic, political, and cultural history of Britain from Hanoverian revolution in politics to advent of mass democracy in mid-Victorian era. Themes include social change under pressure of industrialization, emergence of first British Empire, loss of America, shifts in religious and social position. **136C.** Modern Britain since 1832.

137A-137B. British Empire since 1783. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political and economic development of British Empire, including evolution of colonial nationalism, development of commonwealth idea, and changes in British colonial policy. P/NP or letter grading.

138A. Colonial America, 1600 to 1763. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of molding of American society in English North America from 1600 to 1763. Emphasis on interaction of three converging cultures: Western European, West African, and American Indian. P/NP or letter grading.

138B. Revolutionary America, 1760 to 1800. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Inquiry into origins and consequences of American Revolution, nature of revolutionary process, creation of constitutional national government, and development of capitalist economy. P/NP or letter grading.

138C. U.S. History, 1800 to 1850. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Discussion of major social, political, economic, and cultural transformations of first half of 19th century and how these changes helped to drive wedge between North and South. P/NP or letter grading.

139A. U.S., Civil War and Reconstruction. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Rise of sectionalism, antislavery crusade; formation of Confederate States; war years; political and social reconstruction. P/NP or letter grading.

139B. U.S., 1875 to 1900. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. American political, social, and institutional history in period of great change. Emphasis on altering concepts of role of government and responses to that alteration. P/NP or letter grading.

140A-140B-140C. 20th-Century U.S. History. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **140A.** 1900 to 1928. Political, economic, intellectual, and cultural aspects of American democracy. **140B.** 1929 to 1960. Political, economic, intellectual, and cultural aspects of American democracy. **140C.** Since 1960. History of political, social, and diplomatic developments that have shaped U.S. since 1960.

141A-141B. American Economic History. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **141A.** 1790 to 1910. Roles of economic forces, institutions, individuals, and groups in promoting or impeding effective change in American economy from 1790 to 1910. During this period technical skeleton of modern industrial structure was formed. Why and how American economy evolved into dual economy, characterized by center of firms large in size and influence and periphery of smaller firms. **141B.** 1910 to Present. Dynamics of change in dual economy, with focus in greater detail on interrelationships between macro and micro developments in economy and on growing interdependency between U.S. and world economy from 1910 to present.

142A-142B. Intellectual History of U.S. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Principal ideas about humanity and God, nature and society, that

have been at work in American history. Sources of these ideas, their connections with one another, their relationship to American life, and their expression in great documents of American thought. P/NP or letter grading.

M142C. History of Religion in U.S. (4) (Same as Religion M142C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Consideration of religious dimension of people's experience in U.S. Examination of number of religious traditions that have been important in this country, with emphasis on relating developments in religion to other aspects of American culture. P/NP or letter grading.

142D. American Popular Culture. (4) Lecture, three hours; discussion, one hour (when scheduled). Recommended requisites: courses 13B, 13C. Designed for juniors/seniors. Survey of American cultural history since 1865, with emphasis on historical development of urban, consumer-oriented American mass culture that enveloped diverse groups of Americans as producers and consumers. Historical development of American popular culture according to changing set of political, economic, and social circumstances. Evolution of national and global framework for mass circulation of popular cultural expressions, as well as arrival of new technologies that enabled that development. P/NP or letter grading.

143A-143B. Constitutional History of U.S. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **143A.** Origins and Development of Constitutionalism in U.S. Particular emphasis on framing of Federal Constitution in 1787 and its subsequent interpretation. Judicial review, significance of Marshall Court, and effects of slavery and Civil War on Constitution. **143B.** Constitutionalism since Civil War. Particular emphasis on development of Supreme Court, due process revolution, Court and political questions, and fact of judicial supremacy within self-prescribed limits.

144. America in World. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Reconsideration of U.S. exceptionalist approach to national self-understanding by rethinking crucial aspects of American history in more international context that goes well beyond foreign relations and international affairs to reconceptualize aspects of American economic, intellectual, cultural, and social history. Consideration of transnational flows of people, ideas, goods, wealth, and politics, as well as comparative studies of all these things and more. P/NP or letter grading.

M144C. Critical Issues in U.S.-Philippine Relations. (4) (Same as Asian American Studies M171D.) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: courses 176A, 176B, 176C. Designed for juniors/seniors. Examination of complex interrelationship between U.S. colonialism, Philippine nationalism, history of Filipino Americans, and Philippine diaspora in 20th century. P/NP or letter grading.

145A-145B. U.S. Urban History. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading.

145A. U.S. Cities: Overview. Demographic, geographic, political, economic, and social development of U.S. cities in relation to broad trends in U.S. history as well as to their own more special histories. Emphasis on mastery of facts and chronology, and awareness of major theoretical issues and fundamental concepts in urban history. **145B. Topics in U.S. Urban History.** Exploration of one aspect of U.S. urban history in depth without having to attend to basic chronology or geography. Topics include crime and police, urban economics, and urban government. Students do primary research papers based on local materials in addition to written examinations. May be repeated for maximum of 16 units with topic and/or instructor change.

146A-146B. American Working Class Movements. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Major episodes in social, trade union, and cultural history of American working class from Colonial times to present, with emphasis on both organized and unorganized labor, history of Knights of Labor, A.F. of L. and C.I.O., and development of labor politics. P/NP or letter grading.

146C-146D. U.S. and Comparative Immigration History. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Use of overlapping diaspora model that integrates North Atlantic (Europe), South Atlantic (Afro-Caribbean), Pacific (China/Japan/Hawaii), and Latin (Mexico to Brazil) worlds to provide chronological and analytic survey of American and comparative immigration from 1750 to present. Special focus on Southern California in course 146D. P/NP or letter grading.

147A-147B. American Social History. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Historical analysis of American society and culture, with emphasis on family, religious values, Afro-American life, women's work, urbanization and industrialization, immigration and nativism, and movements for social reform. P/NP or letter grading. **147A.** 1750 to 1860; **147B.** 1860 to 1960.

M147C. History of Women in Colonial British America and Early U.S., 1600 to 1860. (4) (Same as Gender Studies M147B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to major themes in history of early American women from initial confrontation of English and American Indian cultures in early 17th century to rise of women's rights movement in mid-19th century. P/NP or letter grading.

M147D. History of Women in U.S., 1860 to 1980. (4) (Same as Gender Studies M147D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to major themes in history of American women from abolition of slavery and Civil War to rise and consequences of second-wave feminism. P/NP or letter grading.

M147E. History of Deaf Communities in America. (4) (Same as American Sign Language M120.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of history and culture of deaf communities in America (circa 1800 to present) by exploring major events impacting deaf people, including development of sign language, deaf education, audism, politics of deafness, eugenics, deaf revolution movements, and role of hearing technology. Historical development of emergence, growth, and survival of America's deaf community and development of deaf identity over time. P/NP or letter grading.

149A-149B. North American Indian History. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of Native Americans from contact to present, with emphasis on historical dimensions of culture change, Indian political processes, and continuity of Native American cultures. Focus on selected Indian peoples in each period. P/NP or letter grading. **149A.** Precontact to 1830; **149B.** 1830 to Present.

M150A. Comparative Slavery Systems. (4) (Same as African American Studies M158A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of slavery experiences in various New World slave societies, with emphasis on outlining similarities and differences among legal status, treatment, and slave cultures of North American, Caribbean, and Latin American slave societies. P/NP or letter grading.

M150B-M150C. Introduction to Afro-American History. (4-4) (Same as African American Studies M158B-M158C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of Afro-American experience, with emphasis on three great transitions of Afro-American life:

transition from Africa to New World slavery, transition from slavery to freedom, and transition from rural to urban milieus. P/NP or letter grading.

M150D. Recent African American Urban History: Funk Music and Politics of Black Popular Culture. (4) (Same as African American Studies M150D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of musical genre known as funk that emerged in its popular form during late 1960s and reached popular high point, in black culture, during 1970s. Funk, fusion of gospel, blues, jazz, rhythm and blues, soul, rock, and many other musical styles, offer students unique window into recent African American history. P/NP or letter grading.

M150E. African American Nationalism in First Half of 20th Century. (4) (Same as African American Studies M158E.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Critical examination of African American search in first half of 20th century for national/group cohesion through collectively built institutions, associations, organized protest movements, and ideological self-definition. P/NP or letter grading.

M151A. History of Chicano Peoples. (4) (Same as Chicana and Chicano Studies M159A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey lecture course on historical development of Mexican (Chicano) community and people of Mexican descent (Indio-Mestizo-Mulato) north of Rio through 17th, 18th, and 19th centuries, with special focus on labor and politics. Provides integrated understanding of change over time in Mexican community by inquiry into major formative historical forces affecting community. Social structure, economy, labor, culture, political organization, conflict, and international relations. Emphasis on social forces, class analysis, social, economic, and labor conflict, ideas, domination, and resistance. Developments related to historical events of significance occurring both in U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and field research, and submission of paper. P/NP or letter grading.

M151B. History of Chicano Peoples. (4) (Same as Chicana and Chicano Studies M159B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey lecture course on historical development of Mexican (Chicano) community and people of Mexican descent in U.S. through 20th century, with special focus on labor and politics. Provides integrated understanding of change over time in Mexican community by inquiry into major formative historical and policy issues affecting community. Within framework of domination and resistance, discussion deals with social structure, economy, labor, culture, political organization, conflict, and ideology. Developments related to historical events of significance occurring both in U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and/or field research, and submission of paper. P/NP or letter grading.

M151C. Understanding Whiteness in American History and Culture. (4) (Same as Chicana and Chicano Studies CM182.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History, construction, and representation of whiteness in American society. Readings and discussions trace evolution of white identity and explore its significance to historical construction of race class in American history. Letter grading.

M151D. Chicana Historiography. (4) (Same as Chicana and Chicano Studies M158 and Gender Studies M157.) Lecture, four hours. Examination of Chicana historiography, looking closely at how practice of writing of history has placed Chicanas into particular narratives. Using Chicana feminist approaches to study of history, revisiting of specific historical periods and moments such as Spanish Conquest, Mexican Period, American Conquest, Mexican Revolution, and Chicano Movement to excavate untold stories about women's participation in and contribution to making of Chicana and Chicano history. P/NP or letter grading.

M151E. Latino Metropolis: Architecture and Urbanism in Americas. (4) (Same as Chicana and Chicano Studies M187 and Urban Planning M187.) Lecture, four hours. Introduction to history of architecture and urbanism in Americas, from fabled cities of Aztec empire to barrios of 21st-century Los Angeles and Miami. Emphasis on role of cities in Latina/Latino experience and uses of architecture and city planning to forge new social identities rooted in historical experiences of conquest, immigration, nationalization, and revolution. P/NP or letter grading.

152. Asians in American History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of politically troubling question of entry into U.S. of immigrants ineligible for citizenship and their citizen children in American history. P/NP or letter grading.

153. American West. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of West as frontier and as region, in transit from Atlantic seaboard to Pacific, from 17th century to present. P/NP or letter grading.

154. History of California. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Economic, social, intellectual, and political development of California from earliest times to present. P/NP or letter grading.

M155. History of Los Angeles. (4) (Same as Chicana and Chicano Studies M183.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Social, economic, cultural, and political development of Los Angeles and its environs from time of its founding to present. Emphasis on diverse peoples of area, changing physical environment, various interpretations of city, and Los Angeles' place among American urban centers. P/NP or letter grading.

156. Topics in U.S. History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of specific historical themes and/or major issues in U.S. history. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

157A. Early Latin America. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Advanced survey of Latin American history from conquest to independence, with emphasis on society, culture, and ethnic aspects. P/NP or letter grading.

157B. Indians of Colonial Mexico. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of social and cultural history of Indians of Mexico, especially central Mexico, from time of European conquest until Mexican independence, with emphasis on internal view of Indian groups and patterns on basis of records produced by Indians themselves. P/NP or letter grading.

159. Latin America in 19th Century. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Intensive analysis of economic, social, and political problems of Latin American nations from their independence to around 1910. P/NP or letter grading.

160A. Latin American Elitelore. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Elitelore (defined as oral or noninstitutionalized knowledge involving leaders' conceptual and perceptual life history views) in contrast to folklore (followers' traditional or popular views). Elitelore genres include oral history, literature, and cinema. P/NP or letter grading.

160B. Mexican Revolution since 1910. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of concept of permanent crisis to describe and explain structure of permanent revolution under one-party democracy. Analysis of unresolved colonial and 19th-century problems and crises that have influenced modern-day Mexico, if in modified form. P/NP or letter grading.

161. Topics in Latin America History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of major is-

sues in history of Latin America. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

162A. Modern Brazil. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Selected topics in political, economic, social, and cultural development of Brazil, with emphasis on modernization and struggle for change, 1850 to present. Discussions, films, slides, and guest speakers supplement and complement lectures. P/NP or letter grading.

162B. Brazil and Atlantic World, 1500 to 1822. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of development of colonial society in Brazil from discovery in 1500 to independence in 1822, placing it in context of Portugal's overseas expansion in Asia, Africa, and Americas. Emphasis on Portuguese, indigenous, and African roots of modern Brazil. P/NP or letter grading.

162C. History of Argentina. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of economic, political, social, and cultural developments that have shaped Argentina from colonial time to present. Emphasis on 19th-century development of agro-export economy and 20th-century formation of mass society. P/NP or letter grading.

164B-164Z. Topics in African History. (4 each) (Formerly numbered M164A-164Z.) Lecture, three hours; discussion, one hour (when scheduled). Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. Examination of specific topics that have continental application rather than proceeding on strictly chronological or regional basis. P/NP or letter grading:

164B. Africa and Slave Trade. (4) Lecture, three hours; discussion, one hour (when scheduled). Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. Social, economic, political, and cultural impact of slave trade on African society, with emphasis on Atlantic trade without neglecting those of ancient Mediterranean, Islamic, and Indian Ocean worlds. Abolition and African diaspora. P/NP or letter grading.

164D. Africa and Diaspora in Global and Comparative Perspective. (4) Lecture, three hours; discussion, one hour (when scheduled). Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. Forced migration of Africans through overseas slave trade was formative event of modern world. Exploration of that experience and its lasting consequences by placing it in its global context—African, American, European, Islamic, and Asian. P/NP or letter grading.

164E. Africa, 1945 to Present. (4) Lecture, three hours; discussion, one hour (when scheduled). Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. History of Africa south of Sahara from end of World War II to present. Last phases of colonial rule in Africa, African nationalism, Pan-Africanism, liberation movements, and achievement of independence. Political, social, and economic change in colonies and in independent states of Africa. Neocolonialism, experiments in national development, apartheid in South Africa, ideological conflict in contemporary Africa, and Africa in world affairs since 1957. P/NP or letter grading.

165. Topics in African History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of specific historical themes and/or major issues in African history. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

165SL. Service Learning and Historical Understanding in South Africa. (4) Fieldwork, six hours. Students participate in two service learning projects in South Africa to help them understand ongoing historical legacy of apartheid in South Africa, differences between urban and rural poverty, and link between rural poverty and urban overcrowding. Students work

directly with families and children under guidance of local community organizers. Offered in summer only. Letter grading.

166A-166B. History of West Africa. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading.

166A. West Africa, Earliest Times to 1800; **166B. West Africa since 1800.**

167A. History of Northeast Africa. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of history of Ethiopia, Sudan, and Somalia in regional context of northeast Africa from earliest times to present, with emphasis on economy and society, evolution of state, and significance of Christianity and Islam. P/NP or letter grading.

167B. History of East Africa. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of cultural diversity of east Africa from earliest times to growth of complex societies, its place within wider Indian Ocean system, and colonial conquest to gaining of independence and postcolonial challenges. P/NP or letter grading.

167C. History of Central Africa. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of history of central Africa from earliest times, with emphasis on establishment of agriculture, growth of trade, rise of states, and incorporation of region into world economy. P/NP or letter grading.

168A-168B. History of Southern Africa. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Attention to social and economic as well as political aspects. P/NP or letter grading.

168A. Origins to 1870; **168B. Since 1870.**

Origins of South African peoples and their interactions to 1870. Since 1870. Interactions between inhabitants of southern Africa since 1870.

169A-169B. Thought and Society in China. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading.

169A. To 1000; **169B. Since 1000.**

Recommended preparation: course 11A. Elite and popular expressions of Chinese cultural life examined in readings and lectures. Focus on diversities of thought in classical legacy and their evolution under impact of Buddhism to 1000. Emphasis on intersections between intellectual life and social, political, and economic conditions.

169B. Since 1000. Recommended preparation:

course 11B. Elite and popular expressions of Chinese cultural life from 1000 to 20th century.

Emphasis on social, political, and economic conditions within which Chinese orthodox and heterodox values evolved and changed. Evaluation of iconoclasm of Chinese intellectual life in 20th century in light of earlier currents of thought.

Emphasis on social, political, and economic conditions within which Chinese orthodox and heterodox values evolved and changed. Evaluation of iconoclasm of Chinese intellectual life in 20th century in light of earlier currents of thought.

170A. Culture and Power in Late Imperial China. (4) Lecture, three hours; discussion, one hour (when scheduled).

Recommended preparation: courses 11A, 11B.

Designed for juniors/seniors. Analysis of relations of power and cultural expressions of dominance and resistance in late imperial China (1000 to 1700), with emphasis on interplay of economic forces, ideas, and social and political institutions. Examination of institutions of state, family, school, and city; idioms of folk religion, death, and afterlife; political, legal, and medical discourses of body, personhood, and social identity; love, sexuality, and private life. P/NP or letter grading.

170B. Selected Topics in Chinese History from 1500. (4) Lecture, three hours; discussion, one hour (when scheduled).

Recommended requisite: course 11B.

Designed for juniors/seniors. Selected topics that may vary from year to year. Recent offerings include law, society, and culture; society and economy; and rural China.

May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

170C. History of Women in China, A.D. 1000 to Present. (4) (Same as Gender Studies M170C.) Lecture, three hours; discussion, one hour (when scheduled).

Designed for juniors/seniors. Topics include women and family, women in Confucian ideology,

women in literati culture, feminist movement, and women and communist revolution. P/NP or letter grading.

170D. 20th-Century China. (4) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: course 11B. Designed for juniors/seniors. Political events and intellectual developments seen in context of social-economic trends; human agency, structural change, and historical junctures in 20th century. P/NP or letter grading.

171. Variable Topics in Japanese History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Important topics in Japanese history, including political change, economic development, social questions, and popular culture, as well as media and arts, explored through extensive readings. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

172A. Medieval Japan: Social and Cultural History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political, economic, and cultural development of Japan from prehistory to 1600. P/NP or letter grading.

172B. Japanese History: Early Modern, 1600 to 1868. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political, economic, and cultural development of Japan from 1600 to 1868. P/NP or letter grading.

172C. Modern Japanese History, 1850 to 1945. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Investigation of meaning of modern "Japan" for newly national (and imperial) populace, and resistance to consequent radical upheavals in daily experience, both in Japan and Asia. Exploration of meaning of "modern" and fraught interplay of imperial and anticolonial ambitions in domestic and foreign politics. World War II experience and radical and conservative effects of Allied Occupation. Foregrounding of professional practice of history and historical creation of categories, practices, and perspectives that have become second nature (i.e., linear time, nation, and modern social norms). Topics also include gender, sexuality, aesthetics, fascism, eugenics and race, hygiene, bloodsucking, monsters, anarchism, time, colonialism, feminism, art, censorship, protest, and Cold War. Socratic-style discussion in lecture. P/NP or letter grading.

173A. Japanese Popular Culture. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics in 18th-, 19th-, and 20th-century Japanese history, including legacy of premodern satire in postmodern comic books, American culture in 1930s' Japanese visual culture, gender in photography, and relationship of monster movies to postwar politics. P/NP or letter grading.

M173B. Women in 20th-Century Japan. (4) (Same as Gender Studies M173B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Japanese women in Japanese and world history through state documents, autobiographical voices, contemporary television, and other varying historical sources, including topics such as women and new political order (1900 to 1930), women, war, and empire (1930 to 1945), and women in consumer society (1980s to 1990s). P/NP or letter grading.

M173C. Shinto, Buddhism, and Japanese Folk Religion. (4) (Same as Religion M173C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Social dimension of various Ways, great and little: Shinto's connection with cultural nationalism, Buddhism's medieval Reformation and Zen's relation to warrior culture, folk religious aspects such as shamanism, ancestor worship, and milenarianism. P/NP or letter grading.

173D. Postwar Japanese History through Film. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of postwar Japanese history through medium of film and film criticism. Much of postwar Japanese cinema can be seen as reflecting on and questioning place of

Japan in world reshaped by catastrophic war and its lingering specter. Through screenings and critical discussion of select films spanning half-century following World War II, consideration of cultural, aesthetic, and sociopolitical significance of postwar as demarcated category in Japan. Reflection on ways in which filmic presentations of state of being postwar engaged with lived history, memory, and present time. P/NP or letter grading.

174A. Early History of India. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to civilization and institutions of India. Survey of history and culture of South Asian subcontinent from earliest times to founding of Mughal Empire. P/NP or letter grading.

174B-174C. History of British India I, II. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **174B.** Examination of expansion of British rule, theories and practice of governance, constitution of India as oriental despotism, epistemological projects of state, and other modes by which British achieved conquest of knowledge. **174C.** Political economy of imperialism and Britain's civilizing mission. Encounter, especially in terms of race and gender, between colonized and colonizers and to questions of resistance and nationalism.

M174D. Indo-Islamic Interactions, 700 to 1750. (4) (Same as Religion M174D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Historical introduction to Muslim communities of what eventually became nations of India, Pakistan, and Bangladesh. Topics include social, political, religious, and cultural history. P/NP or letter grading.

M174E. Indo-Islamic Interactions, 1750 to 1950. (4) (Same as Religion M174E.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of interplay of factors that, from Christian missionaries to Islamic madrasa schools and colonial rebellions, gave shape to multifaceted Muslim reformation in context of colonial modernity. P/NP or letter grading.

174F. Gandhi and Making of Modern India. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of life and ideas of Mahatma Gandhi, known world over as prophet of nonviolence and principal architect of Indian independence movement. Gandhi was also spiritual thinker, social reformer, critic of Western modernity, interpreter of Indian civilization, staunch supporter of Indian syncreticism, voluminous writer, and forerunner, not only in India, but of many great social and ecological movements of our times. Focus on Gandhi's idea of *satyagraha*, resistance to oppression through truth (*satya*) and nonviolence (*ahimsa*), and his nonviolent campaigns against colonial rule, before moving to broader assessments of his life and thought, his critiques of modernity and industrial civilization, and his relationship to Indian nationalism. Discussion of feminist, Dalit (low-caste), Marxist, and modernist critiques of his ideas, and reflections on his place in modern India and global circulation of his ideas over last six decades. P/NP or letter grading.

M174G. Indian Identity in U.S. and Diaspora. (4) (Formerly numbered M175B.) (Same as Asian American Studies M172A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of overseas Indian communities; transformations of Hinduism in diaspora; emergence of new diasporic art forms such as bhangra rap and chutney music; relations between Indians and other racial and ethnic groups; Indian women as embodiment of Indian culture; diasporic identities. P/NP or letter grading.

175A. Cultural and Political History of Contemporary South Asia. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Problem of modernity; partition of India and emergence of Pakistan; political, social, ecological, and women's movements; struggle for rights and conflicts of identity among Muslims, Hindus, and

Sikhs; terrorism in Sri Lanka and Punjab; public culture, popular cinema, and street life. P/NP or letter grading.

175C. Special Topics in Contemporary Indian History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Treatment of major issues in history of contemporary India. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

176A-176B. History of Southeast Asia. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **176A.** Early History of Southeast Asia. Political and cultural history of peoples of Southeast Asia from earliest times to about 1815. **176B.** Southeast Asia since 1815. History of modern Southeast Asia, with emphasis on expansion of European influence in political and economic spheres, growth of nationalism, and process of decolonization.

176C. Philippine History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Social, cultural, and political history of Philippine societies from Spanish conquest through independence. Emphasis on questions of identity under colonialism, understanding Revolutions of 1896 and 1898, and politics of Philippine nationalist discourse. Readings include introduction to major issues in Philippine historiography and literature. P/NP or letter grading.

176D. Premodern Vietnamese History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Overview of history of people of Vietnam to beginning of colonial period (circa 1880), covering political, social, economic, cultural, and religious developments. Consideration of impact of Vietnamese past on modern age. P/NP or letter grading.

176E. Vietnam: Past and Present. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of history and culture of Vietnam from about 700 B.C. to present, including political, social, and economic developments as well as international relations in post-1954 period. P/NP or letter grading.

177A. National Histories of Southeast Asia. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Variable topics with focus on history of one or more of Southeast Asia's nation-states: Indonesia, East Timor, Thailand, Cambodia, Burma, Laos, Malaysia, Singapore, Brunei, Philippines, Vietnam. P/NP or letter grading.

177B. Comparative Histories of Southeast Asia. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Variable topics with focus on history of Southeast Asia from thematic or comparative perspective. Topics may include history of human rights in Southeast Asia, gender and sexuality in island Southeast Asia, and economic history of Southeast Asia. P/NP or letter grading.

179A. History of Medicine: Historic Roots of Healing Arts. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to traditions, practices, goals, and myths of Western healing professions from time of ancient Greeks to Renaissance. Topics range from Hippocrates, Galen, and scholars at Alexandria to healing at Epidaurus and Salerno, contributions of medieval Muslim and Jewish doctors, rise of healing professions, medical faculties, nursing orders, and hospitals. P/NP or letter grading.

179B. History of Medicine: Foundations of Modern Medicine. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Cultural, scientific, and social context that shaped modern medicine from Renaissance to Romantic era. Topics include establishment of anatomy, physiology, and modern clinical medicine, mapping of human body, medical approach to mental illness, rise of anatomo-clinical method at Paris School. P/NP or letter grading.

179C. Medicine and Society in 20th-Century America. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Sociohistorical look at changes in medical science, health and disease, and treatment practices in 20th century within context of development of hospitals and research institutions and of changing American society. Particular topics include antibiotics and other wonder drugs, cancer research and treatment, mental illness, patient activism, and genetic medicine. P/NP or letter grading.

180A. Topics in History of Science. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics may include science and colonialism, science and religion, environmental history, science in Enlightenment, development of theory of evolution, science and public policy, public nature of science. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

M180B. Historical Perspectives on Gender and Science. (4) (Same as Gender Studies M180B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Historical cases illustrating how gender enters practices and concepts of science. Topics include gendered conceptions of nature, persona of man of science, role of women in scientific revolution, scientific investigations of women and feminine. P/NP or letter grading.

180C. Science and Technology in 20th Century. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Development of science and technology and their impact on society. Industrialization, global scientific community, social Darwinism, atomic bomb and nuclear proliferation, Cold War and American science, environmentalism, molecular biology and genetic engineering. P/NP or letter grading.

M181. Topics in Jewish History. (4) (Same as Jewish Studies M181.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of major issues in Jewish history. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

M181SL. Jews in Los Angeles: Representation, Memory, and History in Digital Age. (4) (Formerly numbered M188SL.) (Same as Jewish Studies M181SL.) Lecture, three hours; fieldwork, two hours. Designed for juniors/seniors. History of Los Angeles, with special emphasis on pivotal roles Jews have played in shaping Los Angeles and role that Los Angeles has played in reshaping of Jewish identities, communities, and cultures. Exploration of themes related to regionalism in American Jewish history, comparative immigration and migration patterns, and frontiers and borderlands, while providing overview of historical methodologies and interpretation. Examination of ethical and methodological implications of writing history in digital age and learning how to read and analyze these new media works as primary and secondary historical texts. Opportunity to contribute to body of historical work related to Los Angeles Jewish history through required service work with community partners and development of digital public history projects. P/NP or letter grading.

M182A. Ancient Jewish History. (4) (Same as Jewish Studies M182A and Religion M182A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of social, political, and religious developments. P/NP or letter grading.

M182B. Medieval Jewish History. (4) (Same as Jewish Studies M182B and Religion M182B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of unfolding of Jewish history from rise of Christianity to expulsion of Jews from Spain in 1492. P/NP or letter grading.

M182C. Modern Jewish History. (4) (Same as Jewish Studies M182C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of early modern Jewish history beginning with enormously repressive expulsion of Jews from Spain in 1492, followed by transformations in

Jewish society and identity over five centuries in Europe and Middle East, and concluding with nationalism. P/NP or letter grading.

183A-183B. Third Reich and Jews. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **183A.** History of modern anti-Semitic ideologies and movements. Rise of national socialism in Germany. Development and execution of Nazi anti-Jewish policy to outbreak of World War II. **183B.** Second World War. Implementation of Nazi plans for extermination of Jews in Nazi-dominated Europe. Life in Nazi-imposed ghettos. Forms of Jewish resistance. Fate of Jewish populations in occupied territories.

M184A. Jewish Civilization: Encounter with Great World Cultures. (4) (Same as Jewish Studies M184A and Religion M184A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of dynamic and millennium-old interaction of Jews with great world cultures. Creative adaptations that have lent Jewish culture its distinct and various forms. P/NP or letter grading.

M184B. History of Anti-Semitism. (4) (Same as Jewish Studies M184B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of origins and historical development of anti-Semitism. P/NP or letter grading.

M184C. American Jewish Experience. (4) (Same as Jewish Studies M184C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Experience of Jews in America, both historical and contemporary. P/NP or letter grading.

M184D. History of Zionism and State of Israel. (4) (Same as Jewish Studies M184D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of history of State of Israel from 1948 to present. P/NP or letter grading.

185A. History of Religions: Myth. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Nature and function of myth in history of religion and culture. Examples selected from nonliterate as well as from other Asian and European traditions. P/NP or letter grading.

185B. Religions of South and Southeast Asia. (4) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 4 or 185A. Designed for juniors/seniors. Topics vary from year to year and include religion of Veda; Brahmanism; (later) Hinduism. Consult Schedule of Classes for specifics. May be taken independently for credit. P/NP or letter grading.

185C. Religions of South and Southeast Asia. (4) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 4 or 185A. Designed for juniors/seniors. Topics vary from year to year and include Buddhism in India; religions of Java and Bali; nonliterate traditions of India and Southeast Asia. Consult Schedule of Classes for specifics. May be taken independently for credit. P/NP or letter grading.

M185D. Religions of Ancient Near East. (4) (Same as Ancient Near East M185D and Religion M185D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Main polytheistic systems of ancient Near East, with emphasis on Mesopotamia and Syria and with reference to religion of ancient Israel: varying concepts of divinity, hierarchies of gods, prayer and cult, magics, wisdom, and moral conduct. P/NP or letter grading.

185E. Special Topics in History of Religions. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics announced in Schedule of Classes and include ancient Germanic cults; Renaissance mysticism; mystics of low countries; goddesses; religion in secular age. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

M185F. History of Early Christians. (4) (Formerly numbered M186A.) (Same as Religion M186A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Christian movement from its origins to circa 160 C.E., stressing its continuity/discontinuity with Judaism, various re-

sponses to Jesus of Nazareth, writings produced during this period, movement's encounters with its religious, social, and political world, and methods of research. P/NP or letter grading.

M185G. Religious Environment of Early Christians. (4) (Formerly numbered M186B.) (Same as Religion M186B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Rich variety in religious practice and thought in Mediterranean world of 1st century C.E. as in context of developing Christian movement. Topics include Pharisees, Qumran, Philo, Stoics, Epicureans, traditional Greek and Roman religions, mysteries, astrology, magic, gnosticism, and emperor-worship. P/NP or letter grading.

M185I. Jesus of Nazareth in Historical Research. (4) (Formerly numbered M186C.) (Same as Religion M186C.) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: course M185F. Designed for juniors/seniors. Stimulated by significant post-Enlightenment historical evaluations, students are led into firsthand knowledge (in translation) of various multilayered sources for reconstruction of life, teaching, and initial impact of Jesus of Nazareth in his social, economic, political, and religious contexts. P/NP or letter grading.

M186A. Women and Gender, Prehistory to 1792. (4) (Formerly numbered M187A.) (Same as Gender Studies M186A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of history of women, gender, and sexuality from prehistory to 1792. First half deals with period before written history and asks when did gender appear? How and why did patriarchy develop? Topics include evolution of women's bodies, appearance of gender, women's contribution to Neolithic revolution, significance of Goddess artifacts, creation myths, and women and sexuality in different religions. Consideration of effects of European conquest on Mesoamerican women, women's power in monarchies, gender dimensions of Atlantic slavery, and first manifestations of feminist consciousness in second half. Objects or texts created by women examined or read throughout. P/NP or letter grading.

M186B. Global Feminism, 1850 to Present. (4) (Formerly numbered M187B.) (Same as Gender Studies M186B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to movements for women's rights (educational, political, economic, sexual, and reproductive) around world and over one and one half centuries. P/NP or letter grading.

187A-187R. Variable Topics Historiography Proseminars. (4 each) Seminar, three hours. Proseminars on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. P/NP or letter grading. **187A.** Ancient History; **187B.** Medieval; **187C.** Europe; **187D.** U.S.; **187E.** Latin America; **187F.** Near East; **187G.** East Asia; **187I.** Science/Technology; **187J.** Africa; **187K.** Religion; **187L.** Jewish History; **187M.** Southeast Asia; **187N.** India; **187O.** World History; **187P.** Historical Theory; **187Q.** Digital History; **187R.** Japan.

188. Special Courses in History. (4) Lecture, three hours. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

191A-191R. Capstone Seminars: History. (4 each) Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Organized on topics basis with reading, discussion, and development of culminating project. May be repeated once for credit. P/NP or letter grading. **191A.** Ancient History; **191B.** Medieval; **191C.** Europe; **191D.** U.S.; **191E.** Latin America; **191F.** Near East; **191G.** East Asia; **191I.** Science/Technology; **191J.** Africa; **191K.** Religion; **191L.** Jewish History; **191M.** Southeast Asia; **191N.** India; **191O.** World History; **191P.** Historical Theory; **191Q.** Digital History; **191R.** Japan.

M191DC. CAPPP Washington, DC, Research Seminars. (8) (Same as Communication Studies M191DC, Political Science M191DC, and Sociology M191DC.) Seminar, three hours; laboratory, 24 hours. Limited to CAPPP Program students. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

M194DC. CAPPP Washington, DC, Research Seminars. (4) (Same as Political Science M194DC and Sociology M194DC.) Seminar, three hours. Limited to CAPPP Quarter in Washington students and other students enrolled in UC Washington Center programs. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

195. Community or Corporate Internships in History. (4) Tutorial, three hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP grading.

195CE. Community and Corporate Internships in History. (4) Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site using historical methods. May not be applied toward major requirements. May be repeated for credit with consent of Center for Community Learning. Individual contract with supervising faculty member required. P/NP or letter grading.

M195DC. CAPPP Washington, DC, Internships. (4) (Same as Political Science M195DC and Sociology M195DC.) Tutorial, four hours. Limited to junior/senior CAPPP Program students. Internships in Washington, DC, through Center for American Politics and Public Policy. Students meet on regular basis with instructor and provide periodic reports of their experience. Individual contract with supervising faculty member required. P/NP grading.

197. Individual Studies in History. (4) Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198A. Honors Research in History. (4) Tutorial, to be arranged. Course 198A is requisite to 198B, which is requisite to 198C. Limited to juniors/seniors. Development of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for maximum of 16 units. Individual contract required. Letter grading.

198B. Honors Research in History. (4) Tutorial, to be arranged. Requisite: course 198A. Limited to juniors/seniors. Continued development of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for maximum of 16 units. Individual contract required. In Progress grading (credit to be given only on completion of course 198C).

198C. Honors Research in History. (4) Tutorial, to be arranged. Requisite: course 198B. Limited to juniors/seniors. Completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for maximum of 16 units. Individual contract required. Letter grading.

199. Directed Research in History. (4) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit; History majors limited to 8 units. Individual contract required. P/NP or letter grading.

Graduate Courses

200A-200U. Advanced Historiography. (4 each) Seminar, three hours. May be repeated for credit.

200A. Ancient Greece; **200B. Ancient Rome;** **200C. Medieval;** **200D. Europe;** **200H. U.S.;** **200I. Latin America;** **200J. Near East;** **200K. India;** **200L. China;** **200M. Japan;** **200N. Africa;** **200O. Science/Technology;** **200P. History of Religions;** **200Q. Theory of History;** **200R. Jewish History;** **200S. Armenia and Caucasus;** **200T. Southeast Asia;** **200U. Psychohistory.**

M200V. Advanced Historiography: Afro-American. (4) (Same as African American Studies M200A.) Seminar, three hours. May be repeated for credit. S/U or letter grading.

M200W. Advanced Historiography: American Indian Peoples. (4) (Same as American Indian Studies M200A.) Lecture, 90 minutes; seminar, 90 minutes. Introduction to culture-histories of North American Indians and review of Indian concepts of history. Stereotypical approach to content and methodologies related to Indian past that is interdisciplinary and multicultural in its scope. Letter grading.

200X. Advanced Historiography: Oral History. (4) Seminar, three hours. Introduction to practice, method, and theory of oral history.

200Y. Advanced Historiography: Application of Economics to History. (4) Discussion, three hours.

200Z. Advanced Historiography: Chicano. (4) Discussion, three hours. Graduate survey of leading literature in Chicano history, with emphasis on new methodological and theoretical approaches in the field.

201A-201V. Topics in History. (4 each) Seminar, three hours. Graduate courses involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading. **201A. Ancient Greece;** **201B. Ancient Rome;** **201C. Medieval;** **201D. Early Modern Europe;** **201E. Modern Europe;** **201F. Russia/Eastern Europe;** **201G. Britain;** **201H. U.S.;** **201I. Latin America;** **201J. Near East;** **201K. India;** **201L. China;** **201M. Japan;** **201N. Africa;** **201O. Science/Technology;** **201P. History of Religions;** **201Q. Theory of History;** **201R. Jewish History;** **201S. Armenia and Caucasus;** **201T. Southeast Asia;** **201U. Psychohistory;** **201V. Digital History.**

202A-202B. Seminars: Comparative Modern Economic History. (4-4) Seminar, three hours. Course 202A is requisite to 202B. Designed for graduate students. Study of problems of modern economics in the 19th and 20th centuries, including such topics as industrialization, growth, demography, development, and economic change. In Progress (202A) and letter (202B) grading.

203A-203B. Social Theory and Comparative History. (4-4) Seminar, three and one half hours every other week. Introduction to historically rooted social theory and theoretically sensitive history, following program of Center for Social Theory and Comparative History. Each course may be taken independently for credit. S/U or letter grading.

203C. Theories in Cultural History. (4) Seminar, three hours. Introduction to social, linguistic, semiotic, or other new interpretive theories and practices developed in other fields and applied to historical material. Letter grading.

204A. Departmental Seminar: Approaches, Methods, Debates, Practice. (4) (Formerly numbered 204.) Seminar, three hours. Required of all first-year departmental graduate students. Introduction to range of important methodological approaches and theoretical debates about writing of history that are influential across fields, geographical contexts, and temporal periods to stimulate conversation and connection across fields, inviting students to think collectively and expansively about study and praxis of history. Introduction to sampling of scholarship produced by department faculty members with whom students may work. S/U or letter grading.

204B. Departmental Seminar: Many Professions of History (4) Seminar, three hours. Professional development seminar with practicum component. Focus primarily on exploring and demonstrating ways in which skills of historians are transferable to variety of professions and exercised in diverse ways and roles. Discussion of actual and possible roles and responsibilities of historians in 21st-century society. Examination of where historians have been, where they are now, where they can be, and where they should be as highly educated, actively engaged members of society. Collaborative project required. S/U or letter grading.

205A-205B. History Department Professional Development Seminars. (1-1) Seminar, one hour. Course 205A is requisite to 205B. Limited to history doctoral students. Introduction to issues in professional development of students in History PhD program. In Progress (205A) and S/U (205B) grading.

206A-206B. Seminars: Near East History. (4-4) Seminar, three hours. Course 206A is requisite to 206B. In Progress (206A) and letter (206B) grading.

C208A-C208B. Variable Topics: Interdisciplinary Studies. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Course C208A is not requisite to C208B. Topics may include gender, world history, masculinity, and economic history. May be repeated for credit with topic change. Concurrently scheduled with courses C101A-C101B. S/U or letter grading.

M210. Topics in Ancient Iranian History. (4) (Same as Ancient Near East M208 and Iranian M210.) Seminar, three hours. Varying topics on Elamite, Achaemenid, Arsacid, and Sasanian history. May be repeated for credit. S/U or letter grading.

211A-211B. Seminars: Armenian History. (4-4) Seminar, three hours. Course 211A is requisite to 211B. In Progress (211A) and letter (211B) grading.

212. Methods in Armenian Oral History. (4) Seminar, three hours. Uses and techniques of Armenian oral history; preinterview, interview, and postinterview procedures; methods of compilation and evaluation. Field assignments, interviews, and summaries and/or paper based on interviews. S/U or letter grading.

213A-213B. History of Women, Men, Sexuality. (4-4) Seminar, three hours. S/U or letter grading. **213A.** Readings include historiography and theory, as well as classic and new historical studies drawn widely from U.S., European, Latin American, Middle Eastern, and Asian history to have diversity of interests and perspectives represented and discussed. **213B.** Enforced requisite: course 213A. Research, analysis, drafting, and rewriting of student final papers.

213C. History of Women, Men, and Sexuality Historiography. (4) Seminar, three hours. Limited to graduate students. Exposure to newest branch of gender history: study of masculinity. Focus not on men per se, but on values, practices, and texts that constitute masculinity as one gender. Readings focus on broad range of chronological periods from antiquity to 20th century and geographical areas including Americas, Asia, Europe, and Middle East. S/U or letter grading.

214. Topics in World History. (4) Seminar, three hours. Graduate seminar utilizing world-historical perspective to examine variety of broad themes in human history. Topics vary annually. Letter grading.

215A-215B. Seminars: Ancient History. (4-4) Seminar, three hours. Course 215A is requisite to 215B. In Progress (215A) and letter (215B) grading.

216A-216B. Seminars: Byzantine History. (4-4) Seminar, three hours. Course 216A is requisite to 216B. In Progress (216A) and letter (216B) grading.

217. Sources and Handbooks of Medieval History. (4) Seminar, three hours. Preparation: reading knowledge of German or French. Introduction to types of medieval source materials and the handbooks needed to use them.

M218. Paleography of Latin and Vernacular Manuscripts, 900 to 1500. (4) (Same as Classics M218, English M215, and French M210.) Lecture, three hours; discussion, two hours. Introduction to history of Latin and vernacular manuscript book from 900 to 1500 to (1) train students to make informed judgments with regard to place and date of origin, (2) provide training in accurate reading and transcription of later medieval scripts, and (3) examine manuscript book as witness to changing society that produced it. Focus on relationship between Latin manuscripts and vernacular manuscripts with regard to their respective presentation of written texts. S/U or letter grading.

221A-221B. Seminars: Medieval History. (4-4) Seminar, three hours. Course 221A is requisite to 221B. In Progress (221A) and letter (221B) grading.

225. Colloquium for Entering Graduate Students in Modern European History. (4) Seminar, three hours. Normally limited to and required of all modern European history graduate students. Introduction to topics, methods, and historiography of modern European history.

226A-226B. Seminars: Italian Renaissance. (4-4) Seminar, three hours. Course 226A is requisite to 226B. In Progress (226A) and letter (226B) grading.

227A-227B. Seminars: Reformation. (4-4) Seminar, three hours. Course 227A is requisite to 227B. In Progress (227A) and letter (227B) grading.

229A-229B. Seminars: Early Modern European History. (4-4) Seminar, three hours. Course 229A is requisite to 229B. In Progress (229A) and letter (229B) grading.

M230A-M230B. Seminars: Modern European History. (4-4) (Same as Art History M230B-M230C.) Seminar, three hours. Course M230A is requisite to M230B. May be repeated for credit with consent of adviser. In Progress (M230A) and letter (M230B) grading.

231A-231B. Seminars: Modern European Intellectual and Cultural History. (4-4) Seminar, three hours. Course 231A is requisite to 231B. In Progress (231A) and letter (231B) grading.

232A-232B. Seminars: French History of 19th and 20th Centuries. (4-4) Seminar, three hours. Course 232A is requisite to 232B. In Progress (232A) and letter (232B) grading.

233A-233B. Seminars: Russian/Soviet History. (4-4) Seminar, three hours. Course 233A is requisite to 233B. In Progress (233A) and letter (233B) grading.

234A-234B. Seminars: Modern History of Spain, Portugal, and Italy. (4-4) Seminar, three hours. Course 234A is requisite to 234B. In Progress (234A) and letter (234B) grading.

235A-235B. Economic History of Europe, 1780 to 1939. (4-4) Seminar, three hours. Course 235A is requisite to 235B. Analysis of internationalization of European world economy, emergence of Western core and its relation with European peripheries. Comparative analysis on different regions, stressing main characteristics of postwar European economy. In Progress (235A) and letter (235B) grading.

235C-235D. Economic History of 20th-Century Europe. (4-4) Seminar, three hours. Course 235C is requisite to 235D. Cyclical trend, various economic regimes, and integration process of Europe. In Progress (235C) and letter (235D) grading.

M236A. Proseminar: Political Psychology. (4) (Same as Political Science M261A and Psychology M228A.) Seminar, three hours. Introduction to political psychology: psychobiography, personality and politics, mass attitudes, group conflict, political communication, and elite decision making.

236B-236C. Seminars: Psychohistory. (4-4) Seminar, three hours. Course 236B is requisite to 236C. Exploration of individual and group psychological processes and their uses in historical research. In Progress (236B) and letter (236C) grading.

239A-239B. Seminars: English History—Middle Ages. (4-4) Seminar, three hours. Course 239A is requisite to 239B. In Progress (239A) and letter (239B) grading.

240A-240B. Seminars: English History—Modern History. (4-4) Seminar, three hours. Course 240A is requisite to 240B. In Progress (240A) and letter (240B) grading.

241A-241B. Seminars: German History. (4-4) Seminar, three hours. Course 241A is requisite to 241B. Designed for graduate students. In Progress (241A) and letter (241B) grading.

242. Colloquium: European History. (2) Designed for graduate students. Forum for critical discussion of work of students and invited scholars. Presentation of student dissertation prospectuses during their third or fourth year in residence. S/U grading for students presenting papers.

244A-244B. Seminars: British Empire History. (4-4) Seminar, three hours. Course 244A is requisite to 244B. In Progress (244A) and letter (244B) grading.

245. Colloquium: U.S. History. (4) Seminar, three hours. Normally limited to and required of all entering graduate students in U.S. history. Critical introduction to historical method, with emphasis on new methodological and conceptual approaches, use of source materials, and current state of U.S. historiography.

246A-246B-246C. Introduction to U.S. History. (4-4-4) Seminar, three hours. Graduate survey of significant literature dealing with U.S. history from the Colonial period to the present. Each course may be taken independently for credit. **246A.** Colonial Period; **246B.** 1790 to 1900; **246C.** 20th Century.

247A-247B. Seminars: Early American History. (4-4) Seminar, three hours. Course 247A is requisite to 247B. In Progress (247A) and letter (247B) grading.

249A-249B. Seminars: Jacksonian America. (4-4) Seminar, three hours. Course 249A is requisite to 249B. In Progress (249A) and letter (249B) grading.

250A-250B. Seminars: U.S. History of Middle 19th Century. (4-4) Seminar, three hours. Course 250A is requisite to 250B. In Progress (250A) and letter (250B) grading.

251A-251B. Collaborative Research Seminars: American History. (4-4) Seminar, three hours. Research seminars taught jointly by two faculty members. In Progress (251A) and letter (251B) grading. **251A.** Common readings and development of individual research projects. **251B.** Requisite: course 251A. Research, writing, and critical discussion of draft papers.

252A-252B. Seminars: Recent U.S. History to 1930. (4-4) Seminar, three hours. Course 252A is requisite to 252B. In Progress (252A) and letter (252B) grading.

253A-253B. Seminars: Recent U.S. History since 1930. (4-4) Seminar, three hours. Course 253A is requisite to 253B. In Progress (253A) and letter (253B) grading.

254A-254B. Seminars: U.S. Social and/or Intellectual History. (4-4) Seminar, three hours. Course 254A is requisite to 254B. In Progress (254A) and letter (254B) grading.

255A-255B. Business Enterprise and American Culture. (4-4) Seminar, three hours. Course 255A is requisite to 255B. In Progress (255A) and letter (255B) grading.

256A-256B. Seminars: America in World. (4-4) Seminar, three hours. Course 256A is requisite to 256B. In Progress (256A) and letter (256B) grading.

257A-257B. Seminars: U.S. Urban History. (4-4) Seminar, three hours. Course 257A is requisite to 257B. In Progress (257A) and letter (257B) grading.

258A-258B. Seminars: Working Class History. (4-4) Seminar, three hours. Course 258A is requisite to 258B. In Progress (258A) and letter (258B) grading.

M259A-M259B. History of Women. (4-4) (Same as Gender Studies M259A-M259B.) Seminar, three hours. Course M259A is requisite to M259B. History of women's social and political issues seen in U.S. and comparative context. In Progress (M259A) and letter (M259B) grading.

260A-260B. Seminars: Native American History. (4-4) Seminar, three hours. Course 260A is requisite to 260B. In Progress (260A) and letter (260B) grading.

M260C. Native American Revitalization Movements. (4) (Same as Anthropology M238.) Lecture, two hours; discussion, one hour. Examination of revitalization movements among native peoples of North America (north of Mexico). Specific revitalization includes Handsome Lake, 1870 and 1890 Ghost Dances, and Peyote Religion. Letter grading.

261A-261B. Seminars: Afro-American History. (4-4) Seminar, three hours. Course 261A is requisite to 261B. Social and political history of the Afro-American, including emphasis on development and structure of race relations in America; racial concepts and dilemmas, black and white. In Progress (261A) and letter (261B) grading.

262A-262B. Seminars: Chicano History. (4-4) Seminar, three hours. Course 262A is requisite to 262B. In Progress (262A) and letter (262B) grading.

263A-263B. Seminars: History of American West. (4-4) Seminar, three hours. Course 263A is requisite to 263B. In Progress (263A) and letter (263B) grading.

M264. History of American Education. (4) (Same as Education M201C.) Discussion, three hours. History of educational thought and of social forces impinging on American education from 1880s to present. Analysis of relation between these ideas and forces, and aims and practices of American education today. S/U or letter grading.

266A-266B. Seminars: Colonial Latin American History. (4-4) Seminar, three hours. Course 266A is requisite to 266B. In Progress (266A) and letter (266B) grading.

M266C. Analyzing Historical Texts. (4) (Same as Linguistics M238.) Seminar, four hours. Designed for graduate students. Analysis of linguistic structure and ethnohistorical context of legal and other documents written by native-speaking scribes and translators. Topics include paleographic technique and text analysis software. May be repeated for credit. S/U grading.

267A-267B. Seminars: Latin American History, 19th and 20th Centuries. (4-4) Seminar, three hours. Course 267A is requisite to 267B. In Progress (267A) and letter (267B) grading.

M268A-M268B. Seminars: Recent Latin American History. (4-4) (Same as Latin American Studies M268A-M268B.) Seminar, three hours. Course M268A is requisite to M268B. Reading knowledge of Spanish and Portuguese normally required. Seminar devoted to selected topics of interdisciplinary nature. In Progress (M268A) and letter (M268B) grading.

275A-275B. Colloquia: African History. (4-4) Seminar, three hours. Designed for all entering and continuing graduate students in African history. Source identification, research methodologies, historiographical traditions, historical interpretation, approaches to teaching, and research design. Forum for critical discussion of dissertation prospectuses and work in progress. Each course may be taken independently for credit. S/U or letter grading.

M280. China Studies: Discipline, Methods, Debates. (2) (Same as Chinese M202.) Seminar, two hours. Introduction to study of China as practiced in humanities and social sciences disciplines. S/U grading.

M281. China—Seminar: Classical Historiography and Readings in Classical Studies. (4) (Same as Chinese M201.) Discussion, three hours. Preparation: two years of classical Chinese or working knowledge of classical Chinese. Readings in historiography and selected genres of historical documents. Letter grading.

282A-282B. Seminars: Chinese History. (4-4) Seminar, three hours. Course 282A is requisite to 282B. In Progress (282A) and letter (282B) grading.

285A-285B. Seminars: Japanese History. (4-4) Seminar, three hours. Course 285A is requisite to 285B. In Progress (285A) and letter (285B) grading.

M286. Japan in Age of Empire. (4) (Same as Anthropology M276 and Asian M292.) Seminar, three hours. Designed for graduate students. Since late 19th century, Japan expanded its empire into East and Southeast Asia. Coverage of that period and array of anthropological studies conducted in Japan's colonies and occupied areas in this hardly explored area of study of colonialism. S/U or letter grading.

M287. Central Asian Studies: Discipline, Methods, Debates. (2) (Same as Anthropology M287R.) Seminar, two hours. Introduction to study of central Asia as practiced in humanities and social sciences disciplines. S/U grading.

288A-288B. Seminars: South Asia. (4-4) Seminar, three hours. Course 288A is requisite to 288B. In Progress (288A) and letter (288B) grading.

289A-289B. Seminars: Southeast Asia. (4-4) Seminar, three hours. Course 289A is requisite to 289B. In Progress (289A) and letter (289B) grading.

291A-291B. Seminars: Jewish History. (4-4) Seminar, three hours. Course 291A is requisite to 291B. Studies in intellectual and social history of Jewish people from ancient times to modern period. In Progress (291A) and letter (291B) grading.

293A-293B. Seminars: History of Religions. (4-4) Seminar, three hours. Course 293A is requisite to 293B. In Progress (293A) and letter (293B) grading.

294A-294B. Western Science, Religion, and Political Economy, 1600 to 1830. (4-4) Seminar, three hours. Study of science integrated within matrix of religious belief commonplace in early modern Europe and, to a lesser extent, in American colonies. Examination of relationship of both cultural matrices to political and economic change. S/U or letter grading.

295. Theories of Scientific Change. (4) Seminar, three hours. Historical and philosophical perspectives on science, focusing on rationality of scientific change and logic and psychology of scientific discovery. Readings and seminar-style discussions of such authors as Popper, Kuhn, Toulmin, Lakatos, Holton, Buhdhab, Feyerabend, and others.

297A-297B. Seminars: History of Science. (4-4) Seminar, three hours. Course 297A is requisite to 297B. In Progress (297A) and letter (297B) grading.

M298. Interdisciplinary Studies in 17th and 18th Centuries. (4) (Same as English M298.) Discussion, four hours. Topics vary according to participating faculty. May be repeated for credit. S/U or letter grading.

M299. Interdisciplinary American Studies. (6) (Same as English M299.) Discussion, four hours. Readings, discussion, and papers on common theme, team-taught by faculty members from different departments. Topics vary according to participating faculty. May be repeated for credit with consent of instructors. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

490. Writing Workshop for Graduate Students. (4) Tutorial, three hours. Writing workshop on students' papers-in-progress. Analysis and group discussion of rhetorical and stylistic principles, illustrated in students' own and in professional historians' work, help students improve their own writing. May be repeated once. S/U grading.

495. Teaching History. (4) Seminar, to be arranged. Designed for graduate students. Required of all new teaching assistants. Lectures, readings, discussions, and practice teaching sessions within the structure of

a seminar. Students receive unit credit toward full-time equivalence but not toward the nine-course requirement for MA degree. S/U grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Studies. (1 to 8) Limited to graduate students. Individual directed reading arranged with professor. MA candidates may take this course only once. Number of times PhD candidates may take this course is subject to consent of graduate studies committee. S/U or letter grading.

597. Directed Studies for Graduate Examinations. (1 to 8) Preparation for MA comprehensive examination or PhD qualifying examinations. S/U grading.

599. PhD Research and Writing. (1 to 8) Preparation: advancement to PhD candidacy. S/U grading.

Courses in the Honors Collegium are mainly interdisciplinary seminars, and the courses vary each year. Refer to the Schedule of Classes for current course listings.

Honors Collegium

Lower Division Courses

1. Plague Culture. (5) Seminar, three hours. Study of episodes and metaphors of plague in Western culture from ancients into age of AIDS. Topics include scripture, ancient tragedy, Black Death, realist novel, high aesthetic metaphors of plague, Nazi propaganda, existential and absurdist thought, postwar cinema, contemporary American theater, and modern science and medicine. P/NP or letter grading.

2. Comparative Genocide. (4) Lecture, four hours; discussion, one hour. Social comparative study of genocide, combining theoretical concepts with case studies (such as Armenia, the Holocaust, American Indians, Uganda under Amin and Obote, etc.). P/NP or letter grading.

3. Personal Brain Management. (5) Seminar, four hours. Designed for College Honors students. Available psychotherapies, educational media, and drugs can alter our way of thinking. New wave of information technologies and biotechnologies is changing existing landscape. Survey of available tools that claim neuroplastic brain-changing effects, consideration of future developments, and engagement of students in discussion on ethical and philosophical implications of these developments. P/NP or letter grading.

5. Representing Cleopatra: History, Drama, and Film. (5) Seminar, three hours. Examination of legendary queen of Egypt as seen by her contemporaries and study of origins of myths about her and ways in which subsequent cultures and eras have imagined her in literary, visual, and cinematic representations. P/NP or letter grading.

6. Energy Issues: Before and Now. (5) Seminar, three hours. Review of physics and chemistry of concepts of energy, history over ages of turning of discoveries into products in this area, including use of fossil fuel, and discussion of current energy issues, including alternative energies. P/NP or letter grading.

7. Saint and Heretic: Joan of Arc and Gilles de Rais, History and Myth. (5) Seminar, three hours. Examination of both history of Joan of Arc and Gilles de Rais and of way in which, over time, their histories became legends, driven by various agendas including national identity, beatification, and gender politics. P/NP or letter grading.

9. Visual Communication and Scientific Principles. (5) Seminar, four hours. Opportunity for collaboration between those in science-related disciplines and those in art/humanities-related disciplines. New ways in which science can be visually communicated, using tools, techniques, and media that are typically outside science education. Science students learn innovative ways of presenting scientific data and design and design, media, and art students learn how to apply their skills to topics they might not usually address. P/NP or letter grading.

11W. Postmodern Culture. (5) Seminar, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Exploration of theories and art (literature, music, film, fine art) that emerged after World War II in what has come to be known as postmodern era. Art criticizes master narratives of earlier age and fosters fragmentation, skepticism toward universal truth, commodification of knowledge, media creating reality, and globalization in industry and society. Satisfies Writing II requirement. Letter grading.

12. Sacred Form: Literature and Poetry in India from Bronze Age to Premodern Times. (4) Seminar, three hours. Exploration of cultural and literary development in India from early religious poetry (prior to 1000 B.C.) to broad range of literary styles and di-

verse religious and philosophical movements through classical, medieval, and premodern period. P/NP or letter grading.

14. Interaction of Science and Society. (5) Seminar, three hours. Examination of interaction of science and society and effects of this interaction on history, development of societies, evolution of revolutionary ideas as modeled in Galileo, Darwin, and others, and selected contemporary issues such as genetic engineering and war against infectious diseases. P/NP or letter grading.

16. Science of Singing Voice. (5) Seminar, three hours. Study of methods, including computer laboratory work, of quantifying aspects of voice production. Study of students' own vocal productions as well as recorded samples of famous singers. P/NP or letter grading.

17. Art, Entertainment, and Social Change. (5) Seminar, three hours. Designed for College Honors students. Integrative examination of evolving impact of arts and entertainment industry on such various aspects of social change as environmental movements, politics and elections, economy, local politics, and community. P/NP or letter grading.

18. Trial of Socrates. (5) Seminar, three hours. Examination of life and times of Socrates and trial that led to his execution, including in-class staging. P/NP or letter grading.

20. What Is This Thing Called Science?: Nature of Modern Science. (5) Lecture, three hours; discussion, one hour. Exploration of difference between science and other systems of knowledge; study of history and philosophy of science and examination of its reliability as objective knowledge. P/NP or letter grading.

21W. Rise and Fall of Modernism. (6) Seminar, three hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Study of early and middle 20th-century's attempt to construct significance in a general climate of disillusionment by way of literature, literary criticism, and other intellectual movements. Satisfies Writing II requirement. Letter grading.

22. Comparative Odysseys. (5) Seminar, three hours. Designed for College Honors students. Greek and Chinese classics have in common two modes of heroism: one glorifying prowess and another celebrating mental cunning. Both modes are associated principally with men motivated by piety and honor. Interrogation of these traditional constructions of heroic, particularly conflation of courage and violence. Readings include *Writer as Migrant* by Jin Ha, *Odyssey* by Homer, *Journey to West* by Anthony Yu, *Tripmaster Monkey* by Maxine Kingston, and *Ignorance* by Milan Kundera. P/NP or letter grading.

23. Political Dissidence Today and in Ancient Greece: Trial and Death of Socrates in Its Classical and Legal Context. (5) Seminar, three hours. Study of trial and death of Socrates by examining its relevance today to legal treatment of dissent and civil disobedience in the U.S. and to variety of contemporary theories and strategies of dissent. Introduction to Greek legal system, values that animated that system, and new ways to think about roles of law. P/NP or letter grading.

26. Representing Medicine: Art, Literature, and Film. (5) Seminar, four hours. Limited to Freshman Summer Program students. Exploration of interdisciplinary dimensions of medical representation, with emphasis on cross-cultural 20th-century portrayals of profession, including representations of doctor/patient relations, healthcare sites and circumstances, aging, alternative treatments, and mental health. Offered in summer only. P/NP or letter grading.

30. Vietnam War and American Culture. (4) Seminar, three hours. Cultural, social, and political implications of the Vietnam War on American society through examination of photography, journalism, personal narrative, political commentary, drama, and fiction. P/NP or letter grading.

HONORS COLLEGIUM

College of Letters and Science

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Faculty Committee

Maria (Maite) T. de Zubiaurre, PhD (*Germanic Languages, Spanish and Portuguese*)
Robert B. Goldberg, PhD (*Molecular, Cell, and Developmental Biology*)
Kelly A. Lytle Hernández, PhD (*History*)
Christina G.S. Palmer, PhD (*Human Genetics, Institute for Society and Genetics, Psychiatry and Biobehavioral Sciences*)
Zrinka Stahuljak, PhD (*Comparative Literature, French and Francophone Studies*)
Christopher C. Tilly, PhD (*Sociology, Urban Planning*)
Aaron Tornell, PhD (*Economics*)
Aradhna K. Tripathi, PhD (*Atmospheric and Oceanic Sciences; Earth, Planetary, and Space Sciences; Institute of the Environment and Sustainability*)

Scope and Objectives

The Honors Collegium is a series of courses with an interdisciplinary emphasis designed for students enrolled in College Honors. It encourages animated discussion among students, as well as between students and professors and seeks to promote scholarly exchange across the major disciplines in the University. And it offers small classes and individual attention.

Undergraduate Study

Each Honors Collegium course is staffed by a director who is distinguished in teaching and scholarship and may include a variable number of guest lecturers and additional specialists in their fields. Some courses satisfy general education requirements and serve as preparation for numerous majors in the College of Letters and Science. Counselors are available in the Honors Programs Office, A311 Murphy Hall, to advise and help students plan an integrated academic program.

35. Scientific Method: Critical Inquiry into Question of Extraterrestrial Life. (4) Lecture, three hours; discussion, one hour. Course does not presume to answer question of whether or not there is intelligent life in the universe but rather uses this question as a pedagogic tool to introduce central ideas, techniques, and limitations of the scientific method—what questions would need to be asked, what scientific knowledge would be needed, and what obstacles would have to be overcome just to address this question. P/NP or letter grading.

36. Global Geographies and Idea of Home. (5) Seminar, three hours. Designed for College Honors students. Home is potent symbolic notion across eras and cultures, locale from which we depart and to which we may return. Broader notions of home, as homeland, incessantly form basis of conflicts between people and nations. Investigation of what home is through challenging works of theory surrounding notions of space, place, longing, belonging, exile, and return, and through lighter vibrant works of literature, film, and performance. P/NP or letter grading.

37W. Sampling and Remix: Aesthetics and Politics of Cultural Appropriation. (5) Seminar, three hours; laboratory, two hours. Enforced requisite: English Composition 3 or English as a Second Language 36. Limited to College Honors students. Contemporary media literacy has spurred production of amateur remixes of songs, films, images, and other media texts. But this is only one moment within far-reaching genealogy of cultural appropriation. Use of remix as lens through which to explore aesthetics and politics of historical and contemporary forms of cultural appropriation, including remixes of political speech, viral videos, and comedy mashups. Examination of fine line between honorific cultural allusion and allegations of theft. P/NP or letter grading.

38. Film and History/Film as History. (5) Seminar, four hours. Designed for College Honors students. How do films reflect on, and even constitute, historical events? Examination of relationship between film and history and some ways in which film has functioned as history. Tracing questions of film and history from silent era to postfilm digital present, exposure to major issues in scholarly body of work in film and media studies while also learning about ways that films can engage with history. P/NP or letter grading.

39. Philosophy Ramble. (5) Seminar, three hours. Designed for College Honors students. Grounded in Aristotelian-style philosophy found in Martha Nussbaum's *Quality of Life* and P.M.S. Hacker's *Intellectual Powers*. Prompted by wide range of philosophical readings and employing Socratic method of asking questions, examination of place in our lives—especially our civic lives—of attention, memory, will, science, prudence, and assessment/creation of self. Like Aristotle's peripatetic version of Plato's Academy, class takes regular walks together, using UCLA and West Los Angeles as Lyceum, engaging in intellectual dialog in historical tradition of exercising both body and mind. P/NP or letter grading.

40W. Transformations of Cultural Stories across Disciplines and Texts. (5) Seminar, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Tracing of writing and rewriting of traditional story types, specifically the adventure story as represented by Defoe's *Robinson Crusoe* and its remanifestations in Coetzee's *Foe* and the fairy tale as represented by *Cinderella* and its various cross-cultural remanifestations. Satisfies Writing II requirement. Letter grading.

41. Understanding Ecology: Finding Interdisciplinary Solutions to Environmental Problems. (5) Seminar, four hours. Designed for College Honors students. Exploration of ecological basis of planet's most important environmental issues, including global climate change, ocean acidification, biodiversity loss, deforestation, pollution, and declining freshwater resources and fisheries. Examination of both hard science and interdisciplinary solutions (social, political, educational) to environmental problems. P/NP or letter grading.

43W. Science, Rhetoric, and Social Influence. (6) Seminar, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Science writing, particularly scientific texts, both contemporary and historical, that have been used to communicate science to and influence large groups of people's beliefs and behavior. What is it about certain scientific texts that change way we think and have potential to affect social policy? Texts cover variety of topics from evolution to nutrition and food industry to current debates about climate change. Students encouraged to practice science writing themselves. Satisfies Writing II requirement. Letter grading.

44. Society of Excess: On Waste, Consumer Culture, and Environment. (5) Seminar, three hours. Designed for College Honors students. Examination of waste in both real and virtual worlds, looking in interdisciplinary ways at various cultural representations of trash set against backdrop of society of excess and environment constantly threatened by overflowing and mismanaged waste, including social and cultural responses to physical waste and cyber battle against Internet debris. P/NP or letter grading.

46. Drugs in Society: Interdisciplinary Perspective on Drug Use, Abuse, Treatment, and Intervention. (5) Seminar, three hours. Examination of drug use and abuse and consequent social issues and policies both historically and in the contemporary U.S., including discussion of current research on neurobiological properties of different drugs and corresponding clinical interventions. P/NP or letter grading.

48. Politics of Reproduction. (4) Seminar, three hours. Examination of complex relations between individual, local, and global interests as they shape and reflect reproductive practices, public policy, and exercise of power. P/NP or letter grading.

49. Evidence in Law, Science, History, and Journalism. (4) Seminar, four hours. Rigorous study of ways in which lawyers, scientists, historians, and journalists handle evidence, with aim of advancing cross-disciplinary inquiry to produce a common vocabulary and set of concepts that allow for discussion of evidentiary issues in differing fields of inquiry. P/NP or letter grading.

51. Music and Society. (5) Seminar, four hours. Minimal experience reading music desirable but not required. Analysis of Western art music, with focus primarily, but not exclusively, on music of late-18th through early-20th centuries through multiple analytical prisms: sociological, historical, political, and musical. P/NP or letter grading.

55. Culture and History of Utopias. (4) Seminar, three hours. Study of major utopian writings from Thomas More's classical text to recent ecological and feminist utopian texts, with purpose of uncovering social, intellectual, and cultural landscapes underlying quest for a more perfect society. P/NP or letter grading.

57. Language, Performance, and Culture. (5) Lecture, three hours. Mixture of lecture and discussion on topic of language and its relationship to performance and culture in 19th and 20th centuries. Study of theorists such as Saussure, Wittgenstein, Stanley Cavell, Judith Butler, and others, playwrights such as Wilde, Stein, and Samuel Beckett, and films such as "His Girl Friday" and "Monkey Business." P/NP or letter grading.

59W. Literature and Culture of the American South. (6) Seminar, four hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Examination of historical imagination as it is expressed in such writers as William Faulkner, Allen Tate, Flannery O'Connor, Richard Wright, and Zora Neale Hurston; in Civil War and WPA/FAA photography; and in Southern rhetoric and political documentary. Satisfies Writing II requirement. Letter grading.

63W. Nabokov and Reading Minds. (5) Seminar, four hours. Enforced requisite: English Composition 3 or English as a Second Language 36. Designed for College Honors students. Examination of three works by Vladimir Nabokov, Russian-American writer, teacher, translator, lepidopterist, and composer of

chess problems. Nabokov's eclectic writings lend themselves well to precepts of cognitive criticism—way of understanding world through relationship between literacy and thought. Reading and writing about art and science built into course. Satisfies Writing II requirement. Letter grading.

64. Neuroscience and Psychology of Art and Biology of Aesthetics. (5) Seminar, three hours. Interdisciplinary approach to study of premise that beauty, whether of faces, art works, or other subjects, is processed by brain and can be understood as neurological and psychological phenomenon. P/NP or letter grading.

65W. Body-Mind Literacy. (6) Seminar, four hours. Enforced requisite: English Composition 3. Designed for College Honors students. Exploration of relationship between body and mind: when are they most in harmony and when are we alienated from this potential unity? When do we value one part of ourselves over another and why? What cultural, social, political, and personal influences determine answers to these questions? Topics include Cartesian dualism, pluralistic intelligence, mental and physical health, and views of body/mind as integrated unit. P/NP or letter grading.

70A. Genetic Engineering in Medicine, Agriculture, and Law. (5) Lecture, three hours; discussion, two hours. Not open to students with credit for Life Sciences 3, 4, former Microbiology 7, or Molecular, Cell, and Developmental Biology 70. Historical and scientific study of genetic engineering in medicine, agriculture, and law, including examination of social, ethical, and legal issues raised by new technology. P/NP or letter grading.

70AL. Gene Discovery Laboratory. (5) Seminar, three hours; laboratory, five hours. Recommended requisite: course 70A. Laboratory work in genomics research and seminar discussion that apply experimentally concepts and techniques taught in course 70A. P/NP or letter grading.

71. Cross-Cultural Approaches to Media History and Culture. (5) Seminar, three hours. Examination of media, media history, and media culture from cross-cultural perspective, one that demands redefinition of media and understanding of art in cross-cultural context. P/NP or letter grading.

73. Elementary Particles in the Universe. (4) Lecture, two hours; discussion, 90 minutes. No special mathematical knowledge required. Examination of elementary particle physics, including status of its current study in laboratories around the world and its role in assessing the early evolution of the universe. P/NP or letter grading.

77. Greeks and Persians: Ancient Encounters from Herodotus to Alexander. (5) Seminar, three hours. Designed for College Honors students. Examination of multiple encounters between Greeks and Persians in antiquity, from origins of Achaemenid Empire through its conflicts with Greek world of Mediterranean, to Alexander's defeat of Darius III. Consideration of mutual constructions of other in antiquity, Near Eastern versus Greek testimonia, and art and archaeological evidence of these two civilizations. P/NP or letter grading.

78. Science and Religion from Copernicus to Darwinism. (5) Seminar, three hours. Designed for College Honors students. Relationship of religion and science in West by focusing on leading scientists such as Galileo, Newton, and Darwin. Each one dealt differently with competing demands of religion, based on faith and revelation, and science founded on experience and reason. Dialog was and is constant one. P/NP or letter grading.

79. Personal Financial Health: Theory and Practice. (6) Seminar, three hours; fieldwork, four hours. Designed for College Honors students. Special economics or mathematics preparation not required. Theory and practice of managing financial health, allowing for broad discussion of larger theoretical picture of variables affecting economy and practical hands-on look at personal finance, including budgeting, debt, insurance, investing, and purchasing. Examination of variety of financial issues through

three principal standpoints: psychology of finance, historical perspective of finance, and socioeconomic perspective of finance. P/NP or letter grading.

80. Cossacks and Narratives about Them. (5) Seminar, four hours. Designed for College Honors students. Examination of two Cossack societies: Ukrainian (Zaporozhian) Cossacks and Russian (Don) Cossacks. Both emerged in 15th and 16th centuries as warrior societies along contact zone between Slavic world and Muslin Tatar and Turkic world. Their frontier status and liminal culture proved to be mythogenic, and Cossacks figure prominently in imagination of cultures they impacted over centuries, especially in folklore, literature, film, and opera. Study of Cossacks through these media to understand not just Cossack society but ways in which Cossacks have been viewed through paradigms of Polish, Russian, Ukrainian, Jewish, Ottoman, and west European cultures. P/NP or letter grading.

82. Community and Labor Development from Ground Up. (4) Lecture, three hours; discussion, one hour. Introduction to practical applications of community development and outreach efforts in Los Angeles area, with projects from Community Outreach Partnership Center within School of Public Policy and Social Research. P/NP or letter grading.

83W. Politics and Rhetoric of Literature. (6) Seminar, four hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Examination of relationship among politics, rhetoric, and literature in study of literature from classical times to the present, broadening into general discussions of development of political discourse in Western thought, particularly conflict between self and state, between ideology and the practical business of living. Satisfies Writing II requirement. Letter grading.

84. Conflicts between Languages. (5) Seminar, three hours. Introduction to potentially conflict-ridden language situations in three countries abroad and discussion of various aspects of minority languages in the U.S. P/NP or letter grading.

85. Biological Clock. (5) Seminar, four hours. Designed for College Honors students, but open to all majors. Rotation of Earth imposed diurnal oscillations of physical changes on all living organisms on Earth. Protein complexes, called circadian or biological clock, allow organisms to anticipate and adapt to daily environmental changes, and knowledge of it comes from molecular biology, biochemistry, cell biology, genetics, and genomics. Study of these processes and interdisciplinary methodologies to understand how biological clock works and how it affects health and well-being. P/NP or letter grading.

86. Psychology of Fear. (5) Seminar, three hours; fieldwork, one hour. Examination of phobias, including inquiry into how people are distressed by intense fear, examination of structures and processes of irrational fears, and discussion of courage and fear reduction strategies. P/NP or letter grading.

87W. Worlds of Neil Gaiman: Graphic Novels, Social Media, and Fantasy Fiction. (5) Seminar, four hours. Enforced requisite: English Composition 3. Designed for College Honors students. Examination of eclectic art of Neil Gaiman, exploring his contributions to children's and young adult literature, novels, graphic novels, video games, film and television, and online writing. Use of multiple lenses to understand his work, including philosophy, cultural studies, and media studies. Letter grading.

90. Hollywood and Global Responsibility. (5) Seminar, three hours. Designed for College Honors students. American filmmakers have enormous power to reach global audiences. When they use this platform to make films that flout social norms still respected in most parts of world, objections arise. Where is line between free speech and free artistic expression and social responsibility? How can Hollywood become more globally responsible given its business realities and lack of government oversight? Study of different case studies affecting different countries and cultures to illuminate discourse on ethics and art. P/NP or letter grading.

Upper Division Courses

101A. Student Research Forum. (2) Lecture, one hour; workshop, two hours. Corequisite: course 99. Designed to promote broad and deep understanding of university research, including plenary lectures on research and workshops on grant writing, Internet searches, research abstracts, and laws and regulations governing research. P/NP grading.

101B. UCLA Undergraduate Science Journal. (2) Seminar, two hours. For students on editorial board of annual *UCLA Undergraduate Science Journal*, including study of writing in sciences and honing of editing and production skills. May be repeated for maximum of 10 units. P/NP grading.

101C. UCLA Undergraduate Journal for Humanities and Social Sciences. (2) Seminar, two hours. For students on editorial board of annual *Aleph* journal of undergraduate research and writing, including study of writing in various disciplines and honing of editing and production skills. May be repeated for maximum of 10 units. P/NP grading.

101D. Counseling Multicultural Communities. (2) Seminar, two hours. Study of issues of culture and identity in cross-cultural counseling, including development of working model. P/NP grading.

101E. Leading Undergraduate Seminars. (1) Seminar, one hour. Limited to students who have been accepted into Undergraduate Student Initiated Education (USIE) program. Learning and exploration of issues that are integral to developing seminars and development of skills to become effective student facilitators. Practical teaching strategies and techniques, as well as pedagogical, organizational, and technological issues confronted by new instructors. Discussion of key topics, followed by discussion of syllabi that students are developing for their seminars and conducting of micro-teaching presentations. Guest speakers expand on topics that arise from class discussions. May be repeated once for credit. P/NP grading.

101F. Integrity in Research. (2) Seminar, two hours. Limited to students in CARE, HHMI, MARC, and UC Leads programs. Discussion about integrity in research, current thinking in field, and important ethical issues that impact scientific investigation. P/NP grading.

101G. Graduate School Preparation. (2) Seminar, two hours. Limited to AAP students. Designed to help AAP students familiarize themselves with academic disciplines they would like to pursue in graduate school. Through course readings, guest speakers, and interactive assignments, students learn more about their graduate school options and how to navigate application process. P/NP grading.

101I. Research Today: Sources, Tools, and Strategies. (2) Lecture, two hours; activity, two hours. Introduction to research process in digital age, offering opportunity to develop research skills through exploration of library and Internet resources, exposure to rare and unique materials, experimentation with digital tools, engagement with librarians and other experts, and interactive creation of research project proposal. Designed to prepare students for capstone or thesis experience in humanities or social sciences. P/NP grading.

101J. Mellon Mays Research Seminar. (2) Seminar, two hours. Limited to current Mellon Mays Undergraduate Fellows and designed to support them in their current research projects and graduate school preparation. Topics include research methods, abstracts, presentations, and posters, as well as graduate school application materials. P/NP grading.

102. Culture, Media, and Los Angeles. (6) (Same as African American Studies M102 and Asian American Studies M160.) Lecture, four hours; screenings, two hours. Designed for juniors/seniors. Role of media in society and its influence on contemporary cultural environment, specifically in Los Angeles; issues of representation as they pertain to race, ethnicity, gender, and sexuality. P/NP or letter grading.

103. Scientific Knowledge, Industrial Growth, and Social Policy. (5) Lecture, three hours; laboratory, two hours. Examination, using nanotechnology, of both benefits and risks to economy and society when new technologies are in process of development. P/NP or letter grading.

104. Fundamental Forms of Social Relationships from Theory to Research Design. (5) Seminar, three hours. Relational models theory posits that four elementary models organize social coordination, emotions, motives, and norms in virtually all domains and cultures. Study and critique of theory, development of research questions, planning of study, design of its methodology, and writing of research proposal. P/NP or letter grading.

105. Racial and Ethnic Disparities in Healthcare. (5) Seminar, three hours. Examination of ways in which race and ethnicity impact delivery of healthcare in U.S. and discussion of policies and proposals to address disparities in healthcare and diversity in healthcare professionals. P/NP or letter grading.

106. Imaginary Women. (5) (Same as Gender Studies M106) Seminar, four hours. Designed for junior/senior College Honors students. Study of four female cultural archetypes—absconding wife/mother, infanticide mother, intellectual woman, and warrior woman—as they appear in their classical and modern manifestations in European and American cultures. P/NP or letter grading.

107. Literature and Political Order: Homer, Shakespeare, Dostoevsky. (5) Seminar, three hours. Designed for College Honors students. Examination of political order and questions of violence, power, leadership, and ideology through close readings of literary texts, specifically *Iliad* by Homer, *Julius Caesar* and *Henry IV, Part 1* by Shakespeare, and *Brothers Karamazov* by Dostoevsky. P/NP or letter grading.

109. Foreign Exchange Market and Exchange Rate Forecasting. (5) Seminar, four hours. Introduction to forecasting of exchange rates. Theory linked with real-world data through use of powerful computer platform called Tradestation® in computer laboratory. Analysis of how foreign exchange market works, what financial instruments are used in this market, and what main theoretical determinants of exchange rates are. Generation of exchange rate forecasts by combining theoretical concepts with real-world data using concepts and techniques from computer science, linguistics, and statistics. How to write simple codes to generate exchange rate forecasts and to evaluate accuracy of student forecasts. P/NP or letter grading.

110. Marxist and Post-Marxist Approaches to Cultural Studies. (4) Seminar, four hours. Examination of Marxist and post-Marxist approaches to study of culture, including classic texts, theoretical and empirical works, and the Marxist roots of postmodernism. P/NP or letter grading.

111. Stress and Coping. (4) Seminar, four hours. Examination of research and theory on stress and coping, with emphasis on physical and mental consequences of stress and moderators of both social support and personality in coping strategies. P/NP or letter grading.

112. Inner and Outer Worlds of Children: Social Policies. (4) (Same as Education M112.) Seminar, four hours. Practices and analysis of social policies impacting on children. Topics include assessment, social justice and geographical space, temporal orientation, and classical theories of adolescent development. Letter grading.

113. Hyperconnected World: Society and Internet. (5) Seminar, three hours. Designed for College Honors students. Exploration of social, political, economic, psychological, and cultural dimensions of our hyperconnected world via Internet. Topics include transformations of social relationships online, virtual versus real communities, identity and its creations, trust and deception, politics and social media, surveillance and privacy, economics, intellectual property, culture, education, and knowledge, and digital wellness. P/NP or letter grading.

114. Architecture from Los Angeles: Work of Frank Gehry, Thom Mayne, and Greg Lynn. (5) Seminar, three hours. Within last 30 years, body of architectural work originating in Los Angeles but reaching world both in material construction and aesthetic influence has emerged. Study of works of three seminal architects—Frank Gehry, Thom Mayne, and Greg Lynn. Site visits and hands-on practice in how to read architectural plans and how to use computers and modeling in architectural study and design. P/NP or letter grading.

115. Poetry and Society in England, 1588 to 1688: Verse, Politics, Religion, and Sexuality from Spanish Armada to Glorious Revolution. (5) Seminar, three hours. Designed for College Honors students. Poetry of England in century between 1588 and 1688 through prism of evolving political, philosophical, theological, sexual, economic, and scientific practices of that day and vice versa to understand poetry in cultural and historical context. Students research widely on range of subjects from alchemy to zoology and become class resource on some relevant topic such as Renaissance medicine, Calvinism, Scholasticism, Cromwell and New Model Army, Elizabethan foreign policy, Stuart architecture, agricultural and dietary changes, and printing and publishing conventions. P/NP or letter grading.

M116. Art Alive: Art and Improvisation in Museums. (4) (Same as Theater M187.) Seminar, four hours. Offered in collaboration with Los Angeles County Museum of Art (LACMA). Interpretation of art in collection through acting, dialogues, movement, and music. Research into history and art history and production of creative performance piece required. P/NP or letter grading.

117. London and Culture of Male Homosexuality, 1870 to 1900. (5) Seminar, four hours. Designed for College Honors students. Examination of male homosexual subculture that thrived in London during period when brilliant Irish writer Oscar Wilde (1854 to 1900) was sent to jail for committing acts of gross indecency. Study of Wilde trials, cultural consequences of Labouchere Amendment criminalizing male homosexual acts, some of Wilde's writings, and exciting new writings that have come to light offering insight into links that gay men in London had with theatrical world, prostitution, aristocrats, and underground publishing. P/NP or letter grading.

M118. Roots of Patriarchy: Ancient Goddesses and Heroines. (4) (Same as Gender Studies M128.) Lecture, three hours. Examination of ancient goddesses and heroines—European, Neolithic, Near Eastern, Celtic, Scandinavian, Balto-Slavic, Indo-Iranian, and Greco-Roman—using translations of ancient texts, archaeological evidence, and feminist methodology in order to discover implications of ancient patriarchy on modern society. P/NP or letter grading.

M120. Art and Performance: Interdisciplinary Approach to Collections of Getty Center. (4) (Same as Theater M109.) Lecture, four hours; discussion, one hour. Drawing from objects in five major collections at Getty Museum, focus on five parallel historical periods in which political, social, and aesthetic philosophy of age is examined in musical and dramatic performance. Letter grading.

121. Psychoanalysis before Freud, and a Little After. (5) Lecture, three hours; discussion, one hour. Examination of different ways human beings have developed conceptions of themselves through history from early civilizations through Middle Ages, Renaissance, Reformation, scientific revolution, Enlightenment, origins of modern world, Freud's *fin de siècle* Vienna, and post-Freudian visions; investigation of various interactions of these different conceptions in present day. P/NP or letter grading.

122. Chemical Communication across Tree of Life. (5) Seminar, three hours; discussion, two hours. Designed for College Honors students. Chemical communication governs relationships among most biological entities, across entire tree of life from viruses to *Homo sapiens*. Bioinspired devices are using knowledge gleaned from chemosensory systems to change

face of robotics, with wide applications in consumer industries, homeland security, and space exploration. Chemical, physical, and biological principles to be combined as pedagogical tools for teaching larger lesson in science. Synthesis of information and concepts across disciplines to develop student hypotheses and conclusions. P/NP or letter grading.

M123. Philanthropy as Civic Engagement. (5) (Same as Civic Engagement M122.) Seminar, three hours. Limited to juniors/seniors; application required. Study of history, philosophy, and practice of philanthropy. Practical experience in setting priorities and making philanthropic investments in Los Angeles-based nonprofit organizations. Letter grading.

124. Midwives, Mothers, and Medicine: Perspectives on History of Childbirth. (4) Seminar, three hours. Using examples from history and anthropology, examination of variety of practices associated with childbirth over time and across cultures, addressing such themes as shifting relations among birthing women, midwives, and medical men and cultural meanings of birth. P/NP or letter grading.

125. Communities and Nations in Conflict: Theory and Practice of International Conflict Resolution. (5) Lecture, three hours; discussion, one hour. Introduction to theory and practice of conflict resolution, with emphasis on international conflict. Transitional justice mechanisms, from international criminal tribunals, special courts, and International Criminal Court to indigenous approaches such as community justice systems. Examination of environmental conflict resolution, homeland security and terrorism, role of gender in conflict, and role of media in conflict. P/NP or letter grading.

127. Citizenship, Leadership, and Service. (4) Seminar, three hours; fieldwork, three hours. Interactive participatory study of interactions between citizenship, leadership, and service, including both theoretical work in classroom and practical work in service organizations in the field. P/NP or letter grading.

M129. Cultural Construction of Gender and Sexuality: Homosexualities. (4) (Same as Anthropology M134 and Lesbian, Gay, Bisexual, and Transgender Studies M134.) Seminar, three hours. Comparative analysis of role of environment, history, and culture in structuring of patterns of same-sex erotic behavior in Asia, Africa, Middle East, Pacific, Caribbean, and aboriginal America. P/NP or letter grading.

130. Speeding Cures: How Can Health Activists Make Differences? (5) Seminar, four hours. Designed for College Honors students. Study of intersection of science and society by examination of historical examples of ways in which health activists have contributed to moving specific health challenges into forefront of both public discourse and biomedical research. Some scientists argue that surest route to cures and health is through curiosity-driven science supplemented by serendipity, followed by integration of new knowledge into practical therapies. Others argue that extra scientific passion, financial incentives, social and political organization, and strategic planning may be more important. Research of one disease-related or health-related campaign in depth. Topics include autism, AIDS, cancer, politics of disability, economics of drug development, DNA sequencing, aging, and future roles of health advocates. P/NP or letter grading.

132. New Women and Activism from America to Asia. (5) Seminar, three hours. Designed for College Honors students. Spanning of academic disciplines and regional boundaries by looking at women's movements in U.S. and East Asia in early 20th century, with examination of how issues of women's rights, labor rights, and race/nation identities united and divided women across classes and national borders. Examination of suffrage movement in 1913 New York and parallel movements in East Asia (Japan, Korea, China) that adopted and adapted some of these same ideas to their own unique historical circumstances. Use of highly successful Reacting to Past historical role-playing game titled Greenwich Village, 1913: Suffrage, Labor, and New Woman. P/NP or letter grading.

133. Practice and Ethics of Ethnographic Fieldwork. (5) Seminar, three hours. Examination of ethics and practices of ethnographic fieldwork. This is not field methods course but one intended to convey rich knowledge fieldwork can produce in many disciplines and kinds of ethical issues raised in doing fieldwork. P/NP or letter grading.

134. Democracy and Utopias. (5) Seminar, three hours. Designed for College Honors students. Political culture of modern democracy fosters idea of progress and constant reform and is also wary of radical upheavals. Political culture of ancient Greek democracy made possible two things: awareness of having achieved unmatched superiority over any other society and birth of utopia. Democracy praised itself as perfect form of government, but it let flourish counterfactual objections to quest for absolute, just, and blissful political order. Examination of this paradoxical link between democracy and utopia by tracing its history in works of Aristophanes, Plato, Thomas More, Tommaso Campanella, Francis Bacon, and Charles Fourier to show relevance to contemporary politics. P/NP or letter grading.

137. Political Satire: Offensive Art. (5) Seminar, three hours. Study of political satire in several societies and variety of genres, including review of socio-political conditions that act to foster or constrain satire. P/NP or letter grading.

140. Dominants and Subordinates in Social Psychology of Privilege and Oppression in Public Education. (6) Lecture, four hours; discussion, one hour; tutoring, three hours. Study of social arrangements and temporary inequalities in contemporary American public school, showing how such entrenched inequalities tend to become permanent. Field component included. P/NP or letter grading.

141. Biology and Medicine in Postgenomic Era. (5) Seminar, four hours. Requisite: Life Sciences 3. Discussion of human genomic project, comparative and environmental genomics, structural and functional genomics, transcriptomics, proteomics, pharmacogenomics, and metabolomics. P/NP or letter grading.

M143. Latino Immigration History and Politics. (4) (Same as Chicana and Chicano Studies M124.) Lecture, four hours. Overview of immigration in 20th century, examining social, political, and economic contexts out of which different waves of Latin American immigration to U.S. has occurred. Letter grading.

M145. Politics of Crisis: Migration, Identity, and Religion. (4) (Same as Chicana and Chicano Studies M126.) Lecture, three hours. Examination of individual and collective religious response of Latin Americans and Latinas/Latinos in U.S. to dislocations, displacements, and fragmentation produced by conquest, colonization, underdevelopment, globalization, and migration. Letter grading.

146. Imagining Global Climate Change. (5) Seminar, three hours. Designed for College Honors students. Global and comparative study of regions in front line of climate change, such as tropical islands and poles that visibly confront sea level rise and glacial melt, through study of visual arts, literature, and film. Study of authors and artists from U.S., Australia, New Zealand, Guyana, Mexico, and Maldives to examine threat of climate change in its complex cultural imaginations. P/NP or letter grading.

M148. Simulating Society: Exploring Artificial Communities. (5) (Same as Sociology M118.) Seminar, three hours; computer laboratory, one hour. Examination of social behavior through computer simulations of behavior in artificial communities. P/NP or letter grading.

M152. Past People and Their Lessons for Our Own Future. (5) (Same as Anthropology M158Q and Geography M153.) Lecture, two hours; discussion, two hours. Examination of modern and past people that met varying fates, as background to examination of how other modern people are coping or failing to cope with similar issues. Letter grading.

M154. Interpreting Performance: Examination of Social, Historical, and Cultural Models for Performing Arts. (5) (Same as Theater M112.) Lecture, two hours; discussion, two hours. Examination of nature of performance in theory and practice and of social, historical, and cultural contexts in which performance traditions have evolved. Attendance at approximately five designated performances/events required. P/NP or letter grading.

156. Political Opposition in Early Modern Europe. (5) Seminar, three hours. Designed for College Honors students. Examination of tradition of radical political movements from Italian Renaissance to French Revolution. Topics include Machiavelli's contributions to political thought, turmoil of 16th-century France and Dutch Republic and their radical underside of Protestant thought, French Wars of Religion, Dutch revolt against Spanish, English Civil Wars, and radical thought of European Enlightenment and its contributions to French Revolution. P/NP or letter grading.

M157. International Relations of Middle East. (4) (Same as Political Science M132B.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Role of great powers in Middle East, with emphasis on American, Soviet, and West European policies since 1945. P/NP or letter grading.

158. Justice and Moral Responsibility in Literature. (5) Seminar, three hours. Discussion of literature (drama and fiction) addressing themes of law, justice, government, and moral responsibility in public context. P/NP or letter grading.

160. Asceticism. (5) Seminar, three hours. Designed for College Honors students. Historical overview of literary, philosophical, and theological writings on asceticism, with particular attention to late antiquity and medieval periods. Study of asceticism from desert fathers to medieval female mystics, Weber on Protestantism, Nietzsche on ascetic ideal, and Foucault on ancient askesis. Literary readings include selections from Flaubert, Melville, Kafka, Eliot, and Weil. P/NP or letter grading.

163. China's Rise: Critical Issues and Global Implications. (5) Seminar, four hours. Study of ascendency of China in 21st century, with emphasis on global implications. Aspects of Chinese development that lend themselves to comparative analysis, including labor, environment, nationalism, migration, inequality, rule of law, social movements and authoritarianism, state capitalism, and China in Africa. P/NP or letter grading.

165. Privacy versus National Security. (5) Seminar, four hours. Designed for College Honors students. Edward Snowden's disclosures of extent of government surveillance conducted by National Security Agency sparked national debate about scope and necessity of government surveillance programs. What is proper balance between privacy and national security in information age? Study of debate about constitutional values and moral responsibility, complicated by public fear, competing commercial interests, and international legal and diplomatic quandaries. P/NP or letter grading.

166. Stories of Cultural Distance and Imposed Assimilation. (5) Seminar, four hours. Study of how fiction, memoir, and film have represented involuntary cross-cultural assimilation as seen from perspective of intimate others, usually family members, coming to terms with their own and their relatives' cultural identity. P/NP or letter grading.

168. Paris: Biography of City from 1715 to World War II. (5) Seminar, three hours. Designed for College Honors students. Exploration of history of Paris from death of Louis XIV to World War II. Study of consequences of rapid urbanization and reasons why Paris became fulcrum for political revolutions. Examination of Paris as locus of modernism, its rebuilding and design under Baron George Haussmann, impact of World War I and expat culture, and city's housing crisis. P/NP or letter grading.

169. Imposture and National Identity. (5) Seminar, three hours. Cross-cultural approach to study of imposture (assumption of false identity) as window

through which to examine cultural modernity and national identity. Study of literature, history, and film from Australia, United Kingdom, the U.S., Near East, and South Asia as way of trying to define both hypocrisies and creativity of imposture. P/NP or letter grading.

M170. Philanthropy: Confronting Challenges of Serving Disabled. (5) (Same as Disability Studies M171.) Lecture, three hours. Enforced requisite: Disability Studies 101 or 101W. Study of history, philosophy, and practice of philanthropy using lens of disability studies theory in conversation with important themes of charity, paternalism, and systems of dependency. Analysis of multiple perspectives of philanthropy to gain practical experience setting priorities and making philanthropic investments in Los Angeles-based nonprofit organizations serving people with disabilities. Letter grading.

171. Rationality and Emotions. (5) Seminar, three hours. Historical study of way in which philosophers, social theorists, and cognitive scientists have characterized relationship between rationality and emotions, culminating in emerging consensus that emotions can positively influence rational decision making. Readings range from philosophy of ancient Greeks to writings of contemporary neuroscientists. P/NP or letter grading.

172. French Thinkers of Society. (5) Seminar, four hours. In-depth study of distinguishing perspectives of French theorists who wrote on society and its impact on individuals. Theorists include Pascal, Rousseau, Marcel Mauss, and Emile Durkheim from early modern period, contemporary thinkers such as Michel Foucault, Michel de Certeau, and Pierre Bourdieu, and two postmodern theorists, Guy Debord and Jean Baudrillard. P/NP or letter grading.

173. American Political Thought from Revolution to Civil War. (5) Seminar, three hours. Exploration of nature of American political thought between Revolution and Civil War. Topics include nature of rights, federalism, constitutionalism, and democracy, as well as morality of slavery and legitimacy of succession. P/NP or letter grading.

173A. Liberty, Government, and Society in European Thought. (5) Seminar, three hours. Examination of great works of European thought from 17th through 18th century, including works of John Locke, Montesquieu, David Hume, Edmund Burke, and Thomas Payne, with emphasis on legal, social, and moral preconditions of liberty. P/NP or letter grading.

173B. Nature, Culture, and Capitalism in European Thought. (5) Seminar, three hours. Course 173A is not requisite to 173B. Designed for College Honors students. Examination of great works of European thought from 17th through early 20th century, including works by Thomas Hobbes, Adam Smith, Jean-Jacques Rousseau, John Stuart Mill, and Max Weber, with emphasis on intellectual foundations of liberal democracy and capitalism. P/NP or letter grading.

174. Future Impact of Nano in New Technologies. (5) Seminar, four hours. Examination, for general audience, of science behind nanotechnology and way in which nano can potentially influence medical care, environment, energy issues, military, government, and economics. Demonstration of how nano, like current technology, cannot be separated from ethical, cultural, political, and social issues. P/NP or letter grading.

M175. Terrorism, Counterterrorism, and Weapons of Mass Destruction: Practical Approach. (5) (Formerly numbered 175.) (Same as Epidemiology CM175.) Seminar, three hours. Terrorism, its origins, and ways of addressing terrorism at local, national, and global levels. Guest speakers from variety of UCLA departments and from Los Angeles. P/NP or letter grading.

176A. Context of Arab World: Cairo and Alexandria. (4) Seminar, four hours; fieldwork, eight hours. Enforced corequisite: course 176B. Introduction to some of most important cultural, historical, and politi-

cal currents in contemporary Arab world, with special focus on Cairo and Alexandria. Offered in summer only. P/NP or letter grading.

176B. Reading Arab World: Cairo and Alexandria. (4) Seminar, four hours; fieldwork, eight hours. Enforced corequisite: course 176A. Introduction to some of most salient literature in contemporary Arab world, with focus on Cairo and Alexandria. Offered in summer only. P/NP or letter grading.

177. Biotechnology and Art. (5) Seminar, six hours. Bioartists use cells, DNA molecules, proteins, and living tissues to bring to life ethical, social, and aesthetic issues of sciences. Study of how bioart blurs distinctions between science and art through combination of artistic and scientific processes, creating wide public debate. Exploration of history of biotechnology as well as social implications of this science. P/NP or letter grading.

178. Secret Coup, Imperial Wars, and American Democracy since World War II. (5) Seminar, three hours. Study of U.S. involvement, both covert and overt, in expeditionary wars since World War II, including involvement in Vietnam, Korea, Cuba, Iran, Guatemala, Nicaragua, and Chile, and implication of these actions for vitality of American democracy. P/NP or letter grading.

M179. Critical Vision: History of Art as Social and Political Commentary. (5) (Same as Communication Studies M169.) Seminar, three hours. Study of tradition of visual arts (painting, graphic art, photography, sculpture) as vehicles for social and political commentary. P/NP or letter grading.

M180. Structure, Patterns, and Polyhedra. (5) (Same as Chemistry M117.) Lecture, four hours; activity, two hours. Exploration of structures and their geometric underpinnings, with examples and applications from architecture (space frames, domes), biology (enzyme complexes, viruses), chemistry (symmetry, molecular cages), design (tiling), engineering (space filling), and physics (crystal structures) to effect working knowledge of symmetry, two-dimensional patterns, and three-dimensional solids. P/NP or letter grading.

182. From Scientific Revolution to Industrial Revolution. (5) Seminar, four hours. Designed for College Honors students. Examination of most important development in making of Western power and hegemony: rise of new science and its relationship first to British, then European, Industrial Revolution. Once seen as solely product of material factors such as abundant coal, high wages, and available labor, Industrial Revolution is shown as also possessing critically important knowledge of components, one scientific culture derived from Newtonian science and mechanics. P/NP or letter grading.

183. Being Human: Identity in Age of Genomics and Neuroscience. (5) Seminar, three hours. Designed for College Honors students. Identity looked at through complex interplay of nature, nurture, consciousness, and philosophy, including exploration of current debates about race and IQ, sex, disability, and intelligence itself. Examination of way in which philosophers, anthropologists, psychologists, and biologists have thought about human nature to look for ethical guides about what genetic and neurobiological technologies to pursue or avoid. P/NP or letter grading.

184. Indian and Pakistan: Historic Roots of Conflict and Prospects for Cooperation. (5) Seminar, three hours. Designed for College Honors students. History of India and Pakistan from demise of British India's Empire in mid-August 1947, with inept partition of Punjab and Bengal and bifurcated Pakistan, to current state of both nations and their potential for conflict and cooperation. P/NP or letter grading.

193A. Journal Club Seminars. (2) Seminar, two hours; discussion, two hours. Study of key research journals and important research articles. Presentations by program faculty members and other leading researchers. May be repeated for credit. P/NP grading.

193B. Journal Club Seminars: Arts and Humanities Summer Research Program. (2) Seminar, one hour; discussion, one hour. Limited to students selected for Humanities Summer Research Program. Study of humanities research journals and monographs. Weekly student research reports and presentations by humanities faculty members. May be repeated for credit. P/NP grading.

193C. Journal Club Seminars: Mellon Mays Undergraduate Research Scholars. (2) Seminar, one hour; discussion, one hour. Limited to Mellon Mays undergraduate fellows. Study of key research journals and important research articles in arts, humanities, and social sciences. Weekly research reports and presentations by Mellon Mays students. Presentations by program faculty members and other leading researchers. P/NP grading.

199. Directed Honors Studies. (4) Tutorial, two hours. Preparation: minimum of 4 units completed in Honors Collegium with grade of B or better, overall UCLA grade-point average of 3.0 or better. Special research/writing tutorial with director of one Honors Collegium course to pursue in greater depth significant topics from one collegium course. May be repeated for credit. P/NP or letter grading.

HUMAN GENETICS

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Michael B. Gorin, MD, PhD (*Harold and Pauline Price Professor of Ophthalmology*)
Wayne W. Grody, MD, PhD
Steven E. Jacobsen, PhD
Deborah Krakow, MD, *in Residence*
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Stefan Horvath, PhD
James A. Lake, PhD
Kenneth L. Lange, PhD (*Maxine and Eugene Rosenfeld Endowed Professor of Computational Genetics*)
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Joseph Pisegna, MD
Karen Reue, PhD
Jerome I. Rotter, MD, PhD, *in Residence*
Janet S. Sinsheimer, PhD
Eric M. Sobel, PhD, *in Residence*
Marc A. Suchard, MD, PhD
Eric J.N. Vilain, MD, PhD
Stephen G. Young, MD

Professors Emeriti

Stephen D. Cederbaum, MD
Richard A. Gatti, MD (*Rebecca Smith Professor Emeritus of A-T Research*)

Associate Professors

Brent L. Fogel, MD, PhD, *in Residence*
Julian A. Martinez, MD, PhD
Matteo Pellegrini, PhD

Assistant Professors

Jingyi Jessica Li, PhD
Kirk E. Lohmueller, PhD
Bogdan Pasanuic, PhD
Sriram Sankararaman, PhD

Adjunct Professor

Jeanette C. Papp, PhD

Adjunct Associate Professor

Emmanuele C. Delot, PhD

Scope and Objectives

The goal of the graduate program is to train the next generation of leaders in human genetics. This broad and rapidly evolving field of research incorporates multiple areas of modern experimental biology (including but not limited to molecular and behavioral genetics, epigenetics, biochemistry, cell and developmental biology, imaging, and large-scale omics approaches such as genomics, transcriptomics, and functional genomics) and of computational biology (including bioinformatics and biostatistics). In their research, students tackle Mendelian diseases and genetically complex traits of key relevance to human health.

A wide variety of courses is offered to equip future independent researchers with fundamental knowledge about state-of-the-art methods for generating experimental data on a genome-wide scale and computational and statistical approaches to draw from the data sound conclusions of biological and medical significance. In addition, courses on medical and ethical issues provide students with a societal perspective on human genetics.

The program offers the MS and PhD degrees; graduate study leading to a PhD degree is emphasized. Under special circumstances, and only after consultation and approval by the Department of Human Genetics, individuals may apply for admission to the MS program.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Human Genetics offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Human Genetics. An MD/PhD program is also offered.

Human Genetics

Upper Division Courses

CM124. Computational Genetics. (4) (Same as Computer Science CM124.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: Computer Science 32 or Program in Com-

puting 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Designed for engineering students as well as students from biological sciences and medical school. Introduction to computational analysis of genetic variation and computational interdisciplinary research in genetics. Topics include introduction to genetics, identification of genes involved in disease, inferring human population history, technologies for obtaining genetic information, and genetic sequencing. Focus on formulating interdisciplinary problems as computational problems and then solving those problems using computational techniques from statistics and computer science. Concurrently scheduled with course CM224. Letter grading.

CM136C. Societal and Medical Issues in Human Genetics. (5) (Same as Society and Genetics M102.) Lecture, three hours; discussion, two hours. Sequence of entire human genome is now known. Consideration of how this knowledge impacts concepts of ourselves as individuals and of our place in biological universe, concepts of race/ethnicity and gender, ability of DNA-based forensics to identify specific individuals, ownership and commodification of genes, issues of privacy and confidentiality, issues of genetic discrimination, issues of predictive genetic testing. Discussion of human cloning for reproductive and therapeutic purposes. Exposure to medical genetics cases. Discussion of role of whole genome sequencing in clinical setting. Human Genome Project influence on medicine and on our concepts of self and identity. Concurrently scheduled with course C236C. Letter grading.

C144. Genomic Technology. (4) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4. Survey of key technologies that have led to successful application of genomics to biology, with focus on theory behind specific genome-wide technologies and their current applications. Concurrently scheduled with course C244. P/NP or letter grading.

199. Special Studies in Human Genetics. (2 to 8) Tutorial, to be arranged. Students select instructor among eligible research faculty and carry out independent research project under instructor supervision. P/NP or letter grading.

Graduate Courses

M203. Stochastic Models in Biology. (4) (Same as Biomathematics M203.) Lecture, four hours. Requisite: Mathematics 170A or equivalent experience in probability. Mathematical description of biological relationships, with particular attention to areas where conditions for deterministic models are inadequate. Examples of stochastic models from genetics, physiology, ecology, and variety of other biological and medical disciplines. S/U or letter grading.

M207A. Theoretical Genetic Modeling. (4) (Same as Biomathematics M207A and Biostatistics M272.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 115A, 131A, Statistics 100B. Mathematical models in statistical genetics. Topics include population genetics, genetic epidemiology, gene mapping, design of genetics experiments, DNA sequence analysis, and molecular phylogeny. S/U or letter grading.

M207B. Applied Genetic Modeling. (4) (Same as Biomathematics M207B and Biostatistics M237.) Lecture, three hours; laboratory, one hour. Requisites: Biostatistics 110A, 110B. Methods of computer-oriented human genetic analysis. Topics include statistical methodology underlying genetic analysis of both quantitative and qualitative complex traits. Laboratory for hands-on computer analysis of genetic data; laboratory reports required. Course complements M207A; students may take either and are encouraged to take both. S/U or letter grading.

210. Topics in Genomics. (2) Seminar, two hours. Survey of current biological theory and technology used in genomic research. Topics include genomic technologies, functional genomics, proteomics, statistical genetics, bioinformatics, and ethical issues in human genetics. S/U grading.

M211. Mathematical and Statistical Phylogenetics. (4) (Same as Biomathematics M211 and Biostatistics M239.) Lecture, three hours; laboratory, one hour. Requisites: Biostatistics 110A, 110B, Mathematics 170A. Theoretical models in molecular evolution, with focus on phylogenetic techniques. Topics include evolutionary tree reconstruction methods, studies of viral evolution, phylogeography, and coalescent approaches. Examples from evolutionary biology and medicine. Laboratory for hands-on computer analysis of sequence data. S/U or letter grading.

CM224. Computational Genetics. (4) (Same as Bioinformatics M224 and Computer Science CM224.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: Computer Science 32 or Program in Computing 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Designed for engineering students as well as students from biological sciences and medical school. Introduction to computational analysis of genetic variation and computational interdisciplinary research in genetics. Topics include introduction to genetics, identification of genes involved in disease, inferring human population history, technologies for obtaining genetic information, and genetic sequencing. Focus on formulating interdisciplinary problems as computational problems and then solving those problems using computational techniques from statistics and computer science. Concurrently scheduled with course CM124. Letter grading.

M229S. Seminar: Current Topics in Bioinformatics. (4) (Same as Biological Chemistry M229S and Computer Science M229S.) Seminar, four hours; outside study, eight hours. Designed for graduate engineering students, as well as students from biological sciences and medical school. Introduction to current topics in bioinformatics, genomics, and computational genetics and preparation for computational interdisciplinary research in genetics and genomics. Topics include genome analysis, regulatory genomics, association analysis, association study design, isolated and admixed populations, population substructure, human structural variation, model organisms, and genomic technologies. Computational techniques include those from statistics and computer science. May be repeated for credit with topic change. Letter grading.

236A. Advanced Human Genetics A: Molecular Aspects. (4) Lecture, three hours. Recommended preparation: prior knowledge of basic concepts in molecular biology and genetics. Advanced topics in human genetics related to molecular genetics and relevant technologies. Topics include genomic technologies, human genome, mapping and identification of disease-causing mutations, transcriptomics, proteomics, functional genomics, epigenetics, and stem cells. Reading materials include original research articles and reviews or book chapters. Letter grading.

236B. Advanced Human Genetics B: Statistical Aspects. (4) Lecture, three hours; computer laboratory, one hour. Recommended preparation: introductory statistics knowledge equivalent to Biostatistics 100A or Statistics 13 and general genetics knowledge equivalent to Ecology and Evolutionary Biology 121, Human Genetics 236A, or Molecular, Cell, and Developmental Biology 144. Statistical and population genetics related to analysis of complex human genetic traits. Reading materials include original research papers and reviews. Letter grading.

C236C. Societal and Medical Issues in Human Genetics. (5) Lecture, three hours; discussion, two hours. Sequence of entire human genome is now known. Consideration of how this knowledge impacts concepts of ourselves as individuals and of our place in biological universe, concepts of race/ethnicity and gender, ability of DNA-based forensics to identify specific individuals, ownership and commodification of genes, issues of privacy and confidentiality, issues of genetic discrimination, issues of predictive genetic testing. Discussion of human cloning for reproductive and therapeutic purposes. Exposure to medical genetics cases. Discussion of role of whole genome se-

quencing in clinical setting. Human Genome Project influence on medicine and on our concepts of self and identity. Concurrently scheduled with course CM136C. Letter grading.

C244. Genomic Technology. (4) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4. Survey of key technologies that have led to successful application of genomics to biology, with focus on theory behind specific genome-wide technologies and their current applications. Concurrently scheduled with course C144. S/U or letter grading.

M252. Seminar: Advanced Methods in Computational Biology. (2) (Same as Bioinformatics M252 and Chemistry M252.) Seminar, one hour; discussion, one hour. Designed for advanced graduate students. Examination of computational methodology in bioinformatics and computational biology through presentation of current research literature. How to select and apply methods from computational and mathematical disciplines to problems in bioinformatics and computational biology; development of novel methodologies. S/U or letter grading.

M255. Mapping and Mining Human Genome. (3) (Same as Pathology M255.) Lecture, three hours. Basic molecular genetic and cytogenetic techniques of gene mapping. Selected regions of human genomic map scrutinized in detail, particularly gene families and clusters of genes that have remained linked from mouse to human. Discussion of localizations of disease genes. S/U or letter grading.

M260A. Introduction to Bioinformatics. (4) (Same as Bioinformatics M260A, Chemistry CM260A, and Computer Science CM221.) Lecture, four hours; discussion, two hours. Enforced requisites: Computer Science 32 or Program in Computing 10C with grade of C- or better, and one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Prior knowledge of biology not required. Designed for engineering students as well as students from biological sciences and medical school. Introduction to bioinformatics and methodologies, with emphasis on concepts and inventing new computational and statistical techniques to analyze biological data. Focus on sequence analysis and alignment algorithms. S/U or letter grading.

M265. Computational Methods in Genomics. (4) (Same as Bioinformatics M265 and Computer Science M225.) Lecture, two and one half hours; discussion, two and one half hours; outside study, seven hours. Limited to bioinformatics, computer science, human genetics, and molecular biology graduate students. Introduction to computational approaches in bioinformatics, genomics, and computational genetics and preparation for computational interdisciplinary research in genetics and genomics. Topics include genome analysis, regulatory genomics, association analysis, association study design, isolated and admixed populations, population substructure, human structural variation, model organisms, and genomic technologies. Computational techniques and methods include those from statistics and computer science. Letter grading.

282. Human Genetics Seminar and Journal Club. (2) Seminar, one hour biweekly; discussion, one hour biweekly. Limited to graduate students. Participation and presentation in biweekly journal club meeting whose topics reflect those of talk in Human Genetics Seminar Series during following week. Journal club presentation required. S/U grading.

596. Directed Individual Study and Research. (2 to 12) Tutorial, to be arranged. Individual study or research for graduate students. May be repeated for credit. S/U grading.

597. Preparation for MS Comprehensive Examination or PhD Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Individual study for MS comprehensive examination or PhD qualifying examinations. May be repeated for credit. S/U grading.

598. MS Thesis Research and Writing. (2 to 12) Tutorial, to be arranged. Preparation of research data and writing of MS thesis. May be repeated for credit. S/U grading.

599. PhD Dissertation Research and Writing. (2 to 12) Tutorial, to be arranged. Preparation of research data and writing of PhD dissertation. May be repeated for credit. S/U grading.

INDO-EUROPEAN STUDIES

*Interdepartmental Program
College of Letters and Science*

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Brent H. Vine, PhD, *Chair*

Faculty Committee

David M. Goldstein, PhD (*Linguistics*)
Stephanie W. Jamison, PhD (*Asian Languages and Cultures*)
Christopher M. Stevens, PhD (*Germanic Languages*)
Brent H. Vine, PhD (*Classics*)

Scope and Objectives

The prime aim of the interdisciplinary Indo-European Studies Program is the integral study of Indo-European culture, based on comparative linguistics, archaeology, social structure, and religion. The PhD in Indo-European Studies is offered with two alternative major emphases: Indo-European linguistics and Indo-Iranian or other specialized language area studies.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Indo-European Studies Program offers Candidate in Philosophy (CPhil) and Doctor of Philosophy (PhD) degrees in Indo-European Studies.

Indo-European Studies

Lower Division Courses

M20. Visible Language: Study of Writing. (5) (Same as Asian M20, Near Eastern Languages M20, Slavic M20, and Southeast Asian M20.) Lecture, three hours; discussion, one hour. Consideration of concrete means of language representation in writing systems. Earliest representations of language known are those of Near East dating to end of 4th millennium B.C. While literate civilizations of Egypt, Indus Valley, China, and Mesoamerica left little evidence of corresponding earliest developments, their antiquity and, in case of China and Mesoamerica, their evident isolation mark these centers as loci of independent developments in writing. Basic characteristics of early scripts, assessment of modern alphabetic writing systems, and presentation of conceptual basis of semi-

otic language representation. Origins and development of early non-Western writing systems. How Greco-Roman alphabet arose in 1st millennium B.C. and how it compares to other modern writing systems. P/NP or letter grading.

M70. Origin of Language. (5) (Same as Communication Studies M70 and German M70.) Lecture, three hours; discussion, one hour. Theoretical and methodological issues surrounding origin of language. Topics include evolutionary theory, evolution of man, how language is organized in brain, and science of language, including physiology of speech, phonetics, and comparative reconstruction. Letter grading.

Upper Division Courses

131. European Archaeology, Neolithic to Bronze Age. (4) Lecture, four hours. Survey of European cultures from beginning of food-producing economy in 7th millennium B.C. to beginning of Bronze Age in 3rd millennium B.C. P/NP or letter grading.

132. European Archaeology: Bronze Age. (4) Requisite: course 131. Survey of European cultures from around 3000 B.C. to the period of destruction of the Mycenaean culture about 1200 B.C. Aegean area and rest of Europe.

M150. Introduction to Indo-European Linguistics. (5) (Same as Linguistics M150.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: Linguistics 1 or 20. Indo-European languages (ancient and modern), including their relationships, chief characteristics, writing systems, and sociolinguistic contexts; nature of reconstructed Indo-European proto-language and proto-culture. One or more Indo-European languages may be investigated in detail. P/NP or letter grading.

C160. Indo-European Comparative Mythology and Poetics. (4) Seminar, three hours. Preparation: familiarity with at least one ancient Indo-European language. Comparison of major Indo-European mythological and poetic traditions and reconstruction of their common sources. Topics include divinities and their names; symbolic systems in social context; myths, folk narratives, belief systems; relations with other traditions; literary continuations of mythopoetic material. Concurrently scheduled with course C260. P/NP or letter grading.

M168. Introductory Hittite. (4) (Same as Ancient Near East M168.) Lecture, two hours; recitation, one hour. Recommended preparation: knowledge of language with case system. Introduction to Hittite grammar by series of graded lessons covering morphology and syntax, followed by readings of selected texts from variety of genres in transliteration. P/NP or letter grading.

199. Special Studies. (2 to 8) Tutorial, to be arranged. P/NP or letter grading.

Graduate Courses

200. Proseminar: Indo-European Studies. (2) Seminar, two hours every other week. Required of graduate Indo-European studies students during first year. Introduction to graduate-level research in Indo-European studies. S/U grading.

205. Indo-European Phonology. (4) Lecture, three hours. Requisites: course M150, Linguistics 110. Study of proto-Indo-European phonology and its historical development into most important of oldest attested descendant languages. S/U or letter grading.

210. Indo-European Morphology. (4) Lecture, three hours. Comparative study of proto-Indo-European nominal and verbal morphology and its historical development into most important of oldest attested descendant languages. S/U or letter grading.

215. Indo-European Syntax. (4) Lecture, three hours. Requisite: course 210. Comparative and historical study of syntax in proto-Indo-European and most important of oldest attested descendant languages. S/U or letter grading.

M222A-M222B. Vedic. (4-4) (Same as Iranian M222A-M222B and South Asian M222A-M222B.) Lecture, three hours. Preparation: knowledge of Sanskrit

equivalent to South Asian 110C. Characteristics of Vedic dialect and readings in Rig-Vedic hymns. Only course M222B may be repeated for credit. S/U or letter grading.

M230A-M230B. Old Iranian. (4-4) (Same as Iranian M230A-M230B.) Lecture, four hours. Studies in grammars and texts of Old Persian and Avestan. Comparative considerations. Only course M230B may be repeated for credit. S/U or letter grading.

250A-250B. European Archaeology. (4-4) Seminar, three hours. Studies in ancient European archaeological materials and their relationship to Near East, Western Siberia, and Central Asia. May be repeated for credit. In Progress (250A) and S/U or letter (250B) grading.

C260. Indo-European Comparative Mythology and Poetics. (4) Seminar, three hours. Preparation: ability to read original sources in at least one ancient Indo-European language. Comparison of major Indo-European mythological and poetic traditions and reconstruction of their common sources. Topics include divinities and their names; symbolic systems in social context; myths, folk narratives, belief systems; relations with other traditions; literary continuations of mythopoetic material. Concurrently scheduled with course C160. S/U or letter grading.

280A-280B. Seminars: Indo-European Linguistics. (4-4) Seminar, three hours. Requisite: course 210. Selected topics in Indo-European comparative grammar for advanced graduate students. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Studies. (2 to 8) Tutorial, to be arranged. S/U grading.

597. Preparation for PhD Qualifying Examinations. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for PhD Dissertation. (2 to 8) Tutorial, to be arranged. S/U grading.

Robert M. Hayes, PhD
Mary Niles Maack, DLS
John V. Richardson, PhD
Elaine Svenonius, PhD
Diana M. Thomas, PhD
Virginia A. Walter, PhD

Associate Professors

Jean-François Blanchette, PhD
Kimberley Gomez, PhD
Gregory H. Leazer, DLS
Ramesh Srinivasan, PhD

Assistant Professors

Michelle L. Caswell, PhD
Safiya U. Noble, PhD
Sarah T. Roberts, PhD
Shawn VanCour, PhD

Lecturers

Murtha M. Baca, PhD
Snowden R. Becker, MLIS
Keri S. Botello, MLS
Lynn Boyden, MLS
Loretta M. Gaffney, MS
Mahnaz Ghaznavi, MLIS
Esther S. Grassian, MLS
Joan Kaplowitz, PhD
Candice A. Mack, MLIS
Cynthia L. Mediavilla, PhD
Luiz H. Mendes, MLIS
Mary E. Menzel, MLIS
Eva Mitnick, MLS
Maureen Whalen, JD, MLIS

Adjunct Assistant Professor

Susan M. Allen, PhD

Scope and Objectives

The Department of Information Studies has one of the top-ranked programs of its kind in the country and has developed an international reputation in the areas of information policy, information-seeking behavior, user interface development, archives, preservation, and cataloging. Whether students choose to pursue a master's degree or a PhD, they graduate with a broad understanding of both theory and practice.

Students with master's degrees go on to careers as librarians, archivists, and information professionals in a variety of organizational settings. The PhD focuses on the preparation of scholars in the field.

For information about the department and programs, see <https://is.gseis.ucla.edu>.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Information Studies offers the Master of Library and Information Science (MLIS) degree and the Doctor of Philosophy (PhD) degree in Information Studies.

One concurrent degree program (Library and Information Science MLIS/Management MBA) and one articulated degree program (Library and Information Science MLIS/Latin American Studies MA) are also offered.

INFORMATION STUDIES

Graduate School of Education and Information Studies

UCLA
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207 GSEIS Building
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e-mail: info@gseis.ucla.edu
<https://is.gseis.ucla.edu>

Jonathan Furner, PhD, Chair

Professors

Christine L. Borgman, PhD (*Presidential Professor of Information Studies*)
Johanna R. Drucker, PhD (*Martin and Bernard Breslauer Professor of Bibliography*)
Jonathan Furner, PhD
Anne J. Gilliland-Swetland, PhD
Louis M. Gomez, PhD (*MacArthur Foundation Professor of Digital Media and Learning*)
Christopher M. Kelty, PhD
Leah A. Lievrouw, PhD
Beverly P. Lynch, PhD
Ellen J. Pearlstein, MA

Professors Emeriti

Marcia J. Bates, PhD
Howard A. Besser, PhD
Clara M. Chu, PhD

Information Studies

Lower Division Courses

10. Information and Power. (5) Lecture, five hours. Designed for undergraduate students. Introduction to core concepts of information and power and relation between them in range of social, economic, political, cultural, technological, and institutional contexts. Topics include information markets and economies; power of cultural and media institutions; state interests in information; information, conflict, and warfare; information organization, classification, and access; power and information technology infrastructure; and intellectual freedom. Letter grading.

20. Digital Cultures and Societies. (5) Lecture, five hours. Designed for undergraduate students. Examination of social and cultural contexts of global spread of digital networks and systems. Exploration of ethical, infrastructural, and political questions raised at intersection of technologies and cultures. Topics include social media revolutions, indigenous and non-Western uses of technology, cross-cultural design, digital media literacies, and more. Letter grading.

30. Internet and Society. (5) Lecture, five hours. Designed for undergraduate students. Examination of information technology in society, including Internet, World Wide Web, search engines (e.g., Google, Yahoo, Lycos), retrieval systems, electronic publishing, and distribution of media, including newspapers, books, and music. Exploration of many of these technologies, social, cultural, and political context in which they exist, and how social relationships are changing. Letter grading.

97. Variable Topics in Information Studies. (4) Seminar, four hours. Designed for freshmen/sophomores, but open to all undergraduate students. Exploration of changing set of basic concepts and issues in study of information, information technology, and society and culture at introductory level. May be repeated for credit with consent of instructor. Letter grading.

Upper Division Courses

139. Letterpress Laboratory. (1) Laboratory, one hour. Hands-on printing experience in letterpress shop designed to give students in information studies, design, or other disciplines understanding of printing process. Basic instruction provided, and students work on group project for duration of term. May be repeated twice. P/NP grading.

180. Special Topics in Information Studies. (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Selected topics or issues related to social, cultural, economic, or political aspects of information and information systems. Consult Schedule of Classes for topics and instructors. May be repeated once for credit with topic change. P/NP or letter grading.

199. Directed Research in Information Studies. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

Graduate Courses

200. Information in Society. (4) Lecture, two hours; discussion, two hours. Examination of processes by which information and knowledge are created, integrated, disseminated, organized, used, and preserved. Topics include history of communication technologies, evolution of literacy, development of information professions, and social issues related to information access. Letter grading.

201. Ethics, Diversity, and Change in Information Professions. (4) Lecture, two hours; discussion, two hours. Service learning course that serves as forum to discuss, learn, and understand ethical challenges of multicultural information society that shape societal,

professional community, and individual views and impact professional practice, decision making, and public policy. Letter grading.

202. History of Books and Literacy Technologies. (4) Lecture, two hours; discussion, 90 minutes. Issues in history of books, writing, and literacy technologies. Investigation of invention of writing, diverse cultural concepts of literacy, earliest use of systematic notation systems in Mesopotamia, and current development of devices and practices that shape contemporary concepts of book of future. Discussion of historical development of technology (tablets, scrolls, codices, illumination and illustration techniques, paper and mass production, photography, digital tools), institutions (libraries, printing and publishing industries), cultural issues and politics (publishing, censorship, colonialism, globalization), formats and styles (type design, graphic design, aesthetics), and some important figures and events in book history. Focused on Western traditions, but not to exclusion of developments in Asia, Near East, Islamic empire, and elsewhere, and questions of cultural diffusion and diversity encouraged. Letter grading.

203. Seminar: Intellectual Freedom and Information Policy Issues. (4) Seminar, four hours. Investigation of concept of intellectual freedom, information policy issues, civil liberties and civil rights, censorship, and other restraints on access to information. Letter grading.

204. Scholarly Communication and Publishing. (4) Lecture, three and one half hours. Designed for M.L.I.S. students. Scholarly communication system is in disarray. It is no longer clear what it means to publish articles and books. Digital distribution is norm, whether peer-reviewed in journals or by blogs or social media. Scholarly communication is becoming more atomized in small units of research objects that can be combined in many ways. Open access publishing, now required by many funding agencies and universities, has altered relationships between authors, readers, publishers, and libraries. Survey of evolving landscape of scholarly communication, providing introduction to publishing, technology, and policy issues such as open access, mass digitization, institutional repositories, computable publications, and altmetrics. Letter grading.

205. Cyberspace Law and Policy. (4) Lecture, four hours. Legal and policy concerns of networked technologies from international perspective. Emphasis on jurisdictional issues, freedom of expression, intellectual property, privacy, security, equity, and electronic commerce in online environment. S/U or letter grading.

206. Introduction to Economics of Information. (4) Seminar, three and one half hours. Introduction to key concepts, scholars, and studies in economics of information. Topics include economic value and measurement of information, information industries and markets, public goods theories of knowledge and information, network externalities, consequences of intellectual property regimes, information and economic development, information work and occupations, information and organizational processes, productivity paradox, and sectoral analyses of national and global information economies. Letter grading.

207. International Issues and Comparative Research in Information Studies. (4) Lecture, three and one half hours. History and development of international organizations, programs, and professional traditions in information studies. Identification of key issues in international exchange of information. Introduction to comparative method as procedure for study and research. Letter grading.

208. Scholarly Communication and Bibliometrics. (4) Lecture, four hours. Preparation: one inferential statistics course. Survey of current theory, method, and empirical studies at intersection of scholarly communication and bibliometrics, seeking to understand flow of ideas through published record, whether in print, electronic form, or other media. Letter grading.

209. Perspectives on Information Societies. (4) Seminar, three and one half hours. Survey of theoretical perspectives on emergence of late-20th- and early-21st-century information societies from range of disciplines. Topics include nature of social change and development, theories of modernity and postmodernity, and social, economic, technological, and cultural shifts associated with information technologies and rise of information as commodity. Presentation of work of key writers and scholars in areas of information society policy and issues. Letter grading.

210. Global Media and Information. (4) Lecture, three and one half hours. Question of what diversity and culture mean in era of distributed networks and massive technological diffusion looms. Part of this involves problem of how to work with differing ways of knowing, with differing ontologies. It is now widely accepted that global cultures and communities differ in way they practice knowledge, understanding, and making meaning of their worlds. How we draw boundaries around culture and community has become increasingly complicated, as culture becomes increasingly mediated and community has elements of local place and global imagination. How are political, economic, and cultural identities being shaped in global media culture? How does this shape nature of how power functions? How does this impact heritage, economy, politics, and identity? Letter grading.

211. Artifacts and Cultures. (4) Lecture, two hours; discussion, two hours. Exploration of social, cultural, and technical practices through which meanings, memories, ideas, and knowledge-claims are generated. Concepts are recorded, reproduced, mediated, collected, and appropriated; they are sometimes forged, stolen, or subverted and are often shared, juxtaposed, exhibited, communicated, interpreted, remixed, or repurposed. Their formats may be oral and written, verbal and pictorial, aural and visual, and inscriptive and performative. Artifacts are single-medium and multimedia, static and dynamic, numerical and narrative, scholarly and popular, and analog and digital. They constitute documents, records, data sets, and cultural objects through which information and evidence are authored, published, collocated, exchanged, preserved, and accessed. Examination of these artifacts and their properties, types, and relationships: media, formats, genres, materials, states, contents, components, subjects, structures, functions, aesthetic qualities, roles, costs, affordances, and use values. Letter grading.

212. Values and Communities in Information Professions. (4) Lecture, two hours; discussion, two hours. Forum to discuss, understand, and critique value systems and power structures embedded in information and work in diverse societies. Exploration of importance of thinking locally, from grassroots, in design, evaluation, and engagement with information institutions and technologies, ranging from archives and libraries to Internet. Aspects of information society that shape and are shaped by cultural, societal, professional, community, and individual values, including exploration of impact of such values on professional practice, decision making, and public policy. Letter grading.

213. Current Issues in Librarianship. (4) Lecture, two and one half hours; discussion, one hour. Overview of historical and evolving conceptual foundations of librarianship, including professional associations, key practices, social context of library services, and current issues in library studies. S/U or letter grading.

214. Informatics: Principles and Practices. (4) Lecture, three and one half hours. Theories, principles, and professional practices of informatics, including social analysis of information systems, values and design, infrastructural dynamics, user experience, and prospective analysis. S/U or letter grading.

227. Information Services in Culturally Diverse Communities. (4) Lecture, four hours. Issues in provision of information services in multiethnic and multilingual society. Understanding role of information institutions in promoting cultural diversity and preserving ethnic heritage. Letter grading.

228. Assessment, Measurement, and Evaluation of Information Organizations and Services. (4) Lecture, four hours. Introduction to assessment and evaluation as formal processes of inquiry with individual components. Demonstration of use of evidence gathered for planning, decision making, and accountability in information organizations. Review and implementation of various methods appropriate to design of assessment and evaluation studies. Letter grading.

M229C. Introduction to Slavic Bibliography. (2) (Same as Slavic M229.) Lecture, two hours. Introduction to Slavic and East European bibliography for the humanities and social sciences. Emphasis to be determined by requirements and background of enrolled students. Topics include relevant library terminology and concepts; survey of languages and transliteration systems; acquisition of Slavic and East European library materials; Slavic and East European scholarship in the West; relevant reference sources, archival resources, and research methods; survey of online databases; compilation of bibliographies. S/U grading.

233. Records and Information Resources Management. (4) Lecture, three hours. Introduction to records and information resources management in corporate, government, and other organizational settings, including analysis of organizational information flow, classification and filing systems, records retention scheduling, records protection and security, reprographics and image management technology, and litigation support. Letter grading.

234. Contemporary Children's Literature. (4) Lecture, four hours. Reading interests and correlative types of literature surveyed with reference to growth and development of children. Emphasis on role of librarian in responding to needs and abilities of children through individualized reading guidance. S/U or letter grading.

236. Approaches to Materialities of Texts and Media. (4) Seminar, two hours; discussion, 90 minutes. Introduction to traditional and current thinking about materialities of texts, books, documents, and digital and print artifacts. Draws on conventional bibliography to introduce students to fundamentals of descriptive and analytic approaches, but also engages with theoretical positions derived from new theories in media archaeology, digital humanities, and legacy of structuralist, semiotic, and visual studies approaches. Identification and understanding of methods by which artifacts have been produced and thinking about implications of these for resituating artifacts within cultural, economic, and technological systems of value production. Letter grading.

237. Analytical Bibliography. (4) Lecture, four hours. The book as physical object and its relationship to transmission of text. History and methods of analytical bibliography, with particular emphasis on hand-press books. Printing processes as related to bibliography and librarianship. Discussions, demonstrations, and experiments in design, composition, and press-work. Letter grading.

M238. Environmental Protection of Collections for Museums, Libraries, and Archives. (4) (Same as Conservation M240.) Lecture, two hours; laboratory, two hours. Requisite: course 432. Review of environmental and biological agents of deterioration, including light, temperature, relative humidity, pollution, insects, and fungi. Emphasis on monitoring to identify agents and understanding of materials sensitivities, along with protective measures for collections. Letter grading.

239. Letterpress Laboratory. (1) Laboratory, two hours. Hands-on printing experience in letterpress shop designed to give students in information studies, design, or other disciplines understanding of printing process. Basic instruction provided, and students work on group project for duration of term. S/U grading.

240. Management of Digital Records. (4) Lecture, three hours. Introduction to long-term management of digital administrative, information, communications, imaging, or research systems and records. Topics include electronic recordkeeping, enterprise and risk

management, systems analysis and design, metadata development, data preservation, and technological standards and policy development. Letter grading.

241. Digital Preservation. (4) Lecture, three and one half hours. Nature of digital media and networking necessitates reformulation of traditional concepts such as authenticity, authorship, and originals; information systems and metadata that are specifically designed to manage preservation process; new ethical, rights, and collaborative frameworks; and economic, legal, and policy tools with which to manage digital information over long term. Introduction to strategies, techniques, and standards, as well as continuing challenges related to preserving born-digital/born-networked/digitized materials (e.g., electronic records, digital archives, video games, scientific simulations, digital humanities environments, sound and moving image materials, social media and personal digital archives). Implications for digital preservation of new technologies and their applications. Letter grading.

245. Information Access. (4) Lecture, two hours; discussion, one hour. Requisites: courses 200, 260. Provides fundamental knowledge and skills enabling information professionals to link users with information. Overview of structure of literature in different fields; information-seeking behavior of user groups; communication with users; development of search strategies using print and electronic sources. Letter grading.

246. Information-Seeking Behavior. (4) Lecture, three hours; discussion, one hour. Study of factors and influences, both individual and social, associated with human beings needing, using, and acting on information. Topics include information theory, human information processing, information flow among social and occupational groups, and research on information needs and uses. Letter grading.

250. Techniques and Issues in Information Access. (4) Lecture, four hours. Requisite: course 245. General reference materials (not specific to subject access), with advanced work in reference process and in cognitive and behavioral aspects of inquirers and expert reference librarians. Letter grading.

251. Seminar: Specialized Literatures. (4) Seminar, four hours. Requisite: course 245. Exposure to major literatures across spectrum of disciplines in three broad areas: (1) arts and humanities, (2) social sciences, (3) natural sciences and engineering. Students become familiar with knowledge structures; emphasis on reference and information sources for scholarly research. Letter grading.

M253. Medical Knowledge Representation. (4) (Same as Bioengineering M226.) Seminar, four hours; outside study, eight hours. Designed for graduate students. Issues related to medical knowledge representation and its application in healthcare processes. Topics include data structures used for representing knowledge (conceptual graphs, frame-based models), different data models for representing spatio-temporal information, rule-based implementations, current statistical methods for discovery of knowledge (data mining, statistical classifiers, and hierarchical classification), and basic information retrieval. Review of work in constructing ontologies, with focus on problems in implementation and definition. Common medical ontologies, coding schemes, and standardized indices/terminologies (SNOMED, UMLS). Letter grading.

M254. Medical Information Infrastructures and Internet Technologies. (4) (Same as Bioengineering M227.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Introduction to networking, communications, and information infrastructures in medical environment. Exposure to basic concepts related to networking at several levels: low-level (TCP/IP, services), medium-level (network topologies), and high-level (distributed computing, Web-based services) implementations. Commonly used medical communication protocols (HL7, DICOM) and current medical information systems (HIS, RIS, PACS). Advances in networking, such as wireless health systems, peer-to-peer topologies,

grid/cloud computing. Introduction to security and encryption in networked environments. Letter grading.

M255. Medical Decision Making. (4) (Same as Bioengineering M228.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Overview of issues related to medical decision making. Introduction to concept of evidence-based medicine and decision processes related to process of care and outcomes. Basic probability and statistics to understand research results and evaluations, and algorithmic methods for decision-making processes (Bayes theorem, decision trees). Study design, hypothesis testing, and estimation. Focus on technical advances in medical decision support systems and expert systems, with review of classic and current research. Introduction to common statistical and decision-making software packages to familiarize students with current tools. Letter grading.

256. Information Resources for Business. (4) Lecture, four hours. Requisite: course 245. Introduction to information needs of business world. Business guides, encyclopedias, directories, yearbooks, indexes, loose-leaf services, government publications, databases, and other sources of business literature. Letter grading.

258. Legal Information Resources and Libraries. (4) Lecture, four hours. Introduction to information resources in law, with emphasis on primary authority and indexes to legal literature. Legal research skills. Law library services and management. Letter grading.

259. Seminar: Information Access. (4) Seminar, four hours. Requisite: course 245. Discussion of policies and issues related to basic and advanced reference materials, reference process, and psychological aspects of inquirers and expert reference librarians. Letter grading.

260. Description and Access. (4) Lecture, three and one half hours. Social, cultural, and technical practices—formal and informal, institutional and personal—through which documents, records, and other forms of information are organized and represented. Design, development, and evaluation of techniques and tools, including data models, metadata schemata, search engines, and management systems in support of curatorship, stewardship, discovery, and use. Letter grading.

262A. Data Management and Practice. (4) Lecture, three and one half hours. Designed for MLIS and PhD students. Survey of landscape of data practices and services, including data-intensive research methods; social studies of data practices; comparisons between disciplines; management of data by research teams, data centers, libraries, and archives; practices of data sharing and reuse; and introduction to national and international policy for stewardship of data. Assessment of data archiving needs of one research community and group project to develop real data management plan in partnership with UCLA researchers in other academic departments. Letter grading.

262B. Data Curation and Policy. (4) Lecture, three and one half hours. Designed for MLIS students. Continuation of course 262A to address topics of data curation and policy in more depth. Data selection and appraisal; archives and repositories, economics of data management, data citation and metrics, technologies for data access and curation, provenance, intellectual property, policy roles of multiple stakeholders in data, and institutional challenges in curation and stewardship of research data. Assessment of data archives and repositories and group project to curate actual data of UCLA researchers in other academic departments. Letter grading.

269. Seminar: Information Structures. (4) Seminar, four hours. Requisites: course 260, one other information structures course. Specialized studies in selected areas of descriptive and bibliographical cataloging, subject vocabularies and classifications, and metadata. May be repeated once. Letter grading.

270. Systems and Infrastructures. (4) Lecture, four hours. Social, cultural, and technical practices through which information and media infrastruc-

tures—networks, systems, technologies, algorithms, interfaces, standards, institutions, bureaucracies, markets—are designed, built, maintained, and evaluated. Ways in which information infrastructures both shape and are shaped by governmental policy, institutional decision making, socioeconomic trends, labor movements, technical advances, and professional and personal value systems, at levels ranging from local to global. S/U or letter grading.

271. Introduction to Computer Systems and Programming. (4) Lecture, three and one half hours. Introduction to computer programming and survey of foundational computer science topics, including boolean logic, computer architecture, operating systems, algorithms, networks, and databases. Focus on practical skills for manipulating library and archive metadata, such as searching, sorting, regular expressions, writing database queries, calling application program interface (API), and handling multiple serialization formats (XML, JSON, CSV, Excel). Emphasis on working with standard metadata encodings, such as MARC and EAD. Letter grading.

272. Human/Computer Interaction. (4) Lecture, four hours. Survey of social, behavioral, design, and evaluation issues in human/computer interaction, with readings from several disciplines. Extensive use of technology demonstrations and class discussions. Recommended for students in any discipline involved in design or implementation of information technologies. Letter grading.

273. Communities, Information, and Civic Life. (4) Seminar, three and one half hours. Investigation of concepts of culture and diversity through direct collaborations with diverse communities in Los Angeles region. Consideration of major issues around well-being of communities in contemporary America, with some eye toward larger global dynamics from fields as wide-ranging as sociology, media studies, anthropology, and urban studies. Investigation of range of theoretical, methodological, and applied literatures to develop group-based project designed in collaboration with one community of student choice in Los Angeles area. Examination of community-based methods of interaction and fieldwork (participatory, ethnography, asset mapping, and action research-based) and propose various information services based on this analysis. Letter grading.

274. Database Management Systems. (4) Lecture, three hours; laboratory, two hours. Theories, principles, and practicalities of database systems, including data models, retrieval mechanisms, evaluation methods, and storage, efficiency, and security considerations. S/U or letter grading.

275. Community Media and Design. (4) Lecture, two hours; laboratory, two hours. Information professionals, scholars, activists, and information creators/designers/architects focus on questions of culture and community to engage students in understanding information resources as cultural objects. Role of cultural heritage institutions within dynamics presented, but most fundamentally on how communities in partnership with information professionals can create, author, and represent information on their own and within their own terms. How new media can begin to serve as tool of empowerment rather than stratification. Study of impacts of technology on larger scales through readings and introductory sketches. Letter grading.

276. Information Retrieval Systems: Structures and Algorithms. (4) Lecture, four hours. Requisites: courses 245, 260. Survey of methods of file organization, retrieval techniques, and search strategies in control of information in computerized form. Letter grading.

277. Information Retrieval Systems: User-Centered Designs. (4) Lecture, two hours; discussion, two hours. Requisites: courses 245, 260. Design implications of interaction between users and features of automated information systems and interfaces that are specific to information-seeking process. Emphasis on search strategy and subject access through use of thesauri and other vocabularies. Letter grading.

278. Information and Visualization. (4) Lecture, two hours; discussion, 90 minutes. Access to and analysis of information through visualization has become increasingly prevalent as digital tools have made creation of such visualizations easier and more popular. Many software tools for such visualizations come from statistical packages; others come from GIS or spatial mapping, while others are more diagrammatic in design. Basic organization of graphical user interfaces depends on visualization of function, structure of and assumptions about user experience, and other graphical features that embody models of information in daily use. What are ways in which organization of visualization presents arguments about knowledge? What historical and critical tools can be brought into useful dialog with contemporary visualizations? Letter grading.

279. User Experience Design. (4) Seminar, four hours. Preparation: at least one course from 246, 272, 276, 277, 455. Requisites: courses 200, 260. Content varies from term to term to allow emphasis on specialized topics such as vocabulary control, file design, indexing, classification, text processing, measurement of relevance, evaluation of information systems, and social and policy issues related to information technology and services. Letter grading.

280. Social Science Research Methodology for Information Studies. (4) Lecture, four hours. Understanding of nature, uses, and practice of research appropriate to information studies. Identification of research problems and design and evaluation of research. Social science quantitative and qualitative methods. Emphasis on inquiry methodology and empirical research. S/U or letter grading.

281. Historical Methodology of Information Studies. (4) Lecture, four hours. Requisite: course 200. Introduction to historical research as it relates to library and information science. Identification of key primary and secondary source material for writing history in field. Critical analysis of selected histories of various areas in the profession. Problem-oriented approach. Letter grading.

282. Design as Research Method. (4) Seminar, three and one half hours. Theories, principles, and application of design as methods for discovery, exploration, and evaluation of user requirements, functionality, values, and system structure. S/U or letter grading.

283. Research Apprenticeship Course. (2 to 4) Seminar, two hours. Use of mentorship model of training graduate students in information studies, with focus on development of graduate student research topics. Assignment of common readings related to these topics; students have opportunity to offer and receive feedback. May be repeated for credit. S/U grading.

284. Seminar: Special Issues in Information Studies. (2 to 4) Seminar, two to four hours. Identification, analysis, and discussion of critical intellectual, social, and technological issues facing the profession. Topics may include (but not limited to) expert systems, literacy, electronic networks, youth at risk, information literacy, historical bibliography, preservation of electronic media, etc. May be repeated with topic change. Letter grading.

285. Research Seminar: Information Studies. (1 to 2) Seminar, one to two hours. Designed for PhD students. Emphasis on recent contributions to theory, research, and methodology. May be repeated for credit. S/U grading.

286. Doctoral Seminar: Theoretical Traditions in Information Studies. (4) Seminar, four hours. Nature of information studies—ontological, epistemological, and ethical accounts of information and of information arts and sciences. Conceptions, theories, and models of information; information-related artifacts, agents, contexts, institutions, practices, properties, values, and related phenomena. Interdisciplinary context—subfields of information studies and cognate disciplines. Frameworks for theory construction, such as critical theory, discourse analysis, hermeneutics, phenomenology, semiotics, social epistemology. Letter grading.

287B-287C. Special Topics in Theory of Information Studies. (4-4) Seminar, four hours. Enforced requisite: course 291A. Topics include information and evidence—record-keeping and memory-making, personal and community identity, accountability and trust. Information and design—design and implementation of information systems and services, information aesthetics. Information retrieval and knowledge organization. Information seeking, access, and use—contexts, techniques, needs, barriers. Information and power—groups, ideologies, identities, structures. Information and value—information ethics, evaluation of information services. Information policy and law—processes, institutions, players, stakes. Information institutions and professions—domains, ecologies, cultures, communities. Economics, geography, history, philosophy, politics, sociology of information. Letter grading.

288A. Doctoral Seminar: Research Methods and Design. (4) Seminar, four hour. Survey of quantitative, qualitative, and historical research designs. Ethical issues; conceptualization and measurement; indexes, scales, and sampling; experimental, survey, field, and evaluation research; data analysis. Letter grading.

288B-288C. Special Topics in Methodology of Information Studies. (4-4) Seminar, four hours. Enforced requisite: course 298A. Topics include anthropological fieldwork methods, archival methodology, bibliographical studies, textual analysis, discourse analysis, historical methods, information visualization, network analysis—bibliometrics, informetrics, scientometrics, social network analysis. Letter grading.

289. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

290. Professional Development and Portfolio Design. (2 to 4) Lecture, two hours; discussion, two hours. Preparation: completion of information studies core courses. Drawing on literature from many fields, exploration of issues related to professional development, such as career planning, continuing education, mentoring, and reflective practice; students also engage in process of guided portfolio design for MLIS degree. S/U grading.

291. Management Theory and Practice for Information Professionals. (4) Lecture, two hours; discussion, two hours. Principles and practice of management in all types of organizations where information professionals work. Letter grading.

292. Special Libraries and Information Centers. (4) Lecture, four hours. Organization, administration, collections, facilities, finances, and problems of special libraries and of special collections within general libraries. Methods of handling nonbook materials. Current trends in documentation and mechanization. S/U or letter grading.

293. College, University, and Research Libraries. (4) Lecture, four hours. Organization, administration, collections, facilities, finances, and problems of college and university libraries and their relationships within institutions of which they are part. Functions of research libraries and work of their staffs in serving scholars. Letter grading.

294. Public Libraries. (4) Lecture, four hours. Government, organization, and administration of municipal, county, and regional public libraries; developments in changing patterns of public library service. S/U or letter grading.

295. Storytelling. (4) Lecture, two hours; demonstration, two hours. Theory and practice of telling stories to children and adults in public and school libraries. S/U grading.

296. Library Services and Programs for Children. (4) Lecture, two hours; discussion, two hours. Theory and practice of service to children in public libraries. Overview of professional library service to children aged 14 and under; provides opportunities for students to gain experience in particular skills needed to provide that service. Letter grading.

426. Library Services and Literature for Youth. (4) Lecture, four hours. Overview of literature and programs which are of interest to young adults (seventh grade and above). Discussion of special problems in working with young people and psychology of teenagers. S/U or letter grading.

427. Young Adult Services. (4) Lecture, 90 minutes; discussion, two hours. Theory and practice of service to teens and tweens in libraries. Overview of professional library service to youth aged 11 and over; opportunities for students to gain experience in particular skills needed to provide that service. Discussion of special challenges in working with young people and psychology of teenagers. S/U or letter grading.

430. Library Collection Development. (4) Lecture, three and one half hours. Background of publishing and book trade from digital to antiquarian pertinent to development of collections in public, school, academic, and special libraries. Theory and practice of collection development and management, including evaluation of library user needs and assessments of collections. Organization and administration of acquisition and collection development departments. Letter grading.

431. Archives, Records, and Memory. (4) Lecture, four hours. Overview of historical and evolving conceptual foundations, major professional institutions, key practices, and contemporary issues and concerns of archival studies and American archival profession, as well as other fields interested in archives, records, and memory. S/U or letter grading.

432. Issues and Problems in Preservation of Heritage Materials. (4) Lecture, six hours. Introduction to fields of library conservation and preservation, with emphasis on preservation administration. Letter grading.

433. Community-Based Archiving. (4) Lecture, three and one half hours. Builds on student understanding of and experience working with communities on development of practical strategies for documenting their activities; managing, collecting, and preserving their records and other historical and cultural materials; and undertaking community-centric collaborative research. Students required to reflect critically on questions about definition, community memory and recordkeeping practices, motivations, positionality and politics, voice, ethics, advocacy, funding and long-term sustainability, ownership, access and use, technological implementation, and collaborations. Letter grading.

434. Archival Use and Users. (4) Lecture, three and one half hours. Requisite: course 431. Examination of who uses archives and why, with ultimate goal of creating ways to better understand and meet needs of these users as well as engage new audiences in archival use. While archivists have traditionally conceived of their users as academic researchers, more thorough investigation expands this conception of users to include genealogists, artists, K-12 students and educators, families of victims of human rights abuse, community members, and members of general public. Methods for studying users, ways to conduct outreach to target user groups, and ways in which archivists can engage general public. Letter grading.

438A. Seminar: Advanced Issues in Archival Science—Archival Appraisal. (4) Seminar, four hours. Requisite: course 431. Evaluation and examination of contributions of key figures in development of archival appraisal theory; identification and evaluation of distinct movements in archival appraisal; identification of cultural, political, sociological, and technological movements that can have impact on appraisal methodologies. Letter grading.

438B. Seminar: Advanced Issues in Archival Science—Archival Description and Access Systems. (4) Seminar, four hours. Requisite: course 431. Exploration of history of archival description and access systems in the U.S. and their development since World War II; data collection; access tools and implications of these issues in development of online archival access systems. Letter grading.

439. Seminar: Special Collections. (4) Seminar, two hours; discussion, 90 minutes. Students work with special collections materials on one focused theme or topic and have to think through research aspects of exhibit or symposium or collection assessment and then create well-focused and curated agenda for presentation, exhibition, or preservation of materials. Letter grading.

447. Computer-Based Information Resources (Online Searching). (4) Lecture, four hours. Requisite: course 245. Emphasis on use of reference and resource databases and different vendor systems. File structure and hardware requirements. Analyses of information needs and investigation of databases addressing those needs. Letter grading.

448. Information Literacy Instruction: Theory and Technique. (4) Lecture, four hours. History, theory, methods, and materials of user education/bibliographic instruction in libraries and other information retrieval environments. Examination of variety of user education/bibliographic instruction theories and methodologies, including overview of planning and administration. Identification of problems in user education/bibliographic instruction. Applications of methods of teaching use of libraries and information resources. S/U or letter grading.

455. Government Information. (4) Lecture, four hours. Introduction to nature and scope of government information promulgated by federal government, as well as by state, municipal, international, and foreign governments. Problem-oriented approach. S/U or letter grading.

457. Health Sciences Librarianship. (4) Lecture, four hours. Health sciences information resources and services, management of health sciences information resources and services, health sciences environment and policies, information systems and technology. Letter grading.

461. Descriptive Cataloging. (4) Lecture, four hours. Entry and description of library materials. Constitution, structure, and form of the library catalog. Cataloging services, tools, and procedures. Cataloging rules and their application. S/U or letter grading.

462. Subject Cataloging and Classification. (4) Lecture/discussion, four hours. Requisite: course 461. Overview of major alphabetic-subject and systematic indexing languages and their use in manual and online environments, including theory and application of Library of Congress subject headings and of Dewey decimal and Library of Congress classifications. S/U or letter grading.

463. Indexing and Thesaurus Construction. (4) Lecture, four hours. Principles of design and methods of construction of thesauri. Evaluation and overview of thesauri used in manual and online environments. Basic professional techniques for indexing variety of types of materials and for preparing informative and indicative abstracts. Letter grading.

464. Metadata. (4) Lecture, four hours. Introduction to variety of metadata provided for digitized and other electronic information resources. Introductory theory and practice designing and applying metadata. S/U or letter grading.

473. Information Technology and Libraries. (4) Lecture, four hours. Overview of major components of library automation: circulation control, acquisitions and serials, public access information systems, and data conversion. Relationships among various automation entities, including internal library automation, networks and vendors (such as bibliographic utilities, regional networks, and online services), and automation of parent organizations (universities, municipalities, corporations, and government agencies). Developments in standards for information processing and new information technologies. Letter grading.

495. Teaching Assistant Training Seminar. (2) Seminar, two hours. Limited to departmental doctoral students. Preparation for teaching assistant appointments in departmental undergraduate courses. Principles of instructional design and evaluation, curriculum development, instructional technology

use, and key teaching issues (diversity, students with disabilities, academic integrity, copyright). S/U grading.

497. Fieldwork in Libraries or Information Organizations. (4 or 8) Fieldwork, 12 or 24 hours depending on nature and complexity of experience or project. Faculty-directed field experience in approved library, archive, or other information setting. Fieldwork experiences may include opportunities in state, national, and international institutions. S/U grading.

498. Internship. (4) Discussion, to be arranged. Supervised professional training in a library or information center approved by internship coordinator. Minimum of 120 hours per term. May be repeated twice. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Directed special studies in fields of bibliography, librarianship, and information science. Variable conference time depending on nature of study or complexity of research. S/U grading.

597. Directed Studies for PhD Qualifying Examinations. (2 to 12) Tutorial, to be arranged. S/U grading.

598. MLIS Thesis Research and Writing. (2 to 8) Tutorial, to be arranged. Designed for graduate library and information science students. Supervised independent research for candidates in MLIS thesis option. S/U grading.

599. PhD Research and Writing. (2 to 12) Tutorial, to be arranged. S/U grading.

INSTITUTE FOR SOCIETY AND GENETICS

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Adjunct Assistant Professor

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Scope and Objectives

The Human Biology and Society majors provide a rigorous interdisciplinary education in current issues at the intersection of human biology, genetics, and society where bridging the institutional divide between the life sciences and human sciences (humanities and social sciences) is necessary.

The teaching strategy emphasizes the value of synthetic, integrative thinking. Learning can best be organized synthetically around the sorts of knowledge and skills required to investigate and address such problems rather than by building up from the stepwise sequences of traditional disciplines. Preparation for the majors is centered on three areas of study that together prepare students to solve problems at the intersection of biology and society: genes and gene expression; human evolutionary biology; and society, diversity, and identity. The majors provide an important integrative space where different ways of knowing in the human and life sciences are explored, interrelated, and applied. Core and capstone courses emphasize problem-based learning about pressing issues that inextricably link society, culture, and biology, such as medical privacy rights, gene patents, regulation of stem cell research, and questions of race, gender, and identity.

Programmatically, the majors consist of required elements that develop critical thinking skills, knowledge, and excellence in written and spoken communication; elective concentrations that allow students to focus on a particular emerging research area at the intersection of biology and society; and extracurricular involvement in academic research and corporate/community internship. The mission is to educate students who become leaders in diverse areas such as law, medicine, humanities, social sciences, and biological sciences, and to have them interact and work together to form a deep understanding of the issues at the intersection of human social systems, evolutionary biology, and genetics.

The minor in Society and Genetics provides undergraduate students with the opportunity to understand and probe the complex problems and possibilities presented by modern genetics, with special attention to their social context and content. Given the dynamic interaction between genetics and the social world in which it is embedded, the minor is of necessity multidisciplinary and emphasizes a collaborative cross-disciplinary approach to instruction in the core courses of the minor and exposure to a wide range of disparate scholarship through elective courses available in such areas as anthropology, biology, history, philosophy, public policy, and sociology.

Undergraduate Study**Human Biology and Society BA****Admission**

Admission to the Human Biology and Society BA major is by application and competitive, using courses, grades, grade-point averages, and personal statements as minimum standards for consideration. Only a limited number of students are admitted each year. Applicants are not automatically accepted into the major.

Students must apply for major standing at the beginning of spring quarter of their sophomore year. Applications submitted after the spring quarter deadline are considered during fall quarter of the junior year only as space in the program permits. No applications are considered after fall quarter of the junior year.

Premajor standing is not required to apply for the major. A copy of the major application is available at <http://socgen.ucla.edu/academics/undergraduate/major-2/>.

Human Biology and Society**Premajor**

Incoming freshmen may be admitted as premajors on acceptance to UCLA. All other students must first complete Society and Genetics 5, M71A, or M72A, and then contact the undergraduate counselor in 3360 Life Sciences to request premajor standing.

Preparation for the Major

Required Core: One course from Society and Genetics 5, M71A, or M72A.

Also required are Anthropology 7, Chemistry and Biochemistry 14A, Life Sciences 1 and 2 OR 7A, 7B, and 7C, Statistics 10 or 13, and two social theory courses from American Indian Studies M10, Anthropology 9, Asian American Studies 20, Gender Studies 10, General Education Clusters M1A through 80CW, Geography 3, History 3C, Honors Collegium 70A, Molecular, Cell, and Developmental Biology 40, 50, 60, Philosophy 4, 6, 8, 22 or 22W, Public Policy 10A, Sociology 1, M5.

Each course must be taken for a letter grade, and students must complete all premajor courses with a cumulative minimum grade-point average of 2.9.

Transfer Students

Transfer applicants to the Human Biology and Society BA major with 90 or more units must complete the following preparatory courses prior to admission to UCLA: one year of general biology (the equivalent of Life Sciences 1 and 2 OR 7A, 7B, and 7C), introductory chemistry, one statistics course, one anthropology human evolution course, and two introductory social sciences or history courses. Society and Genetics 5 must be taken at UCLA once a transfer student is admitted to the University.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Society and Genetics 101, 105A, 105B, 108; 4 units from course 195CE, 196, or 199; and five courses (at least one of which must be a society and genetics course) from one of the following concentration areas:

Bioethics and Public Science Policy: Anthropology M134, 153P, M158Q, 181, 182, Asian American Studies 113, Bioengineering 165EW, Communication Studies 101, Disability Studies 101 or 101W, M121, Ecology and Evolutionary Biology 176, Epidemiology 100, Gender Studies M114, 125, 134, M162, M164, 171A, Geography M109, M115, Global Studies 100A, 100B, History 180A, 180C, Honors Collegium 177, Philosophy 124, 125, 137, 150, 153A, 154, 154B, 155, C156, 157A, 157B, 170, Psychology 187C, Public Policy 103, Social Welfare 162, Society and Genetics M102, 120, 121, 130, 131, M133, M140, 160, 161, 162, 163, 175, 180, 188, 195CE, 197, 199, Sociology 143, 154, 156, 170. See below for additional course options in the subfocus areas of cell development, microbiology and immunology, molecular biology and genomics, physiology, and psychology and mental health.

Evolutionary Biology, Culture, and Behavior: Anthropology 121C, 124A, 124B, 124P, M125A, M127, 128A, M151, M158Q, 185A, 186P, Communication Studies 112, 116, M123W, 126, 148, Ecology and Evolutionary Biology 120, 121, C126, 129, 135, 175, 176, Gender Studies M114, M159, M162, M165, M167, Linguistics C135, Molecular, Cell, and Developmental Biology CM156, Philosophy 137, M187, Psychology 110, 112A, 112B, 115, 160, Society and Genetics M102, 120, 121, 130, 131, M133, M140, 160, 161, 162, 163, 175, 180, 188, 195CE, 197, 199, Sociology 156. See below for additional course options in the subfocus areas of ecology and evolutionary biology, and psychology and mental health.

Historical and Social Studies of Science: Anthropology M125A, 153P, 181, 182, 185A, Asian American Studies 105, Bioengineering 165EW, Disability Studies 101 or 101W, M121, Ecology and Evolutionary Biology 100, 120, C126, 130, 175, Environmental Health Sciences 100, C185A, C185B, Epidemiology 100, Gender Studies 134, M162, M164, M180B, Geography M109, M115, Global Studies 100A, 100B, History M151C, 179A, 179B, 180A, 180C, Honors Collegium 177, Human Genetics C144, Neurobiology M169, Philosophy 124, 125, 129, 130, 137, 155, Society and Genetics M102, 120, 121, 130, 131, M133, M140, 160, 161, 162, 163, 175, 180, 188, 195CE, 197, 199, Sociology M138, 143, M148, 154, 156, 170. See below for additional course options in the subfocus areas of cell development, microbiology and immunology, molecular biology and genomics, physiology, and psychology and mental health.

Medicine and Public Health: Anthropology M134, Chicana and Chicano Studies CM106, Communication Studies 116, M123W, Computer Science CM121, Disability Studies 101 or 101W, M121, Epidemiology 100, Gender Studies M114, 125, M162, M164, M167, History M151C, Human Genetics C144, Molecul-

lar, Cell, and Developmental Biology 138, CM156, 172, Neurobiology M169, Neuroscience 180, Philosophy 150, 154, 154B, 155, C156, 157A, 157B, Psychology M107, 112B, 115, M117J, 127A, 129C, M140, Public Health 150, M160A, M160B, Social Welfare 162, Society and Genetics M102, 120, 121, 130, 131, M133, M140, 160, 161, 162, 163, 175, 180, 188, 195CE, 197, 199, Sociology 130, 132, 134, 143, 145, 154, 156, 170. See below for additional course options in the subfocus areas of cell development, microbiology and immunology, molecular biology and genomics, physiology, and psychology and mental health.

Population Genetics and History: Two courses from Ecology and Evolutionary Biology 135, Human Genetics CM124, and Society and Genetics 120, and three courses from Ancient Near East 162, CM163, Anthropology 110P, 111, M140, M158Q, 181, 182, 186P, Asian American Studies 113, Computer Science CM121, Ecology and Evolutionary Biology 120, 121, 135, Gender Studies M162, M180B, History M108C, M151C, 164D, 180A, 180C, 191B through 191O, Honors Collegium M143, Human Genetics CM124, C144, Linguistics 110, 114, 127, 130, 132, M150, Molecular, Cell, and Developmental Biology 172, Psychology 160, Society and Genetics M102, 120, 121, 130, 131, M133, M140, 160, 161, 162, 163, 175, 180, 188, 195CE, 197, 199, Sociology 154, 156. See below for additional course options in the subfocus area of population genetics.

Each course must be taken for a letter grade and passed with a grade of C- or better, and all courses must be completed with a cumulative minimum grade-point average of 2.0.

Optional Subfocus Areas

The subfocus options are designed and recommended for students who intend a career in medicine or allied health services or are planning to go on to graduate school in the life or health sciences. Students may select any subfocus option listed in their concentration area and complete three subfocus courses that may then be used to satisfy as many as three of the five courses required in their concentration area:

Cell Development: Molecular, Cell, and Developmental Biology 138, 165A, 168

Ecology and Evolutionary Biology: Three courses from Anthropology 121C, 124A, 124P, M125A, 128A, Ecology and Evolutionary Biology 100, 116, 120, 121, C126, 129, 130, 135, 175, 176

Microbiology and Immunology: Microbiology, Immunology, and Molecular Genetics 101, 185A, and one course from 103AL, 106, 107, 158, or 168

Molecular Biology and Genomics: Molecular, Cell, and Developmental Biology 144, 172, and one course from CM156, Human Genetics CM124, C144, Microbiology, Immunology, and Molecular Genetics C122, or 158

Physiology: Physiological Science 111A, 111B, and one course from 147, 149, or 177

Population Genetics: Two courses from Ecology and Evolutionary Biology 135, Human Genetics CM124, Society and Genetics 120, and

one course from Ecology and Evolutionary Biology 120, 121, or Human Genetics C144

Psychology and Mental Health: Three courses from Psychology M107, 112A, 112B, 115, M117J, 127A, 129C, 160

Human Biology and Society BS

Admission

Admission to the Human Biology and Society BS major is by application and competitive, using courses, grades, grade-point averages, and personal statements as minimum standards for consideration. Only a limited number of students are admitted each year. Applicants are not automatically accepted into the major.

Students must apply for major standing at the beginning of spring quarter of their sophomore year. Applications submitted after the spring quarter deadline are considered during fall quarter of the junior year only as space in the program permits. No applications are considered after fall quarter of the junior year.

Premajor standing is not required to apply for the major. A copy of the major application is available at <http://socgen.ucla.edu/academics/undergraduate/major-2/>.

Human Biology and Society Premajor

Incoming freshmen may be admitted as premajors on acceptance to UCLA. All other students must first complete Society and Genetics 5, M71A, or M72A, and then contact the undergraduate counselor in 3360 Life Sciences to request premajor standing.

Preparation for the Major

Required Core: One course from Society and Genetics 5, M71A, or M72A.

Also required are Anthropology 7; Chemistry and Biochemistry 14A, 14B, 14BL, 14C, 14D (or 20A, 20B, 20L, 30A, 30AL, 30B); Mathematics 3A, 3B, 3C, and Statistics 10 or 13, or Mathematics 31A, 31B, 32A, and Statistics 10 or 13, or Life Sciences 30A, 30B, and Statistics 13; Physics 1A, 1B, 1C, 4AL, 4BL (or 6A, 6B, 6C); and two social theory courses from American Indian Studies M10, Anthropology 9, Asian American Studies 20, Gender Studies 10, General Education Clusters M1A through 80CW, Geography 3, History 3C, Molecular, Cell, and Developmental Biology 40, 50, 60, Philosophy 4, 6, 8, 22 or 22W, Public Policy 10A, Sociology 1, M5.

Students must also complete one of two life sciences sequences—either Life Sciences 1, 2, 3, 4, and 23L OR 7A, 7B, 7C, 23L, and 107. They may not substitute courses in either sequence.

Each course must be taken for a letter grade, and students must complete all premajor courses with a cumulative minimum grade-point average of 2.5.

Transfer Students

Transfer applicants to the Human Biology and Society BS major with 90 or more units must

complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2 OR 7A, 7B, and 7C, one year of calculus, one year of general chemistry with laboratory for majors, and one semester of organic chemistry with laboratory.

Transfer applicants must also complete at least two of the following introductory courses prior to admission to UCLA: one statistics course, one anthropology human evolution course, and two introductory social sciences or history courses. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission. Society and Genetics 5 must be taken at UCLA once a transfer student is admitted to the University.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Society and Genetics M102, 105A, 105B, 108; 4 units from course 195CE, 196, or 199; and five courses (at least one of which must be a society and genetics course) from one of the following concentration areas:

Bioethics and Public Science Policy: Anthropology M134, 153P, M158Q, 181, 182, Asian American Studies 113, Bioengineering 165EW, Communication Studies 101, Disability Studies 101 or 101W, M121, Ecology and Evolutionary Biology 176, Epidemiology 100, Gender Studies M114, 125, 134, M162, M164, 171A, Geography M109, M115, Global Studies 100A, 100B, History 180A, 180C, Honors Collegium 177, Philosophy 124, 125, 137, 150, 153A, 154, 154B, 155, C156, 157A, 157B, 170, Psychology 187C, Public Policy 103, Social Welfare 162, Society and Genetics 120, 121, 130, 131, M133, M140, 160, 161, 162, 163, 175, 180, 188, 195CE, 197, 199, Sociology 143, 154, 156, 170. See below for additional course options in the subfocus areas of cell development, microbiology and immunology, molecular biology and genomics, physiology, and psychology and mental health.

Evolutionary Biology, Culture, and Behavior: Anthropology 121C, 124A, 124B, 124P, M125A, M127, 128A, M151, M158Q, 185A, 186P, Communication Studies 112, 116, M123W, 126, 148, Ecology and Evolutionary Biology 120, 121, C126, 129, 135, 175, 176, Gender Studies M114, M159, M162, M165, M167, Linguistics C135, Molecular, Cell, and Developmental Biology CM156, Philosophy 137, M187, Psychology 110, 112A, 112B, 115, 160, Society and Genetics 120, 121, 130, 131, M133, M140, 160, 161, 162, 163, 175, 180, 188, 195CE, 197, 199, Sociology 156. See below for additional course options in the subfocus areas of ecology and evolutionary biology, and psychology and mental health.

Historical and Social Studies of Science: Anthropology M125A, 153P, 181, 182, 185A, Asian American Studies 105, Bioengineering 165EW, Disability Studies 101 or 101W, M121,

Ecology and Evolutionary Biology 100, 120, C126, 130, 175, Environmental Health Sciences 100, C185A, C185B, Epidemiology 100, Gender Studies 134, M162, M164, M180B, Geography M109, M115, Global Studies 100A, 100B, History M151C, 179A, 179B, 180A, 180C, Honors Collegium 177, Human Genetics C144, Neurobiology M169, Philosophy 124, 125, 129, 130, 137, 155, Society and Genetics 120, 121, 130, 131, M133, M140, 160, 161, 162, 163, 175, 180, 188, 195CE, 197, 199, Sociology M138, 143, M148, 154, 156, 170. See below for additional course options in the sub-focus areas of cell development, microbiology and immunology, molecular biology and genomics, physiology, and psychology and mental health.

Medicine and Public Health: Anthropology M134, Chicana and Chicano Studies CM106, Communication Studies 116, M123W, Computer Science CM121, Disability Studies 101 or 101W, M121, Epidemiology 100, Gender Studies M114, 125, M162, M164, M167, History M151C, Human Genetics C144, Molecular, Cell, and Developmental Biology 138, CM156, 172, Neurobiology M169, Neuroscience 180, Philosophy 150, 154, 154B, 155, C156, 157A, 157B, Psychology M107, 112B, 115, M117J, 127A, 129C, M140, Public Health 150, M160A, M160B, Social Welfare 162, Society and Genetics 120, 121, 130, 131, M133, M140, 160, 161, 162, 163, 175, 180, 188, 195CE, 197, 199, Sociology 130, 132, 134, 143, 145, 154, 156, 170. See below for additional course options in the subfocus areas of cell development, microbiology and immunology, molecular biology and genomics, physiology, and psychology and mental health.

Population Genetics and History: Two courses from Ecology and Evolutionary Biology 135, Human Genetics CM124, and Society and Genetics 120, and three courses from Ancient Near East 162, CM163, Anthropology 110P, 111, M140, M158Q, 181, 182, 186P, Asian American Studies 113, Computer Science CM121, Ecology and Evolutionary Biology 120, 121, 135, Gender Studies M162, M180B, History M108C, M151C, 164D, 180A, 180C, 191B through 191O, Honors Collegium M143, Human Genetics CM124, C144, Linguistics 110, 114, 127, 130, 132, M150, Molecular, Cell, and Developmental Biology 172, Psychology 160, Society and Genetics 120, 121, 130, 131, M133, M140, 160, 161, 162, 163, 175, 180, 188, 195CE, 197, 199, Sociology 154, 156. See below for additional course options in the subfocus area of population genetics.

Each course must be taken for a letter grade and passed with a grade of C- or better, and all courses must be completed with a cumulative minimum grade-point average of 2.0.

Optional Subfocus Areas

The subfocus options are designed and recommended for students who intend a career in medicine or allied health services or are planning to go on to graduate school in the life or health sciences. Students may select any sub-focus option listed in their concentration area and complete three subfocus courses that may then be used to satisfy as many as three of the

five courses required in their concentration area:

Cell Development: Molecular, Cell, and Developmental Biology 138, 165A, 168

Ecology and Evolutionary Biology: Three courses from Anthropology 121C, 124A, 124P, M125A, 128A, Ecology and Evolutionary Biology 100, 116, 120, 121, C126, 129, 130, 135, 175, 176

Microbiology and Immunology: Microbiology, Immunology, and Molecular Genetics 101, 185A, and one course from 103AL, 106, 107, 158, or 168

Molecular Biology and Genomics: Molecular, Cell, and Developmental Biology 144, 172, and one course from CM156, Human Genetics CM124, C144, Microbiology, Immunology, and Molecular Genetics C122, or 158

Physiology: Physiological Science 111A, 111B, and one course from 147, 149, or 177

Population Genetics: Two courses from Ecology and Evolutionary Biology 135, Human Genetics CM124, Society and Genetics 120, and one course from Ecology and Evolutionary Biology 120, 121, or Human Genetics C144

Psychology and Mental Health: Three courses from Psychology M107, 112A, 112B, 115, M117J, 127A, 129C, 160

Honors Program

To receive departmental honors, students must take each course in the major for a letter grade and complete all upper division courses in the major with an overall grade-point average of 3.5 or better. For highest departmental honors, students must also take Society and Genetics 197 or 199 in which they write a research paper in their major concentration area and receive a grade of A or better.

Society and Genetics Minor

Admission to the Society and Genetics minor is by application and competitive, using courses, grades, grade-point averages, and personal statements as minimum standards for consideration. Applicants must be in their junior year and have an overall grade-point average of 2.5 or better. Only a limited number of students are admitted each year. Applicants are not automatically accepted into the minor.

Students must apply for admission to the minor at the beginning of fall quarter of their junior year. No applications are considered after that.

Information about the application process is available at <http://socgen.ucla.edu/academics/undergraduate/minor/> and by consultation with the undergraduate counselor in 3360 Life Sciences.

Required Upper Division Courses (30 to 34 units): Society and Genetics 101 (or, if Life Sciences 4 or 107 has been completed, one course from the approved list of electives), M102, 191S, and at least four additional upper division elective courses (minimum 16 units) from the approved list.

The approved list of upper division elective courses includes Anthropology 111, 112, 124A, 124B, 124P, 128A, 131, M140, M158Q, 186P, Ecology and Evolutionary Biology 120, 121, 180A, 180B, Gender Studies M114, 134, M162, M180B, Geography M153, History 179B, M180B, 180C, 191I, Honors Collegium M152, Human Genetics C144, Lesbian, Gay, Bisexual, Transgender, and Queer Studies M114, Linguistics M146, Microbiology, Immunology, and Molecular Genetics CM156, Molecular, Cell, and Developmental Biology CM156, Philosophy 153A, 154B, 155, C156, Psychology M140, Public Policy 103, Society and Genetics 120, 121, 130, 131, M133, M140, 160, 161, 162, 163, 175, 180, 188, 197, 199, Social Welfare M140, Sociology 143, M162, 170.

Students may petition to have a course not on the approved list applied toward the four-course elective requirement. Consult the undergraduate counselor in 3360 Life Sciences.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade of C- or better. Successful completion of the minor is indicated on the transcript and diploma.

Society and Genetics

Lower Division Courses

5. Integrative Approaches to Human Biology and Society. (5) Lecture, three hours; discussion, one hour. Introduction to concept of problem-based approaches to study of biology and society and areas of concentration, such as bioethics and public science policy, evolutionary biology, culture, and behavior, historical and social studies of life sciences, medical genetics and public health, and population genetics and history, and central thematic issues shared across concentrations, such as commercialization of life and public understanding of science. Letter grading.

M71A-M71B-M71CW. Biotechnology and Society. (6-6-6) (Same as GE Clusters M71A-M71B-M71CW.) Course M71A is enforced requisite to M71B, which is enforced requisite to M71CW. Limited to first-year freshmen. Letter grading. **M71A-M71B.** Lecture, three hours; discussion, two hours. Exploration of methods, applications, and implications of biotechnology and of ethical, social, and political implications as well as biological underpinnings. **M71CW.** Special Topics. Seminar, three hours. Enforced requisite: course M71B. Topics include in-depth examination of ethics and human genetics, bioweapons and biodefense, sex and biotechnology. Satisfies Writing II requirement.

M72A-M72B-M72CW. Sex from Biology to Gendered Society. (6-6-6) (Same as Communication Studies M72A-M72B-M72CW, GE Clusters M72A-M72B-M72CW, and Sociology M72A-M72B-M72CW.) Course M72A is enforced requisite to M72B, which is enforced requisite to M72CW. Limited to first-year freshmen. Letter grading. **M72A-M72B.** Lecture, three hours; discussion, two hours. Examination of many ways in which sex and sexual identity shape and are shaped by biological and social forces, approached from complementary perspectives of anthropology, biology, medicine, and sociology. Specific topics include biological origins of sex differences, intersex, gender identity, gender inequality, homosexuality, sex differences, sex/gender and law, and politics of sex research. **M72CW.** Special Topics. Seminar, three hours. Enforced requisite: course M72B. Topics

may include politics of reproduction, sexuality, sexual identity, social construction of gender, and reproductive technologies. Satisfies Writing II requirement.

85. Critical Study of Health, Sickness, and Healing in Global Perspective. (4) Lecture, three hours. Introduction to sociocultural, historical, and global study of health and sickness. Use of case studies of globally important infectious and chronic diseases (diabetes, Ebola, HIV/AIDS) to analyze factors, including key dimensions of diversity (class, gender, urban/rural development) that influence how populations variably encounter, experience, understand, and cope with sickness. Special focus on relationships between Western medicine and traditional and alternative approaches to healing. Letter grading.

Upper Division Courses

101. Genetic Concepts for Human Sciences. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for Life Sciences 4. Focused treatment of selected complex genetic concepts from molecular biology, population and quantitative genetics, and evolutionary biology, with emphasis on gene-environment interaction at various levels and culminating in exploration of notion of co-evolution of genetics and society. Basic science concepts presented through real-world issues and research problems. Current research on cancer, immune system and development, and how this research is performed and adds to knowledge. Letter grading.

M102. Societal and Medical Issues in Human Genetics. (5) (Same as Human Genetics CM136C.) Lecture, three hours; discussion, two hours. Sequence of entire human genome is now known. Consideration of how this knowledge impacts concepts of ourselves as individuals and of our place in biological universe, concepts of race/ethnicity and gender, ability of DNA-based forensics to identify specific individuals, ownership and commodification of genes, issues of privacy and confidentiality, issues of genetic discrimination, issues of predictive genetic testing. Discussion of human cloning for reproductive and therapeutic purposes. Exposure to medical genetics cases. Discussion of role of whole genome sequencing in clinical setting. Human Genome Project influence on medicine and on our concepts of self and identity. Letter grading.

105A. Ways of Knowing in Life and Human Sciences. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 5 or M71A or M72A. Course 105A is not requisite to 105B. Introduction to study of epistemology to train students to recognize different ways of knowing what we know. In life and human sciences, instruments and methods are used to study, measure, and experiment. Exploration of how they are manifest in technologies that cut across disciplines to help students evaluate explanatory models, standards of proof, and qualitative versus quantitative studies. Explorations may include DNA sequencing, tissue cultures, bioinformatics, statistics, photography and cinema, charts, trees, and databases. DNA sequencing is used to study gene functions, evolutionary patterns, and disease and plays role in legal context to reconstruct aspects of human history or to trace identity of people. Databases play role in life sciences in administrative, commercial, and legal contexts. Photography is used in sciences and medicine (e.g., X-ray photography), as well as in art and forensics. Letter grading.

105B. Problems of Identity at Biology/Society Interface. (4) Lecture, three hours; discussion, one hour. Enforced requisites: course 101 or Anthropology 7, or Life Sciences 4 and 23L (each may be taken concurrently). Course 105A is not requisite to 105B. Exploration of problems of human identity that are inherently biological and social. Topics vary and may include race, obesity and nutrition, autism, deafness or disability, gender, intelligence, or sexuality. Topics contain set of intertwined problems so complex, so difficult to define, and so wrapped up in conceptions of what it is to be human, that it has spawned research from variety of perspectives in biological and

human sciences. Students critically engage various intellectual perspectives—some competing, some complementary—that intersect on one particular topic. Examination of how researchers from social/historical and biological sciences construct topic as intellectual problem, methods they bring to bear on it, and findings they have produced. Letter grading.

108. Human Biology, Genetics, and Society. (5) Lecture, three hours; laboratory, two hours. Limited to senior Human Biology and Society majors. Lectures, readings, discussions, and development of collaborative culminating project. Group-based research projects in mapping and staging contemporary controversy at intersections of human biology, genetics, and society. Reading of large amounts of material to make sense of both scientific concepts and social and political issues, with original research project and presentation required. Letter grading.

120. Genetics and Human History. (4) Lecture, three hours. Enforced requisite: course 101 or Life Sciences 4. Advancements in genomic research have rapidly transformed traditional archaeological and historical investigations of human past. Drawing from recent research, focus on how genomic analysis has shed new light on old debates such as migration of *Homo sapiens* out of Africa, human interbreeding with Neanderthals, first migration to North America, ethnic expansions throughout Europe, and genetic legacy of historical figures such as Thomas Jefferson and Genghis Khan. Discussion of practical and theoretical issues surrounding genetic research on history of humans, including challenges of using ancient and modern DNA, population genetic theory, and ethical implications of genetic research for understanding ethnicity. Letter grading.

121. Race, Science, and Citizenship. (4) Seminar, three hours. Early development of scientific method and systematic exclusion of those in subordinate social groups from scientific practice. Interrogation of binaries that prop up scientific knowledge construction, and consideration of how norms and values embedded in Western science compare with indigenous or local knowledge systems. How medical research is motivated by competing assumptions of racial hierarchy and equality. Examination of governments' use of science to classify racially inferior and contaminated foreigners as threats to sociocultural order. Exploration of how people use knowledge about their embodied experiences to demand rights and accept responsibility for their own health and vitality, either in opposition to or alliance with scientific experts. How contemporary developments in science and technology bring to light some central concerns of social and political theory. Letter grading.

130. Biotechnology and Society. (4) Lecture, three hours. Technical manipulation of living matter from humans, animals, and plants as scientific and social undertaking. How biotechnology came into existence. Questions, controversies, and changes that come with ability to make living technologies. Rise of engineering ideal in American biology. Biological modernism, ideas of immortality and technical suppression of death, molecularization of life, genetic engineering, food biotechnology, and control of reproduction. Practice and perception of living bodies as factories and machines. Changing economic and legal infrastructure of biological invention. Unfolding of contemporary social controversies concerning biotechnology. Letter grading.

131. Social and Historical Study of Information, Software, and Networks. (4) Lecture, three hours. Introduction to critical study of information technology, software, and networks. Thematic focus on history of software, operating systems and networks, free/open source software, standards, intellectual property, and telecommunications regulation. Theoretical focus on publics and public spheres, network theories, and theories of information society. Particular attention to relationship of information technology to scientific and engineering practices and life sciences. Letter grading.

M132. Food Cultures and Food Politics. (5) (Same as English M118F) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: En-

glish Composition 3. Introduction to interdisciplinary field of food studies, with focus on how literature, art, science writing, and visual culture address political dimensions of food and agriculture in specific contexts. P/NP or letter grading.

M133. Environmental Sociology. (4) (Same as Environment M133 and Sociology M115.) Lecture, three hours; discussion, one hour. Relationship between society and environment. Analysis in detail of interrelations between social factors (such as class, race, gender, and religion) and environmental factors (such as pollution, waste disposal, sustainability, and global warming). P/NP or letter grading.

134. Food and Health in Global Perspective. (4) Lecture, three hours. Study problematizes and adds depth to common-sense understandings of healthy and unhealthy consumption by examination of relationship between food and health, from critical and holistic perspective, that accounts for interplay of biology and culture within broader historical, societal, and global contexts. Topics include what is meant by health, especially in terms of diet; relationship between food practices and evolutionary biology, as well as particular environments of societies, cultural systems, histories, and their health implications; how major global foods have come to their dominance and consequences for health; and influences of food production, distribution, and preparation on health. Letter grading.

M140. Hormones and Behavior in Humans and Other Animals. (4) (Same as Physiological Science M140.) Lecture, three hours. Examination of hormones, and physiology and genetics involved in hormonal processes and function. Interactions among hormonal levels, environmental stimuli, and behavior. Sexual behavior, pregnancy, and lactation, parental behavior, development and emigration, stress, social behavior, dominance relationships, aggression, chemical communication, and reproductive suppression. Critique of primary literature on behavioral endocrinology about humans and other species. Consideration of spectrum of noninvasive to highly invasive endocrine sampling methods, and which types of questions can be answered in laboratory and field, as well as ethics of hormonal studies and their implications for humans and other animals. Letter grading.

160. Politics of Heredity. (4) Seminar, three hours. Exploration of intersection of politics and genetics in liberal democracies and totalitarian regimes. How genetics has been used to consolidate and undermine political authority, and how political authority has been employed to both promote and restrict genetics. Consideration of several historical episodes such as rise to power in Soviet Union of T.D. Lysenko, peasant agronomist who rejected Mendelism in favor of quasi-Lamarckian approach to genetics; participation of geneticists in creation of racial state in Nazi Germany; and debates over compulsory sterilization of mental defectives in U.S., Canada, and Europe from 1920s to 1940s. Contemporary cases such as controversies over genetically modified foods and regulation and governance of reproto genetic technologies, and rise of disease advocacy groups as important players in determining funding and direction of genetic research. Letter grading.

161. Controversy and Behavior Genetics. (4) Seminar, three hours. Behavior genetics is controversial and seeks genetic links to intelligence, personality, mental illness, and criminality, among many other traits. It explores differences between individuals, men and women, or racial groups, and what social policies might do about those differences. Analysis of causes and effects of controversy in behavior genetics using critical sociology and history. Consideration of scientific disputes between behavior geneticists and their critics, distinctive history and social organization of behavior genetics as group of scientists, and public reception of behavior genetics and disputes about its social and policy implications. Letter grading.

162. Biotechnologies, Law, and Body. (4) Seminar, three hours. Notions of bodily integrity, privacy, right to life, and to choose to die have created perception that our bodies are protected by law, that somehow

we possess ownership and control over our bodies, encompassing not only our physical being but intangible information contained within our materialized forms. Question of whether these rights to our own bodies exist and are secured by common and Constitutional law, in light of recent developments in biotechnology. Introduction to political and legal discourse of rights. Historical perspective of how law and policy have treated our bodies. Legal and policy issues emerging from new biotechnological developments. Examination of reproductive issues, including abortion, assisted reproduction, disputes regarding disposition of embryos, preimplantation genetic testing, cloning, and genetic enhancements. Letter grading.

163. Science and Popular Movements: Controversy, Conflict, and Collaboration. (4) Seminar, three hours. Historical and philosophical analysis of myth of separation of science and people. Controversies in genetics and biotechnology, medical research, and environmentalism show examples of popular science where scientists and nonscientists interact in surprising ways: when nonscientists challenge scientists' authority and knowledge, where scientists act like social movement, and where scientists and regular people work together, sometimes cooperatively and sometimes competitively, to generate knowledge. Consideration of some implications and contradictions for politics and knowledge production that emerge from popular science. Letter grading.

164. Ethics in Health and Research. (4) Lecture, three hours. How should life-saving organs be allocated in context of scarcity? What happens when doctor disagrees with patient on best treatment? Should researchers be allowed to experiment on human beings? Although medicine has always been faced with life-or-death decisions, new challenges arise in light of dramatic advances of biomedicine in 21st century. New possibilities for cures come with new moral issues. Biomedical research is full of promises, yet faces many ethical difficulties. Examination of complexity of decision making in bioethics by articulating point of views of all actors engaged in those decisions at local and international levels—doctors, nurses, patients, families, health policymakers, researchers, and citizens. Focus on case studies with reliance on philosophical essays and material from contemporary media. Letter grading.

165. Introduction to Bioethics. (4) Lecture, three hours. Should one be allowed to choose sex of babies or whether they will be tall enough to be next basketball star? Should terminally ill be helped to die? Do human embryos have moral status? Examples of ethical questions that arise in light of dramatic advances of biomedicine in 21st century. While new knowledge and biotechnology give rise to great possibilities for improving care and finding cures, they also create new moral dilemmas and challenge us to redefine what is good life or family. Introduction to field of bioethics, with focus on case studies that rely on contemporary essays in philosophy and material from contemporary media. Letter grading.

175. Current Directions in Social and Historical Study of Science. (4) Seminar, three hours. Preparation: some familiarity with field of science and technology studies. Investigation of recent work in history and social study of science and technology, with special emphasis on recent developments, possible future directions, and questions of disciplinarity and interdisciplinarity. Topics may include histories of recent and emerging science; biocapital, biocitizenship, biosecurity, and/or biopolitics; social and historical approaches to finance and money; and social and historical approaches to risk, preparedness, and safety. Letter grading.

180. Special Courses in Society and Genetics. (4) Lecture, three hours. Departmentally sponsored experimental or temporary courses on selected topics, such as those taught by visiting faculty members. May be repeated for credit with topic change. Letter grading.

188. Special Courses in Society and Genetics. (4) Seminar, three hours. Departmentally sponsored experimental or temporary courses on selected topics, such as those taught by visiting faculty members. May be repeated for credit with topic change. Letter grading.

190. Research Colloquia in Society and Genetics. (1) Seminar, one hour. Limited to juniors/seniors. Designed to bring together advanced undergraduate students undertaking faculty-supervised tutorial research to discuss their own work or related work in society and genetics. May be repeated once for credit with topic change. P/NP grading.

191. Variable Topics Research Seminars: Perspectives in Society and Genetics. (5) Seminar, three hours. Enforced requisites: courses 101 (or Life Sciences 4), M102. Discussion of genetics and society from historical perspective. How science of genetics itself is deeply social. Study of how biologists and anthropologists have conceptualized relations of genes and (social) environment. Reading of accounts of human nature, human flourishing, and dignity that seem to privilege nature as something that can guide ethical thought and action. How these accounts would encourage or discourage people from manipulating their genetic inheritance. Consideration of what is new in new genetics. Current discussions of promise and peril of genetics in relation to society. Culminating paper required. May be repeated once for credit with topic change. Letter grading.

191R. Capstone Seminar: Human Biology and Society. (5) Seminar, three hours. Enforced requisites: courses 105A, 105B. Students bring their accumulated interdisciplinary knowledge and methodological tools to bear on one contemporary problem at intersection of biology and society. Student peers, whose major studies fall within different concentrations, share and learn from each others' multiple perspectives while working together on one topic presented in class. Topics vary and come from major concentrations. Culminating project is team writing assignment, such as grant proposal, report to Congress on contemporary issue, or business plan for new kind of company or nonprofit firm addressing issues in human biology and society. Letter grading.

191S. Capstone Seminar: Society and Genetics. (5) Seminar, three hours. Enforced requisites: courses 101 (or Life Sciences 4), M102. Discussion of genetics and society from historical perspective. How science of genetics itself is deeply social. Study of how biologists and anthropologists have conceptualized relations of genes and (social) environment. Reading of accounts of human nature, human flourishing, and dignity that seem to privilege nature as something that can guide ethical thought and action. How these accounts would encourage or discourage people from manipulating their genetic inheritance. Consideration of what is new in new genetics. Current discussions of promise and peril of genetics in relation to society. Culminating paper required. May be repeated once for credit with topic change. Letter grading.

193. Journal Club Seminars: Society and Genetics. (1) Seminar, one hour. Limited to undergraduate students. Discussion of topics related to guest speaker series. May be repeated for credit. P/NP grading.

195CE. Community or Corporate Internships in Society and Genetics. (4) Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or non-profit setting coordinated through Center for Community Learning. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. May be repeated for credit with consent of Center for Community Learning. Individual contract with supervising faculty member required. Letter grading.

196. Research Apprenticeship in Society and Genetics. (2) Tutorial, six hours. Limited to juniors/seniors. Entry-level research opportunities in society and genetics under guidance of faculty mentor. May be repeated for maximum of 4 units. Individual contract required. P/NP or letter grading.

197. Individual Studies in Society and Genetics. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned readings and tangible evidence of mastery of subject matter (paper or other product) required. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research in Society and Genetics. (2 to 4) Tutorial, six to 12 hours. Preparation: submission of written proposal outlining study or research to be undertaken due to undergraduate adviser for department approval. Studies to involve laboratory research, not primarily literature surveys or library research. Proposal to be developed in consultation with instructor. Limited to juniors/seniors. Department majors may enroll with sponsorship from department faculty members or preapproved outside faculty members. Other juniors/seniors may enroll only with department faculty sponsors. Supervised individual research under guidance of faculty mentor. At end of term culminating paper describing progress of project and signed by student and instructor must be presented to department. May be repeated for credit. Individual contract required. Letter grading.

Graduate Course

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

INSTITUTE OF THE ENVIRONMENT AND SUSTAINABILITY

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Scope and Objectives

The mission of the UCLA Institute of the Environment and Sustainability (IoES) is to advance cross-disciplinary research, teaching, and public service on matters of critical importance to the planet and the campus community. The environment is defined broadly to include the interrelated issues of global climate change, loss of biological diversity, and threats to human health and well-being from the use and misuse of natural resources, applying all the tools of scientific and policy analysis as well as moral and aesthetic values to the work. The

environment is a crucial component of sustainability, which is defined as the simultaneous consideration of environmental, economic, and social concerns. Los Angeles itself is a vital asset to this mission. As an international megacity located in one of the world's most biologically diverse regions, Los Angeles is a magnet for scholars from around the world who are facing similar issues of pollution, access to potable water, demand for energy, fragmentation of habitat, and the need to restore ecological function to sprawling urban settlements in a manner that supports economic growth and that is socially just and equitable.

The IoES offers creative, multidisciplinary academic programs and courses that address the full complexity of current environmental problems and sustainable solutions. The Bachelor of Science degree in Environmental Science is an innovative dual-component degree program for students seeking a challenging and invigorating science curriculum. The first component, the Environmental Science major, provides students with disciplinary breadth in several areas important to environmental science. The second component, a minor or concentration in one of seven environmental science areas, provides students with focused disciplinary depth in an area of their choosing. The minor in Environmental Systems and Society is designed for students who wish to gain a deeper understanding of the relationships between environmental science and associated social and political issues.

The IoES also sponsors the Environment/General Education Clusters M1A, M1B, M1CW on the global environment. The cluster format is a series of three integrated courses taught over the fall, winter, and spring quarters. The fall and winter quarter courses consist of lectures and discussions. The spring quarter consists of seminars and activities in which students explore specialized environmental and sustainability topics such as the history of environmental thought, environmental policy, and the impacts of human population.

At the graduate level, the IoES offers the Environmental Science and Engineering (DEnv) degree program that was founded in 1973 by Nobel laureate Dr. Willard Libby, who perceived a need to train environmental scientists, engineers, and policymakers in a more interdisciplinary manner than is afforded by traditional PhD programs.

The program is designed with an appropriate balance of breadth and specific skills, based on a strong master's-level foundation in a science or engineering discipline. The curriculum consists of formal coursework across a full spectrum of relevant physical, biological, social, and engineering disciplines, as well as interdisciplinary research training through nine-month problems courses.

The program has awarded the Doctor of Environmental Science and Engineering degree to over 200 students, and UCLA remains unique in the country in awarding such a degree.

Undergraduate Study

The Environmental Science major is a designated capstone major. In collaboration with a local agency or nonprofit institution, students work individually and in groups to complete projects that require them to integrate many of the skills, principles, theories, and concepts they have learned throughout the curriculum and apply them to real systems. Students are expected to contribute meaningfully to the analysis and solution of particular environmental science issues involving multiple disciplines and stakeholders with different perspectives. Those completing the major should possess critical thinking skills, problem-solving abilities, and familiarity with essential computational, data collection, and analysis skills, as well as demonstrate effective oral and written communication skills. Graduates should also be able to identify key ethical issues and analyze the consequences of various professional dilemmas, as well as work productively as part of a team.

Environmental Science BS

Capstone Major

The Environmental Science BS program represents strong collaboration between the Institute of the Environment and Sustainability and the Departments of Atmospheric and Oceanic Sciences, Civil and Environmental Engineering, Earth, Planetary, and Space Sciences, Ecology and Evolutionary Biology, Environmental Health Sciences, and Geography. The program is designed for students who are deeply interested in the study of environmental science. There are two components to the program, and both must be completed to receive the degree. The first component, the Environmental Science major, requires completion of lower division requirements grounded in basic natural sciences, a six-course upper division environmental science requirement reflecting the disciplinary breadth of environmental science, two social sciences/humanities courses, participation in an ongoing environmental science colloquium, and completion of an environmental science practicum. The second component is a minor or concentration in one of seven environmental science areas, each associated with a particular department. With assistance from IoES staff, students must formally apply to and be accepted by the associated department to receive the minor.

Preparation for the Major

Required: Chemistry 14A, 14B, and 14BL (or 20A, 20B, and 20L), Earth, Planetary, and Space Sciences 1 (required for the **Earth and environmental science minor**) or Environment M10, Life Sciences 1, 2, Mathematics 3A and 3B (or 31A and 31B), Physics 6A and 6B (or 1A and 1B), Statistics 12 or 13.

For the **atmospheric and oceanic sciences and environmental engineering minors**, Chemistry and Biochemistry 14C (or 30A) or Physics 1C (or 6C), and Mathematics 3C (or 32A) are also required.

For the **conservation biology minor**, Chemistry and Biochemistry 14C (or 30A), Life Sciences 1, 3, and 23L are also required.

For the **Earth and environmental science minor**, Chemistry and Biochemistry 14C (or 30A) or Physics 1C (or 6C), Earth, Planetary, and Space Sciences 1, and one course from 5, 13, 15, or 61, and Mathematics 3C (or 32A) are also required.

For the **environmental health concentration**, Chemistry and Biochemistry 14C (or 30A), Life Sciences 3, and 23L are also required.

For the **environmental systems and society minor**, two courses from Chemistry and Biochemistry 14C (or 30A), Life Sciences 3 and 23L, Mathematics 3C (or 32A), and Physics 1C (or 6C) are also required.

For the **geography/environmental studies minor**, two courses from Chemistry and Biochemistry 14C (or 30A), Life Sciences 3 and 23L, Mathematics 3C (or 32A), and Physics 1C (or 6C), plus Geography 5 and one course from 1, 2, 3, 4, or 6 are also required. Students should take these courses before enrolling in upper division courses.

Each course applied toward requirements for preparation for the major must be passed with a grade of C- or better. Students receiving a grade below C- in two courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants to the Environmental Science major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two general chemistry courses with laboratory for majors, two general biology courses with laboratory for majors, two calculus courses, and two calculus-based physics courses.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

The major consists of four requirements: environmental science, social sciences/humanities, practicum/colloquium, and minor or concentration, as follows:

Environmental Science Requirements

Required: One course from each of the following six core environmental science areas. No more than two courses may be from any one department. (1) One *atmospheric and water science* course from Atmospheric and Oceanic Sciences 101, 103, M105, 130, Earth, Planetary, and Space Sciences 153, or Geography 105; (2) one *climate science* course from Atmospheric and Oceanic Sciences 102, Geography 102, 104, M106, or M131; (3) one *Earth science* course from Earth, Planetary, and Space Sciences 101, C113, 119, 139, 150, Environment M127, Geography 100, 101, or M107; (4) one *ecology and conservation biology* course from Ecology and Evolutionary Biology 100, 109, 116, 151A, 154, Environment 121, Geography 111, or 113; (5) one *environmental management* course from Environment M134, M135, 157, 159, 160, 163, 166, or Public Policy C115; (6) one *pollutant sources, treatment, fate, and transport* course from Atmospheric and Oceanic Sciences 104, Chemical Engineering C118, Civil and Environmental Engineering 153, 154, M166, Environmental Health Sciences 100, C125, C152D, or C164.

For the **conservation biology minor**, Ecology and Evolutionary Biology 100, 116 (or Environment 121), and four to six courses from 101, 103, 105, 109, 111, 112, 114A, 122, 129, 151A, 154, 176, 180A are required.

For the **Earth and environmental science minor**, five courses from Earth, Planetary, and Space Sciences 101, 112, C113, 139, 150, 153 are required.

For the **environmental engineering minor**, Civil and Environmental Engineering 153 and five courses from 154, 155, 156A, M165, M166, Chemical Engineering C118, Environment 159, 166, Environmental Health Sciences C125, C164 are required.

For the **environmental health concentration**, Epidemiology 100, two courses from Environmental Health Sciences 100, C135, C185A, C185B, and three courses from Chemistry and Biochemistry 153A, Environmental Health Sciences C125, C140, C152D, C157, C164, 203 are required.

For the **environmental systems and society minor**, seven courses from Environment M109, M111, 121, M130, M132, M133, M134, M135, M137, 150, M153, M155, 157, 159, 160, M161, 163, M164, 166, M167, 186 are required.

For the **geography/environmental studies minor**, three courses from Geography M106, M107, M109, 110, 113, M115, 116, 122, 123, 124, 125, 126, M127, M128, 129, M131, 132, 135, M137, 159C, 159D, 159E, and any two additional upper division geography courses (except those from the preceding list and courses 194 through 199) are required.

Each course applied toward requirements for the major, except Environment 170 and 185A, must be taken for a letter grade. Students must maintain an overall grade-point average of 2.0 (C) or better in all courses applied toward the major.

Honors Program

The honors program provides exceptional students an opportunity for advanced research and study, under the guidance of a faculty member, that leads to the completion of an honors thesis or research project. To qualify for graduation with honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average of 3.5 or better in upper division coursework in the major and an overall GPA of 3.0 or better, (3) complete at least 8 units of Environment 198 taken over at least two terms, and (4) produce a completed satisfactory honors thesis. The honors thesis or research project is in addition to the requirement of the completed practicum in environmental science project. Consult the student affairs officer for further information.

Environmental Systems and Society Minor

The Environmental Systems and Society minor is designed for students who wish to augment their major program of study with courses addressing the relationships between environmental science and associated social and

political issues. The minor seeks to impart a deeper understanding of environmental systems related to air, land, and water resources, providing a basis for sound professional decision making.

To enter the minor, students must be in good academic standing (2.0 grade-point average) and file a petition at the Institute of the Environment and Sustainability, 300 La Kretz Hall, 310-206-9193.

Required Lower Division Courses (8 units): At least two courses from Astronomy 3, Atmospheric and Oceanic Sciences 1, 2, 3, Earth, Planetary, and Space Sciences 1, 15, 16, 20, Ecology and Evolutionary Biology 10, 13, 25, Environment M1A, M1B, M10, 12, 25, M30, M30SL, Geography 1, 2, 5.

Required Upper Division Courses (20 units): At least five courses from Environment M109, M111, 121, M130, M132, M133, M134, M135, M137, 150, M153, M155, 157, 159, 160, M161, 163, M164, 166, M167, 186.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor, and at least 16 units applied toward the minor must be taken in residence at UCLA. Transfer or substitution of credit for any of the above is subject to institute approval; consult an academic adviser at the institute before enrolling in any courses for the minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Institute of the Environment and Sustainability offers the Doctor of Environmental Science and Engineering (DEnv) degree.

Environment

Lower Division Courses

M1A-M1B-M1CW. Food: Lens for Environment and Sustainability. (6-6-6) (Same as GE Clusters M1A-M1B-M1CW.) Course M1A is enforced requisite to M1B, which is enforced requisite to M1CW. Limited to first-year freshmen. Letter grading. **M1A-M1B.** Lecture, three hours; discussion, two hours. Food as lens for local and global environmental and sustainability issues. Integration of environmental, social, economic, and technological solutions for fair, sustainable, and healthy food production, food security, and access. Focus on human impacts on Earth's biological and physical systems, including how food production and consumption contributes to, and is impacted by, global problems, including climate change, pollution, and overpopulation. Laboratory exercises included in discussions. **M1CW.** Special Topics. Sem-

inar, three hours. Enforced requisite: course M1B. Examination of specialized environmental and sustainability topics as they relate to food, including air, water, biodiversity, climate change, food access, food security, and health. Satisfies Writing II requirement.

M10. Introduction to Environmental Science. (4) (Same as Atmospheric and Oceanic Sciences M10.) Lecture, three hours; laboratory, one hour. Limited to undergraduate students. Introduction to environmental science as discipline and as way of thinking. Discussion of critical environmental issues at local and global scales. Fundamentals of physical, chemical, and biological processes important to environmental science. Laboratory exercises to augment lectures. Letter grading.

12. Sustainability and Environment. (4) Lecture, three hours; discussion, one hour. Introduction to sustainability with emphasis on environmental component, including Earth's physical, chemical, and biological processes as related to resource demands and management. Examination of application of scientific method in helping to understand and solve sustainability problems. Case studies illustrating how natural and social scientists work on environmental sustainability issues. Focus on global climate change, biodiversity, pollution, and water and energy resources presented in context of creating sustainable human society that is environmentally sound, economically viable, and socially just and equitable. Letter grading.

25. Good Food for Everyone: Health, Sustainability, and Culture. (5) Lecture, three hours; discussion, one hour. Good food is healthy, sustainably produced, and culturally meaningful. Introduction to basic concepts and history of food systems, food science and nutrition, fair and sustainable food production, natural resources and environmental issues including climate change and biodiversity, agriculture and food policy and law, food distribution and access, cultural identity and artistic engagements with food. P/NP or letter grading.

M30. Introduction to Environmental Humanities. (5) (Same as English M30.) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Introduction to core themes, questions, and methods within interdisciplinary field of environmental humanities. Examination of how different culture forms (e.g., fiction, journalism, poetry, visual art) represent environmental issues. Topics may include biodiversity, wilderness, food, urban ecologies, postcolonial ecologies, environmental justice, and climate change. P/NP or letter grading.

M30SL. Introduction to Environmental Humanities (Service Learning). (5) (Same as English M30SL.) Lecture, three hours; discussion, one hour; fieldwork, two hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Introduction to core themes, questions, and methods within interdisciplinary field of environmental humanities. Examination of how different culture forms (e.g., fiction, journalism, poetry, visual art) represent environmental issues. Topics may include biodiversity, wilderness, food, urban ecologies, postcolonial ecologies, environmental justice, and climate change. Service learning component includes meaningful work with off-campus agency/agencies selected by instructor. P/NP or letter grading.

Upper Division Courses

M109. Human Impact on Biophysical Environment: What Science Has Learned. (4) (Same as Geography M109.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of history, mechanisms, and consequences of interactions between humans and environment. Exploration in depth of three thematic topics (deforestation, desertification, and greenhouse gas increase and ozone depletion) and four major subjects (soil, biodiversity, water, and landforms). P/NP or letter grading.

M111. Earth and Its Environment. (4) (Same as Atmospheric and Oceanic Sciences M100.) Lecture, three hours. Overview of Earth as system of distinct, yet intimately related, physical and biological ele-

ments. Origins and characteristics of atmosphere, oceans, and land masses. Survey of history of Earth and of life on Earth, particularly in relation to evolution of physical world. Consideration of possibility of technological solutions to global environmental problems using knowledge gained during course. Letter grading.

113. Los Angeles Watershed. (4) Lecture, three hours; discussion, one hour. Overview of how varying scales of influence from atmosphere/climate, basin hydrology, runoff, sewage treatment, wetlands ecology and wetlands loss, coastal water circulation, and coastal biogeochemistry affect water resources in Los Angeles. Letter grading.

M114. Soil and Water Conservation. (4) (Same as Geography M107.) Lecture, three hours; discussion, one hour. Enforced requisite: Geography 1 or 2 or Life Sciences 1 or 3. Designed for juniors/seniors. Systematic study of processes of and hazards posed by erosion, sedimentation, development, and pollution and techniques needed to conserve soil and maintain environmental quality. Scope includes agriculture, forestry, mining, and other rural uses of land. P/NP or letter grading.

121. Conservation of Biodiversity. (4) Lecture, three hours; discussion, two hours. Not open for credit to students with credit for Ecology and Evolutionary Biology 116. Examination of interrelation of natural biotic and human systems. Description of distribution of biodiversity and natural processes that maintain it. Critical analysis of various levels of threats and multi-dimensional challenges required for mitigating threats. Letter grading.

M127. Soils and Environment. (4) (Same as Ecology and Evolutionary Biology M127 and Geography M127.) Lecture, three hours; discussion, one hour; field trips. General treatment of soils and environmental implications: soil development, morphology, and worldwide distribution of soil orders; physical, chemical, hydrologic, and biological properties; water use, erosion, and pollution; management of soils as related to plant growth and distribution. P/NP or letter grading.

M130. Environmental Change. (4) (Same as Geography M131.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of natural forces producing environmental changes over past two million years. How present landscape reflects past conditions. Effects of environmental change on people. Increasing importance of human activity in environmental modification. Focus on impact of natural and anthropogenic changes on forests. P/NP or letter grading.

M132. Environmentalism: Past, Present, and Future. (4) (Same as Geography M115 and Urban Planning M165.) Lecture, three hours; discussion, one hour. Exploration of history and origin of major environmental ideas, movements or countermovements they spawned, and new and changing nature of modern environmentalism. Introduction to early ideas of environment, how rise of modern sciences reshaped environmental thought, and how this was later transformed by 19th-century ideas and rise of American conservation movements. Review of politics of American environmental thought and contemporary environmental questions as they relate to broader set of questions about nature of development, sustainability, and equity in environmental debate. Exploration of issues in broad context, including global climate change, rise of pandemics, deforestation, and environmental justice impacts of war. Letter grading.

M133. Environmental Sociology. (4) (Same as Society and Genetics M133 and Sociology M115.) Lecture, three hours; discussion, one hour. Relationship between society and environment. Analysis in detail of interrelations between social factors (such as class, race, gender, and religion) and environmental factors (such as pollution, waste disposal, sustainability, and global warming). P/NP or letter grading.

M134. Environmental Economics. (4) (Same as Economics M134.) Lecture, three hours. Requisites: Economics 41 or Statistics 12 or 13, and Economics

101 (may be waived with consent of instructor). Introduction to major ideas in natural resources and environmental economics, with emphasis on designing incentives to protect environment. Highlights important role of using empirical data to test hypotheses about pollution's causes and consequences. P/NP or letter grading.

M135. California Sustainable Development: Economic Perspective. (4) (Same as Public Policy M149 and Urban Planning M163.) Lecture, three hours. Examination of specific environmental challenges that California faces. Microeconomic perspective used, with special emphasis on incentives of polluters to reduce their pollution and incentives of local, federal, and state government to address these issues. Focus on measurement and empirical hypothesis testing. P/NP or letter grading.

M137. Historical Geography of American Environment. (4) (Same as Geography M137.) Lecture, three hours. Designed for juniors/seniors. Study of systematic changes of natural environment in U.S. during historical time, with emphasis on interplay between and among natural factors of climate, soils, vegetation, and landforms, and human factors of settlement, economic activity, technology, and cultural traits. P/NP or letter grading.

150. Environmental Journalism, Science Communications, and New Media. (4) Lecture, three hours. Introduction to environmental journalism, science communications, and new media, including weekly guest lectures by prominent successful practitioners in wide variety of media. Focus on technologies, methods, genres, and theories of communicating environmental challenges, exploring solutions, and engaging public in newspapers, television, radio, movies, online, on mobile devices, and through social media. Discussion of possibilities and limitations of different media and importance of communications for environmental science, policy, public understanding, and individual decision making. Production by students of environmental communications in variety of media. P/NP or letter grading.

M153. Introduction to Sustainable Architecture and Community Planning. (4) (Same as Architecture and Urban Design CM153.) Lecture, three hours. Relationship of built environment to natural environment through whole systems approach, with focus on sustainable design of buildings and planning of communities. Emphasis on energy efficiency, renewable energy, and appropriate use of resources, including materials, water, and land. Letter grading.

M155. Energy in Modern Economy. (4) (Same as Physics M155.) Lecture, three hours. Requisites: Mathematics 3A and 3B (or 31A and 31B), Physics 1A and 1B (or 6A and 6B), Statistics 12 or 13. Examination of physics of energy, history of energy development, and role that energy plays in our economy, particularly in transportation and power grid. Prospects for decreasing availability of fossil fuels and impact of global warming on energy development. Current and potential future government and social responses to energy issues. P/NP or letter grading.

157. Energy, Environment, and Development. (4) Lecture, three hours. Requisites: Mathematics 3A and 3B (or 31A and 31B), Physics 1A and 1B (or 6A and 6B). Introduction to basic energy concepts and examination of role of various energy sources, energy conversion technologies, and energy policies in modern life. Analysis of implications of current patterns of energy production and consumption for future economic and environmental well-being. Integration of concepts and methods from physical and life sciences, engineering, environmental science, economics, and public policy. Basic quantitative skills provided to analyze and critique technical, economic, and policy choices to address challenge of balancing economic growth and environmental sustainability. P/NP or letter grading.

159. Life-Cycle Analysis for Sustainability Assessment. (4) Lecture, three hours. Requisites: Mathematics 3A and 3B (or 31A and 31B). Public discourse about current patterns of production and consumption of energy, and goods and services more broadly,

suggest such patterns are environmentally and economically unsustainable. Introduction to basic concept of life-cycle analysis (LCA), including analytical frameworks and quantitative techniques for systematically and holistically evaluating environmental trade-offs presented by different alternatives. Focus on methodology of LCA to compute various material inputs and environmental releases from all activities associated with life cycle (i.e., raw material extraction, processing, end use, and disposal) of products or services. Discussion of strengths and limitations of LCA as tool for decision making. Students perform life-cycle analysis of one technology, product, or service of their choice. P/NP or letter grading.

160. Topics in Environmental Economics and Policy. (4) Seminar, three hours. Requisite: Statistics 12 or 13. Examination of intersection of environmental economics and policy, with focus on testing policy-relevant environmental hypotheses using economics research approach. Invited scholars present research aimed at yielding policy-relevant results on various topics such as climate change, pollution, and transportation. P/NP or letter grading.

M161. Global Environment and World Politics. (4) (Same as Political Science M122B.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended requisite: Political Science 20. Politics and policy of major global environmental issues such as climate change, integrating law, policy, and political science perspectives. P/NP or letter grading.

162. Entrepreneurship and Finance for Environmental Scientists. (4) Lecture, three hours; discussion, one hour. Focus on key entrepreneurial and financial concepts, with emphasis on applications that are vital for implementing environmental solutions in private, public, and nonprofit settings. Topics include basic elements of finance, project evaluation, financial planning, and marketing. Development of entrepreneurial skills to recognize opportunity and transfer ideas into viable projects that are better for environment and that benefit people and communities. Case studies used to equip students with tools necessary to successfully execute environmental goals and objectives. P/NP or letter grading.

163. Business and Natural Environment. (4) Lecture, three hours. Examination of role of business in mitigating environmental degradation and incentives to be more environmentally responsive. Emphasis on corporate strategies that deliver value to shareholders while responding to environmental concerns. P/NP or letter grading.

M164. Environmental Politics and Governance. (4) (Same as Urban Planning M160.) Lecture, three hours. Environmental planning is more than simply finding problems and fixing them. Each policy must be negotiated and implemented within multiple, complex systems of governance. Institutions and politics matter deeply. Overview of how environmental governance works in practice and how it might be improved. Letter grading.

166. Leadership in Water Management. (4) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Examination of water quality and water supply issues, including interactions between scientific, technological, management, and policy issues. Invited experts, scholars, and practitioners discuss relevant issues such as pollution, climate change, and water infrastructure. Emphasis on solutions involving integrated water supply and wastewater systems. Leadership development through writing instruction and negotiations and media training. P/NP or letter grading.

M167. Environmental Justice through Multiple Lenses. (4) (Same as Urban Planning M167.) Lecture, three hours. Examination of intersection between race, economic class, and environment in U.S., with focus on issues related to social justice. Because environmental inequality is highly complex phenomenon, multidisciplinary and multipopulation approach taken, using alternative ways of understanding, interpreting, and taking action. P/NP or letter grading.

170. Environmental Science Colloquium. (1) Seminar, 90 minutes; one field trip. Limited to undergraduate students. Study of current topics in environmental science, including participation in weekly colloquium series and field trips. May be repeated for credit. P/NP grading.

180A. Practicum in Environmental Science. (4) Lecture, three hours; discussion, two hours. Enforced requisite: Statistics 12 or 13. Limited to Environmental Science majors who have completed 40 or more units of preparation for major courses, including statistics, and 12 or more units of upper division courses toward major or minor requirements. Examination of case studies and presentation of tools and methodologies in environmental science, building on what students have been exposed to in other courses. Letter grading.

180B-180C. Practicum in Environmental Science. (5-5) Laboratory, four hours; field trips. Enforced requisite: course 180A. Course 180B is enforced requisite to 180C. Limited to junior/senior Environmental Science majors. Investigation of various aspects of one environmental case study representing actual multidisciplinary issue. Particular emphasis on developing skills required for working as professionals in this field. Work may involve site investigations, original data collection and analysis, mapping and geographic information systems, and environmental policy and law issues. Case study to be defined and conducted with collaboration of local agency or nonprofit institution. Letter grading.

185A. Education for Sustainable Living Program Speaker Series. (1) Lecture, two hours. Analysis of principles of sustainability through series of lectures by world-renowned faculty members, authors, environmentalists, and progressive thinkers, with required student response papers. May be repeated for credit. P/NP grading.

185B. Education for Sustainable Living Program Action Research. (2) Lecture, two hours; fieldwork, four hours. Investigation of issues of campus sustainability, including energy efficiency, transportation, waste stream management, sustainable food practices, and more by student research teams to generate coalition of student researchers that, together with faculty members and UCLA staff, strive to make UCLA more sustainable community. May be repeated for credit. Letter grading.

185C. Education for Sustainable Living Program Action Research Leader. (3) Seminar, two hours; fieldwork, six hours. Students lead research teams to investigate issues of campus sustainability, including energy efficiency, transportation, waste stream management, sustainable food practices, and more to generate coalition of student researchers that, together with faculty members and UCLA staff, strive to make UCLA more sustainable community. May be repeated for credit. Letter grading.

186. Comparative Sustainability Practices in Local/Global Settings. (4) Fieldwork, four hours. Guided fieldwork and comparative analysis used to assess local sustainability practices and policies in diverse regional or international settings. Emphasis on comparing role of local and regional culture, geography, economic climate, and governmental policies on sustainability awareness and practices. Use of observations, interviews, and unobtrusive measures to document and analyze role and influence of local/global context on sustainability behavior of individuals, small businesses, and other institutions in everyday life. Letter grading.

188A-188B. Special Courses in Environment. (4-2) Lecture, three hours; discussion, one hour (when scheduled—course 188A) and two hours (course 188B). Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

193. Journal Club Seminars: Environment. (1) Seminar, one hour. Limited to undergraduate students. Discussion of readings selected from current literature of field. May be repeated for credit. P/NP grading.

195. Community or Corporate Internships in Environmental Science. (2 or 4) Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Limited to junior/senior majors. Internship in supervised setting in community agency or business related to environmental science and/or sustainability. Students meet on regular basis with faculty supervisor and provide periodic reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required; consult undergraduate adviser. P/NP grading.

198. Honors Research in Environmental Science. (2 to 4) Tutorial, four hours. Limited to junior/senior Environmental Science majors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. Must be taken for at least two terms and for total of at least 8 units. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research in Environment. (2 to 4) Tutorial, two hours. Preparation: submission of written proposal outlining study or research to be undertaken. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Progress report must be submitted to faculty mentor at end of term. Culminating paper or project required. May be repeated for credit, but only 4 units may be taken each term. Individual contract required. P/NP or letter grading.

Graduate Courses

250. Tools for Sustainability Assessment. (4) Lecture, three hours. Recommended preparation: introductory course in industrial ecology, ecological economics, environmental economics, business and management, or public policy analysis. Public discourse about implications of current patterns of production and consumption of energy and various goods and services suggests such patterns are unsustainable. What is meant by sustainability and how is it quantified? Focus on concepts and tools to assess sustainability at micro-level of individuals, products, or firms using various techniques, including life-cycle assessment, input-output analysis, and cost-benefit analysis. Exploration of sustainability at macro-level for one entire economy or nation. Discussion of usefulness and limitations of various metrics as guide for public and private decision making. S/U or letter grading.

260. Information, Technology, Business, and Society. (4) Seminar, three hours. Interdisciplinary research seminar to bring sound social sciences methods to latest technology developments to design effective information-based solutions to social problems. Topics include selection and framing of research questions, developing measurements, designing appropriate methods (e.g., surveys, experiments, using available data), ethical issues, and writing up research proposals. S/U or letter grading.

277. Leaders in Sustainability. (4) Lecture, three hours. Common course for all students participating in Leaders in Sustainability Program, including those from engineering, law, management, public affairs, public health, natural and social sciences, and others. Creation of environment for academically based discussions on various sustainability-related themes, capitalizing on wide mix of disciplines represented among participating students. Sessions feature UCLA faculty members, external speakers, and leadership skills to help students learn more about how to best put their interests in sustainability to use. Letter grading.

297A-297B. Advanced Topics in Environment and Sustainability. (4-2) Seminar, four hours (course 297A) and two hours (course 297B). Advanced study and analysis of variable current topics in environment and sustainability. Consult Schedule of Classes for topics and instructors. May be repeated for credit with consent of instructor. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guid-

ance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Environmental Science and Engineering Problems Course. (8) (Formerly numbered 400A.) Seminar, eight hours. Primarily designed for environmental science and engineering doctoral students. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems. May be repeated for credit. S/U grading.

M412. Effective Technical Writing. (2) (Same as Environmental Health Sciences M412.) Seminar, two hours. Essentials of grammar, punctuation, syntax, organization, and format needed to produce well-written journal articles, research reports, memoranda, letters, and résumés. Development of technical writing skills using critique, exercises, and examples. S/U grading.

M413. Advanced Technical Writing. (2) (Formerly numbered 410B.) (Same as Environmental Health Sciences M414.) Seminar, two hours. Development of advanced technical writing skills, with exercises focused on preparation of manuscripts for publication in peer-reviewed journal. S/U grading.

M414. Effective Oral Presentation. (2) (Formerly numbered 410A.) (Same as Environmental Health Sciences M414.) Seminar, two hours. Introduction to oral presentations. Development of oral presentation skills, including content structure, visual aids, delivery, and audience interaction. S/U grading.

M415. Advanced Oral Presentation. (2) (Formerly numbered 410C.) (Same as Environmental Health Sciences M415.) Seminar, two hours. Development of advanced oral presentation skills. Preparation for oral qualifying examination. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual or Tutorial Studies. (2 to 8) Tutorial, to be arranged. Supervised investigation of advanced environmental problems. S/U grading.

599. Doctoral Dissertation Research. (2 to 12) Tutorial, to be arranged. Limited to students who have advanced to doctoral candidacy. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

Gordon L. Fain, PhD
Mark A. Frye, PhD
Alan Garfinkel, PhD
David L. Glanzman, PhD
Fernando Gómez-Pinilla, PhD, *in Residence*
Alan D. Grinnell, PhD
Walter H. Metzner, PhD
Peter M. Narins, PhD
Patricia E. Phelps, PhD
Barnett A. Schlinger, PhD
Dwayne D. Simmons, PhD
James G. Tidball, PhD
David W. Walker, PhD
Stephanie A. White, PhD

Professors Emeriti

R. James Barnard, PhD
V. Reggie Edgerton, PhD
Glen H. Egstrom, PhD
Gerald W. Gardner, PhD
Margaret E. Haberland, PhD
Marjorie E. Latchaw, PhD
Wayne W. Massey, PhD
Judith L. Smith, PhD
Ben W. Miller, PhD
Allan J. Tobin, PhD (*Eleanor I. Leslie Professor Emeritus of Neuroscience*)

Associate Professor

Xinshu Grace Xiao, PhD

Assistant Professors

Stephanie M. Correa VanVeen, PhD
Elaine Y. Hsiao, PhD (*De Logi Professor of Biological Sciences*)
Amy C. Rowat, PhD
Xia Yang, PhD

Adjunct Professor

William C. Whiting, PhD

Adjunct Associate Professor

Tama W. Hasson, PhD

Adjunct Assistant Professor

Anthony R. Frisia, PhD

Scope and Objectives

The cornerstone of the physiological science curriculum is vertebrate physiology, with emphases on integrative functions. The research and educational programs of the Department of Integrative Biology and Physiology focus on integrative physiology at several levels of organization from molecules to living organisms, microscopic structures to macroscopic organization, and cellular properties to organ functions. Students receive comprehensive instruction in all areas of physiological science, while elective courses reflect faculty research expertise, including developmental neurobiology, gene regulation/neural development, cellular neurobiology, molecular neurobiology, neuromuscular physiology, neuroendocrine physiology, cardiac physiology, diet and degenerative disease, auditory and visual behavior, biomechanics of rehabilitative medicine, muscle cell biology, inflammatory cell biology, vascular biology, cardiac electrophysiology, neuromotor control, and social control of neuronal plasticity.

Applicants interested in pursuing graduate study may apply directly to the interdepartmental Molecular, Cellular, and Integrative Physiology PhD Program (<https://www.mcip.ucla.edu>) or the interdepartmental Neuroscience PhD Program (<http://www.neuroscience.ucla.edu>).

INTEGRATIVE BIOLOGY AND PHYSIOLOGY

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Barnett A. Schlinger, PhD, *Chair*
Walter H. Metzner, PhD, *Vice Chair*
Patricia E. Phelps, PhD, *Vice Chair*

Professors

Arthur P. Arnold, PhD
Gene D. Block, PhD, *Chancellor*
Scott H. Chandler, PhD
Rachelle H. Crosbie-Watson, PhD

Undergraduate Study

Physiological Science BS

Preparation for the Major

Life Sciences Core Curriculum

Required: Chemistry and Biochemistry 14A, 14B, 14BL, 14C, 14CL, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B, and 30BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, or Life Sciences 30A, 30B, and Statistics 13; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C, or 6AH, 6BH, and 6CH.

Students must also complete one of two life sciences sequences—either Life Sciences 1, 2, 3, 4, and 23L OR 7A, 7B, 7C, and 23L. They may not substitute courses in either sequence.

To enter the Physiological Science major, students must complete Chemistry and Biochemistry 14A, 14B, and 14C, or 20A, 20B, and 30A, Life Sciences 1, 2, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, or Life Sciences 30A, 30B, and Statistics 13, and Physics 1A or 6A, with a minimum grade of C in each course and a grade-point average of 2.5 or better in all before fall quarter of their third year. Repetition of more than one of these nine preparation courses results in denial of admission to the major. After successful completion of the courses, students must contact the Undergraduate Advising Office to declare the major.

For all preparation courses, students must complete each course with a grade of C or better. Repetition of more than one preparation course results in dismissal from the major.

Transfer Students

Transfer applicants to the Physiological Science major with 90 or more quarter units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2 OR 7A, 7B, and 7C, one year of calculus, one year of general chemistry with laboratory for majors, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Transfer credit for UCLA Extension coursework and for any departmental courses is subject to prior approval by the department; consult the undergraduate counselor before enrolling in any courses for the major.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Physiological Science 107, 111A, 111B, 111L, Chemistry and Biochemistry 153A, 153L.

A total of five upper division physiological science electives is required. Eight units of course 199 or 4 units each (8 units total) of courses 198A and 198B, for students in the departmental honors program, may be applied toward the

elective requirement. One 200-level graduate course may be applied toward the elective requirement with departmental approval. Courses 189HC, 191H, 192, 193, 195, 196, and graduate courses at the 300, 400, or 500 level may not be applied toward the elective requirement.

Each required and elective course must be taken for a letter grade, and a C average must be maintained in all upper division courses taken for the major. A grade of C or better is required in Physiological Science 107 and 111A to enroll in course 111B. If students fail to meet these requirements, they may be dismissed from the major.

Honors Program

The honors program provides exceptional students with the opportunity for individual research culminating in an honors thesis. Requirements for admission include a 3.0 overall grade-point average and a 3.2 GPA in the life sciences core curriculum. After completion of all requirements and with the recommendation of the faculty adviser, the undergraduate affairs committee confers departmental honors at graduation.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Department of Integrative Biology and Physiology offers the Master of Science (MS) degree in Physiological Science.

Physiological Science

Lower Division Courses

3. Introduction to Human Physiology. (5) Lecture, three hours; laboratory, two hours. Not open to Physiological Science majors. Courses 3 and 5 may be taken independently, concurrently, or in either sequence. Understanding of human body, its organization from molecular to cellular to tissues and organs, and how component parts function in integrated manner to permit life as we know it. P/NP or letter grading.

5. Issues in Human Physiology: Diet and Exercise. (5) Lecture, three hours; discussion, 30 minutes; laboratory, 90 minutes. Not open to Physiological Science majors. Basic introduction to principles of human biology, with special emphasis on roles that exercise and nutrition play in health, and prevention and management of such illnesses as hypertension, diabetes, and heart disease. P/NP or letter grading.

6. The Human Machine: Physiological Processes. (4) Not open to Physiological Science majors. General introduction to human musculoskeletal, cardiovascular, and respiratory systems and their function, with special emphasis on mechanical and physiological aspects of homeostasis and environmental interaction. Application of physical principles in selected areas of biomechanics, hemodynamics, ergonomics, orthopedics, and robotics. P/NP or letter grading.

7. Science and Food: Physical and Molecular Origins of What We Eat. (5) Lecture, three hours; laboratory, two and one half hours. Preparation: high school chemistry, mathematics, physics. What makes lettuce crispy and some cuts of meat chewier than others? Exploration of origins of food texture and flavor, using concepts in physical sciences to explain macroscopic properties such as elasticity and phase behavior, as well as physiological roles of food molecules in plants and animals we eat. Letter grading.

13. Introduction to Human Anatomy. (5) Lecture, four hours; laboratory, five hours. Not open to Physiological Science majors. Structural survey of human body, including skeletomuscular, nervous, circulatory, respiratory, digestive, and genitourinary systems. Laboratory includes examination of human cadaver specimens. Letter grading.

90. Introduction to Physiological Science. (2) Lecture, one hour; discussion, one hour. Limited to freshmen/sophomores. Introduction to current topics in physiological science by a team of departmental faculty members. P/NP grading.

Upper Division Courses

100. Experimental Statistics. (4) Lecture, four hours. Introduction to statistics with focus on computer simulation instead of formulas. Bootstrap and Monte Carlo methods used to analyze physiological data. P/NP or letter grading.

CM102. Human Physiological Systems for Bioengineering I. (4) (Same as Bioengineering CM102.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Broad overview of basic biological activities and organization of human body in system (organ/tissue) to system basis, with particular emphasis on molecular basis. Modeling/simulation of functional aspect of biological system included. Actual demonstration of biomedical instruments, as well as visits to biomedical facilities. Concurrently scheduled with course CM204. Letter grading.

CM103. Human Physiological Systems for Bioengineering II. (4) (Same as Bioengineering CM103.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Molecular-level understanding of human anatomy and physiology in selected organ systems (digestive, skin, musculoskeletal, endocrine, immune, urinary, reproductive). System-specific modeling/simulations (immune regulation, wound healing, muscle mechanics and energetics, acid-base balance, excretion). Functional basis of biomedical instrumentation (dialysis, artificial skin, pathogen detectors, ultrasound, birth-control drug delivery). Concurrently scheduled with course CM203. Letter grading.

107. Systems Anatomy. (5) Lecture, four hours; laboratory, three hours; tutorial, two hours. Requisites: Life Sciences 2, Physics 1A or 6A or 6AH. Students must receive a grade of C or better to proceed to next course in series. Systems anatomy focused primarily on human anatomy. Topics include cardiorespiratory, reproductive, nervous, and skeletomuscular systems, with introduction to biomechanical principles. Letter grading.

108. Head and Neck Anatomy: Evolutionary, Biomechanical, Developmental, and Clinical Approach. (4) Lecture, three hours; laboratory, two hours. Requisite: course 107. Strongly recommended: course 153. Introduction to head and neck anatomy. Dissection of head and neck, with focus on vasculature, innervation, and musculature to put them in three-dimensional context. Coverage of evolutionary, developmental, physiological, and biomechanical aspects of skull, including comparative anatomy of other vertebrate skulls, dental evolution and mechanics, respiratory anatomy, and developmental origins of head structures. Letter grading.

111A-111B. Foundations in Physiological Science. (6-6) Lecture, four hours; discussion, two hours. Letter grading. **111A.** Requisites: course 107, Chemistry 14C or 30A, Life Sciences 1, 2, 3, 4, 23L, Physics

1B or 6B or 6CH. Students must receive grade of C or better to proceed to next course in series. Introduction to principles of muscular and neural physiology, including factors controlling membrane excitability, neuronal circuits, sensorimotor regulation, special senses, cortical functions, and neuronal plasticity. **111B.** Requisites: course 111A, Chemistry 14D or 30B. Students must receive grade of C or better to proceed to next course in series. Introduction to principles of systems physiology, including endocrinology, transport physiology, and cardiovascular and pulmonary physiology.

111L. Physiological Science Laboratory. (3) Laboratory, four hours. Requisites: courses 111A and 111B, with grades of C- or better. Required of Physiological Science majors. Designed to illustrate physiological principles studied in courses 111A, 111B. Letter grading.

120. Kidney: Understanding It from Development to Disease to Therapy. (4) Lecture, three hours. Enforced requisites: courses 111A, 111B. Review of knowledge of basic renal function, with emphasis on broad range of renal diseases and their molecular mechanisms. Introduction to research methods typically employed in studies of kidney and exploration of state-of-art research on kidney repair and regeneration. Letter grading.

121. Disease Mechanisms and Therapies. (5) Lecture, three hours; discussion, one hour. Enforced requisites: Life Sciences 2, 3, 4. Designed for Biochemistry and life sciences majors. Use of disease mechanisms as pedagogical tools to develop higher-order knowledge of basic scientific concepts. Integration of concepts from genetics, molecular and cell biology, physiology, and biochemistry to create molecular solutions to problem of inherited neuromuscular disease. Letter grading.

122. Biomedical Technology and Physiology. (4) Lecture, four hours. Enforced requisites: courses 111A, 111B, Life Sciences 2, Physics 1A, 1B, 1C (or 6A, 6B, 6C). Developments in biotechnology and their impact on diagnosis and treatment of disease, basic engineering principles, and designs that lend themselves to deciphering physiological states, and application of new technologies in clinical practice and biomedical research. Letter grading.

124. Molecular Biology of Aging. (4) Lecture, three hours. Enforced requisites: Chemistry 153A, Life Sciences 1, 2, 3, 4, 23L. Discoveries of new science of aging biology, with examination of aging as plastic trait modulated by genes and physiological processes. Discussion of how these findings integrate with both nutritional modulation of lifespan and complex and profound relationship between underlying aging process and diseases of aging. Topics include dietary restriction, mitochondria, insulin/IGF signaling, and link between tumor suppression and organismal aging. Letter grading.

125. Molecular Systems Biology. (5) Lecture, three hours; discussion, one hour. Enforced requisites: Life Sciences 2, 3, 4, 23L. Quantitative description of molecular systems that underlie myriad phenotypes in living cells. Topics include various -omics fields and high-throughput technologies, network biology, and synthetic biology. Introductory lectures on molecular biology, emerging bioinformatic approaches, and systems modeling integrated with discussions of their applications in disease-related research. Review of recent literature to gain overall perspectives about new science of systems biology. Letter grading.

C126. Biological Clocks. (4) Lecture, three hours; discussion, one hour. Requisites: courses 111A and 111B, or M180A and M180B. Most organisms, including humans, exhibit daily rhythms in physiology and behavior. In many cases these rhythms are generated from within organisms and are called circadian rhythms. Biological basis of these daily rhythms or circadian oscillations. Exploration of molecular, cellular, and system-level organization of these timing systems. Temporal role of these variations in maintaining homeostatic mechanisms of body and impact on nervous system. Concurrently scheduled with course C226. Letter grading.

C127. Neuroendocrinology of Reproduction. (4) Lecture, three hours. Enforced requisite: course 111B. Understanding of reproductive neuroendocrinology throughout mammalian lifespan, with emphasis as appropriate on human condition. Discussion of general concepts of endocrine feedback and feed-forward loops, sexual differentiation, and structure and function for components of hypothalamo-pituitary gonadal axis. Exploration of sex differences in physiology and disease. Concurrently scheduled with course CM227. Letter grading.

135. Dynamical Systems Modeling of Physiological Processes. (5) Lecture, four hours; laboratory, two hours. Examination of art of making and evaluating dynamical models of physiological systems and of dynamical principles inherent in physiological systems. Letter grading.

136. Exercise and Cardiovascular Function. (5) Lecture, four hours. Requisite: course 111B. Consideration of acute and chronic effects of exercise in diagnosis, prevention, and treatment of cardiovascular disorders.

138. Neuromuscular Physiology and Adaptation. (4) Requisites: course 111B, Chemistry 153A. Cellular responses to acute and chronic exercise and environmental states of neuromuscular system.

M140. Hormones and Behavior in Humans and Other Animals. (4) (Same as Society and Genetics M140.) Lecture, three hours. Examination of hormones, and physiology and genetics involved in hormonal processes and function. Interactions among hormonal levels, environmental stimuli, and behavior. Sexual behavior, pregnancy, and lactation, parental behavior, development and emigration, stress, social behavior, dominance relationships, aggression, chemical communication, and reproductive suppression. Critique of primary literature on behavioral endocrinology about humans and other species. Consideration of spectrum of noninvasive to highly invasive endocrine sampling methods, and which types of questions can be answered in laboratory and field, as well as ethics of hormonal studies and their implications for humans and other animals. Letter grading.

C144. Neural Control of Physiological Systems. (5) Lecture, four hours. Requisite: course 111B or M180B. Role of central nervous system in control of respiration, circulation, sexual function, and bladder control. Material for each section to be developed by combination of lecture and open discussion. Concurrently scheduled with course C244.

M145. Neural Mechanisms Controlling Movement. (5) (Same as Neuroscience M145.) Lecture, four hours. Requisite: course 111A or M180A or Neuroscience M101A. Examination of central nervous system organization required for production of complex movements such as locomotion, mastication, and swallowing. Letter grading.

146. Principles of Nervous System Development. (5) Lecture, three hours; discussion, 90 minutes. Requisites: courses 107 (or Neuroscience 102) and 111A (or M180A, Molecular, Cell, and Developmental Biology M175A, Neuroscience M101A, or Psychology M117A). Examination of construction of vertebrate nervous system as series of integrated steps beginning with several embryonic cells and culminating as complex highly ordered system. Topics include neurulation, regionalization, neurogenesis, migration, axonal outgrowth, and synapse formation. Letter grading.

147. Neurobiology of Learning and Memory. (5) Lecture, four hours; research demonstration, one hour. Requisite: course 111A or M180A. Changes in central nervous system that accompany learning, with emphasis on cellular mechanisms.

M148. Neuronal Signaling in Brain. (4) (Same as Neuroscience M148.) Lecture, three hours; discussion, one hour. Requisites: courses 111A (or M180A or Neuroscience M101A), M180B (or Neuroscience M101B or Chemistry 153A). Consideration of brain function, with focus on cellular physiology and functional neuroanatomy. Topics include neuronal excitability and synaptic transmission and function of spe-

cific neuronal circuits in auditory pathway, basal ganglia, cerebellum, hippocampus, and neocortex. Letter grading.

149. Mechanisms of Major Human Metabolic Diseases. (4) Lecture, three hours; discussion, one hour. Requisites: courses 111A, 111B (111B may be taken concurrently). Integration of principles gained through basic science curriculum with presently understood mechanisms of selected human diseases. Progressive developments of these diseases presented in terms of changes in cell biology and function, and changes in regulation of intercellular interactions. Letter grading.

C150. Musculoskeletal Mechanics. (5) Lecture, three hours. Requisite: course 111B. Introduction to biomechanical analysis of human musculoskeletal system. Examination of cinematographic, force platform, and digital computer techniques to characterize and evaluate kinematic and kinetic components of movement. Topics include biostatics, biodynamics, and modeling. Concurrently scheduled with course C250B. Letter grading.

C152. Musculoskeletal Anatomy, Physiology, and Biomechanics. (5) Lecture, three hours. Requisite: course 111A. Anatomical, physiological, and mechanical characteristics of cartilaginous, fibrous, and bony tissues examined in normal and abnormal stress situations. Connective tissue growth processes, normal physiology, and repair mechanisms analyzed in conjunction with musculoskeletal injuries and effects of exercise. Concurrently scheduled with course C252.

153. Dissection Anatomy. (5) Lecture, two hours; laboratory, six hours. Requisite: course 111B. Study and dissection of upper and lower extremities of human cadavers; dissection of thorax and abdomen limited to musculature and neurovascular supply. Letter grading.

154. Cellular Communication and Regulation of Physiological Processes. (4) Lecture, three hours. Limited to juniors/seniors. Signal transduction concepts, with focus on role of receptors, G proteins, and intracellular messengers such as cyclic AMP and calcium. Integration of these concepts with variety of physiological processes, including stimulus-secretion coupling, vascular smooth muscle contraction, and role of growth factors in cell proliferation. Contemporary scientific research articles used as basis for material presented. Students required to present journal article for discussion. Letter grading.

155. Development and Structure of Musculoskeletal System. (4) Requisite: course 111B. Development, histology, cell biology, and biochemistry of musculoskeletal soft tissues. Integration of knowledge of muscle and connective tissue structure and function on each of these levels to understand organization and physiological behavior of the intact system.

156. Molecular Mechanisms and Therapies for Muscular Dystrophy. (4) Lecture, three hours; discussion, one hour. Enforced requisites: course 111A (may be taken concurrently), Life Sciences 4 with grade of B or better. Causes and pathogenesis of Duchenne muscular dystrophy and some fundamental scientific findings using original scientific research. Exploration of therapies aimed at individual stages of pathogenetic disease as method to develop critical expert-like thinking skills. Lectures based on experiments from primary scientific literature, and students expected to understand genetic and phenotypic animal models of muscular dystrophy, to design experiments, and to predict outcomes from research data. Letter grading.

165. Comparative Animal Physiology. (5) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 2, 3, 23L. Physiological response and function at molecular, cellular, system, and whole organism levels of variety of animals to range of environmental conditions. Major topics include neural and muscular structure and function, hormones, gas exchange, energetics, and thermoregulation. Examination of wide variety of vertebrates and invertebrates to

understand how animals solve physiological challenges presented by physical environment. Letter grading.

166. Animal Physiology. (6) Lecture, three hours; laboratory, five hours. Requisites: Chemistry 14B and 14BL, or 20B and 30AL, 153A, Life Sciences 1, 2, 3, 23L, Physics 1C and 4BL, or 6C or 6CH. Not open for credit to students with credit for Ecology and Evolutionary Biology 170 or to Physiological Science majors. Introduction to physiological principles, with emphasis on organ systems and intact organisms. Letter grading.

167. Physiology of Nutrition. (4) Lecture, four hours. Enforced requisites: Chemistry 14A, 14B, 14C, and 14D, or 20A, 20B, 30A, and 30B. Limited to Physiological Science majors and Food Studies minors. Topics include physiological adaptation to starvation and physiological responses to oxidants/antioxidants, vitamins, minerals, photochemicals, and their relationship to common chronic diseases and physiology of fuel utilization during aerobic and anaerobic exercise. Letter grading.

M168. Ideas and Experiments in History of Physiology. (4) (Same as Neurobiology M168.) Lecture, three hours. Interaction of concepts and experimental techniques in physiology from the early 19th to latter 20th centuries, including heart and circulation, hormones, nutrition and vitamins, brain, spinal cord, and peripheral nervous system, as well as development of physiology as scientific discipline. Discussion of weekly readings and presentations by students. Letter grading.

M171. Variable Topics Research Seminars: Contemporary Biology. (2) (Formerly numbered Biological Chemistry 191.) (Same as Neurobiology M171.) Seminar, two hours. Limited to undergraduate fellows in Howard Hughes Undergraduate Research Program. Presentations of scientific data from primary research articles and from students' own research. May be repeated for credit. P/NP grading.

173. Anatomy and Physiology of Sense Organs. (4) Lecture, three hours; discussion, one hour. Requisites: courses 111A, or M180A and M180B, or Molecular, Cell, and Developmental Biology M175A and M175B. Structure and function of sense organs. Adoption of quantitative and comparative approach to provide insight into evolution of sense organs in both invertebrates and vertebrates. Letter grading.

174. Cell Biophysics in Physiology and Disease. (5) Lecture, three hours; discussion, two hours. Requisites: Chemistry 153A, Life Sciences 2, 3, 4, 23L, Physics 6A, 6B, 6C. Search for information in biological research has traditionally focused on genes and biochemical pathways. While physical aspects of cell biology are critical in physiology and disease, they have received so much less attention in research. For example, mechanical properties of cells determine how physical forces alter gene expression and can signal transformation in physiological state of cells, such as in malignant transformation. Exploration of cell biophysics in health and disease from basic physical principles that underlie structure and organization of cytoskeleton to role of cell deformability in diseases such as cancer. Use of articles from primary literature regarding current research. Letter grading.

175. Why Fido Can't Speak: Biological Evolution of Language. (5) Lecture, three hours; discussion, one hour. Requisite: course 111A or Neuroscience M101A. *Homo sapiens* are only species currently on planet to possess language. Exploration of whether other species possess potential building blocks for language. Topics range from examination of how bees and ants signal about food sources to whether structured songs of birds, whales, and monkeys contain compositional meaning. Topics intersect with those in fields of anthropology, biopsychology, linguistics, molecular genetics, neuroscience, and physiology. Letter grading.

177. Neuroethology. (5) Lecture, four hours; discussion, two hours. Requisite: course 111A or M180A. Physical properties of animal signals and physiological mechanisms underlying their generation. Topics include classical neuroethological models: acoustic

and vibration communication in vertebrates, sound localization in owls, electrosensing and electrocommunication in electric fish, and neurobiology of bird-song. Letter grading.

M180A-M180B-M180C. Neuroscience: From Molecules to Mind. (5-5-5) (Same as Molecular, Cell, and Developmental Biology M175A-M175B-M175C, Neuroscience M101A-M101B-M101C, and Psychology M117A-M117B-M117C.) Lecture, four hours; discussion, 90 minutes. P/NP or letter grading.

M180A. Cellular and Systems Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisites: Chemistry 14C or 30A (14C may be taken concurrently), Life Sciences 2, Physics 1B or 1BH or 6B or 6BH. Not open for credit to students with credit for Physiological Science 111A. For Neuroscience and Physiological Science majors, grade of C- or better is required to proceed to Neuroscience M101B or Physiological Science 111B. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement. P/NP or letter grading.

M180B. Molecular and Developmental Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisites: course 111A or M180A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Psychology M117A; Neuroscience majors must have grade of C- or better) or Psychology 115, Life Sciences 3, 4 (4 may be taken concurrently). Molecular biology of channels and receptors: focus on voltage dependent channels and neurotransmitter receptors. Molecular biology of supramolecular mechanisms: synaptic transmission, axonal transport, cytoskeleton, and muscle. Classical experiments and modern molecular approaches in developmental neurobiology. P/NP or letter grading.

M180C. Behavioral and Cognitive Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisite: course 111A or M180A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Psychology M117A; Neuroscience majors must have grade of C- or better) or Psychology 115. Neural mechanisms underlying motivation, learning, and cognition. P/NP or letter grading.

M181. Biological Bases of Psychiatric Disorders. (4) (Same as Molecular, Cell, and Developmental Biology M181, Neuroscience M130, Psychiatry M181, and Psychology M117J.) Lecture, three hours. Requisite: course 111A or M180A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Psychology M117A) or Psychology 115. Underlying brain systems involved in psychiatric symptoms and neurological disorders, including schizophrenia, depression, bipolar disorder, obsessive-compulsive disorder. Provides basic understanding of brain dysfunctions that contribute to disorders and rationales for pharmacological treatments. P/NP or letter grading.

187A. Seeing Brain in Action. (2) Seminar, two hours. Enforced requisites: courses 111A and 111B (or Neuroscience M101A and M101B). Introduction to latest technical approaches and conceptual advances in one preeminent subfield of neuroscience—live functional imaging. Students provided with critiqued scientific presentation experience and complete one exercise in scientific writing and peer review. Letter grading.

187B. From Cell to Circuit. (2) Seminar, two hours. Enforced requisites: courses 111A and 111B (or Neuroscience M101A and M101B), 187A. Introduction to latest technical approaches and conceptual advances in one preeminent subfield of neuroscience—specification of neural circuits. Students provided with critiqued scientific presentation experience and complete one exercise in scientific writing and peer review. Letter grading.

191. Variable Topics Research Seminars: Physiology. (2) Seminar, two hours. Enforced requisite: course 111A. Focused reading in single subdiscipline of physiology, with focus on critical analysis of primary research literature. Emphasis on understanding methods for research in physiology and interpretation

of experimental results, and how they bear on concepts of physiology. Development of culminating paper. May be repeated for credit. Letter grading.

191H. Honors Seminars: Current Topics in Physiology. (4) Seminar, four hours. Requisites or corequisites: courses 198A, 198B. Limited to neuroscience and physiological science honors program students. Designed for juniors/seniors and required of departmental honors students. Presentation of primary paper from physiology literature. Reading and critical evaluation of current research literature. Presentation of student laboratory research hypothesis, approach, and results in form of oral and poster presentations. Letter grading.

192. Practicum in Systems Anatomy for Undergraduate Assistants. (3) Seminar, two hours; additional hours in laboratory setting, to be arranged. Requisite: course 107. Limited to juniors/seniors. Training and supervised practicum in systems anatomy for undergraduate assistants. Consult Undergraduate Office for further information. May not be applied toward elective requirements and may not be repeated for credit. Departmental application required. P/NP or letter grading.

193. Journal Club Seminars: Physiological Science. (1) Seminar, one hour. Limited to undergraduate students. Discussion of readings selected from current literature in field. May be repeated for credit. P/NP grading.

194A. Research Group Seminars: Physiological Science. (2) Seminar, two hours. Required of undergraduate students in research traineeships such as MARC and UC Leads programs. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. Letter grading.

194B. Research Group Seminars: Physiological Science. (1) Seminar, two hours. Corequisite: course 198A or 198B or 198C or 199. Limited to juniors/seniors. Involvement in weekly laboratory research group meetings to encourage student participation in research and to stimulate progress in specific research areas. Discussion of use of specific research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP grading.

195. Field Studies in Physiological Science. (4) Tutorial, one hour; fieldwork, eight hours. Limited to seniors. Supervised field studies in specific careers related to physiological science. May not be repeated for credit and may not be applied toward elective requirements for major. Individual contract with supervising faculty member required. P/NP grading.

196. Research Apprenticeship in Physiological Science. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. May be repeated for credit; consult department. Individual contract required. P/NP grading.

198A. Honors Research in Physiological Science. (4) Tutorial, 12 hours. Requisites: courses 111A, 111B. Corequisite: course 193. Limited to junior/senior physiological science honors program students. Directed independent research for departmental honors with faculty member, involving definition of research topic and extensive reading and research in field of proposed honors thesis. May be repeated for credit. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

198B. Honors Research in Physiological Science. (4) Tutorial, 12 hours. Requisite: course 198A. Corequisite: course 193. Limited to junior/senior physiological science honors program students. Continued reading and research that culminate in final honors thesis. Only 4 units of course 198 or 3 units of course 199 and 1 unit of course 193 may be applied toward elective requirements for major. May be repeated for credit. Individual contract required. Letter grading.

198C. Advanced Studies for Honors Research in Physiological Science. (4) Tutorial, 12 hours. Requisite: course 198B. Corequisite: course 193. Limited to junior/senior physiological science honors program students. Additional course to provide further research opportunities for departmental honors students. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Physiological Science. (2 to 4) Tutorial, 12 hours. Requisites: courses 111A, 111B. Corequisite: course 193. Limited to Physiological Science majors with advanced junior standing and 3.0 grade-point average in major, or seniors. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. Course application must be submitted to undergraduate affairs chair during first week of classes. Only 3 units of course 199 may be applied toward elective requirements for major. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Advanced Experimental Statistics. (4) (Formerly numbered M200.) Lecture, four hours; laboratory, one hour. Introduction to statistics with focus on computer simulation instead of formulas. Bootstrap and Monte Carlo methods used to analyze physiological data. S/U or letter grading.

M202. Cellular Neurophysiology. (4) (Same as Neurobiology M200F and Neuroscience M202.) Lecture, three hours; discussion, two hours. Requisites: course 111A (or M180A or Physics 6B), 166. Advanced course in cellular physiology of neurons. Action and membrane potentials, channels and channel blockers, gates, ion pumps and neuronal homeostasis, synaptic receptors, drug-receptor interactions, transmitter release, modulation by second messengers, and sensory transduction. Letter grading.

CM203. Human Physiological Systems for Bioengineering II. (4) (Same as Bioengineering CM203.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Molecular-level understanding of human anatomy and physiology in selected organ systems (digestive, skin, musculoskeletal, endocrine, immune, urinary, reproductive). System-specific modeling/simulations (immune regulation, wound healing, muscle mechanics and energetics, acid-base balance, excretion). Functional basis of biomedical instrumentation (dialysis, artificial skin, pathogen detectors, ultrasound, birth-control drug delivery). Concurrently scheduled with course CM103. Letter grading.

CM204. Human Physiological Systems for Bioengineering I. (4) (Same as Bioengineering CM202.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Broad overview of basic biological activities and organization of human body in system (organ/tissue) to system basis, with particular emphasis on molecular basis. Modeling/simulation of functional aspect of biological system included. Actual demonstration of biomedical instruments, as well as visits to biomedical facilities. Concurrently scheduled with course CM102. Letter grading.

M210. Molecular and Cellular Mechanisms of Neural Integration. (5) (Same as Neuroscience M230 and Physiology M210.) Lecture, four hours; discussion, one hour. Requisite: Neuroscience M202. Introduction to mechanisms of synaptic processing. Selected problems of current interest, including regulation and modulation of transmitter release, molecular biology and physiology of receptors, cellular basis of integration in sensory perception and learning, neural nets and oscillators, and molecular events in development and sexual differentiation. Letter grading.

211. Exercise Cardiovascular Physiology. (4) Attention to cardiovascular adaptations to acute exercise as well as adaptations associated with regular exercise training.

M215. Molecular and Cellular Foundations of Physiology. (5) (Same as Molecular, Cellular, and Integrative Physiology M215.) Lecture, three hours; discussion, two hours. Application of molecular and cellular approaches to systems level questions. Basic foundation for study of major physiological systems, with emphasis on levels of organization from molecular to macroscopic. Letter grading.

C226. Biological Clocks. (4) Lecture, three hours; discussion, one hour. Requisites: courses 111A and 111B, or M180A and M180B. Most organisms, including humans, exhibit daily rhythms in physiology and behavior. In many cases these rhythms are generated from within organisms and are called circadian rhythms. Biological basis of these daily rhythms or circadian oscillations. Exploration of molecular, cellular, and system-level organization of these timing systems. Temporal role of these variations in maintaining homeostatic mechanisms of body and impact on nervous system. Concurrently scheduled with course C126. Letter grading.

CM227. Neuroendocrinology of Reproduction. (4) (Formerly numbered M227.) (Same as Neurobiology M227.) Lecture, three hours. Enforced requisite: course 111B. Understanding of reproductive neuroendocrinology throughout mammalian lifespan, with emphasis as appropriate on human condition. Discussion of general concepts of endocrine feedback and feed-forward loops, sexual differentiation, and structure and function for components of hypothalamo-pituitary gonadal axis. Exploration of sex differences in physiology and disease. Concurrently scheduled with course C127. Letter grading.

235. Advanced Dynamical Systems Modeling of Physiological Processes. (5) Lecture, four hours; laboratory, two hours. Examination of art of making and evaluating dynamical models of physiological systems and of dynamical principles inherent in physiological systems. Letter grading.

241. Neural Plasticity and Repair. (4) Lecture, four hours. Preparation: basic neuroscience background. Progress in basic and clinical neuroscience provides new insight to understand mechanisms of cell repair and strategies to promote neural healing. Focus on physiological, molecular, and anatomical basis governing repair processes in brain and spinal cord and their clinical implications. Letter grading.

C244. Neural Control of Physiological Systems. (5) Lecture, four hours. Requisite: course 111B or M180B. Role of central nervous system in control of respiration, circulation, sexual function, and bladder control. Material for each section to be developed by combination of lecture and open discussion. Concurrently scheduled with course C144.

245. Neural Mechanisms Controlling Movement. (5) Lecture, four hours. Requisite: course 111A or M180A or Neuroscience M101A. Examination of central nervous system organization required for production of complex movements such as locomotion, mastication, and swallowing. Letter grading.

250A. Muscle Dynamics. (4) Lecture, four hours. Integrated study of electrical and dynamic parameters of muscle-action, including topics in length-tension and force-velocity interrelationships; critical analysis of electromyographic and digital computer techniques. Letter grading.

C250B. Musculoskeletal Mechanics. (5) Lecture, three hours. Requisites: course 107, Physics 6A. Introduction to biomechanical analysis of human musculoskeletal system. Examination of cinematographic, force platform, and digital computer techniques to characterize and evaluate kinematic and kinetic components of movement. Topics include biostatics, biodynamics, and modeling. Concurrently scheduled with course C150. Letter grading.

C252. Musculoskeletal Anatomy, Physiology, and Biomechanics. (5) Lecture, three hours. Requisite: course 111A. Anatomical, physiological, and mechanical characteristics of cartilaginous, fibrous, and bony

tissues examined in normal and abnormal stress situations. Connective tissue growth processes, normal physiology, and repair mechanisms analyzed in conjunction with musculoskeletal injuries and effects of exercise. Concurrently scheduled with course C152.

M255. Seminar: Neural and Behavioral Endocrinology. (2) (Same as Neurobiology M255 and Psychology M294.) Seminar, one hour; discussion, one hour. Topics include hormonal biochemistry and pharmacology. Hypothalamic/hypophyseal interactions, both hormonal and neural. Structure and function of hypothalamus. Hormonal control of reproductive and other behaviors. Sexual differentiation of brain and behavior. Stress: hormonal, behavioral, and neural aspects. Aging of reproductive behaviors and function. Letter grading.

260. Neuromuscular Factors in Movement Regulation. (4) Lecture, four hours. Requisite: course 138. Interaction of neural and muscular factors in regulation of muscle fiber properties and importance of these properties in neural strategies of movement regulation. S/U or letter grading.

263. Neuronal Mechanisms Controlling Rhythmic Movements. (4) Lecture, four hours. Requisite: course M145. Advanced topics on brainstem mechanisms responsible for controlling cyclic and stereotyped movements such as mastication and locomotion. Emphasis on cellular neurophysiology and interaction between neuronal networks. Introduction to primary literature and techniques used in these areas. Students expected to critically evaluate data and conclusions drawn. S/U or letter grading.

270A-270B. Modern Concepts in Physiology. (4-4) Lecture, two hours; discussion, two hours. Study and evaluation of primary research literature. Study of foundations of modern techniques in physiology research, analysis of research design. Letter grading.

270A. Enforced requisite or corequisite: course 111A. Foundation for experimental study of principles of muscular and neural physiology and cellular and systems neuroscience, including factors controlling membrane excitability, neuronal circuits, sensorimotor regulation, special senses, cortical functions, and neural plasticity. **270B.** Enforced requisite or corequisite: course 111B. Foundation for experimental study of principles of systems physiology, including endocrinology, transport physiology, and neural, cardiovascular, and pulmonary physiology.

M272. Neuroimaging and Brain Mapping. (4) (Same as Neuroscience CM272 and Psychology M213.) Lecture, three hours. Requisites: course M202, Neuroscience M201. Theory, methods, applications, assumptions, and limitations of neuroimaging. Techniques, biological questions, and results. Brain structure, brain function, and their relationship discussed with regard to imaging. Letter grading.

289. Introduction to Integrative Biology and Physiology. (2) Seminar, one hour. Limited to departmental graduate students. Introduction to departmental faculty research program. Students have three laboratory rotations at end of which they must select one research mentor. S/U grading.

M290. Seminar: Comparative Physiology. (2) (Same as Ecology and Evolutionary Biology M290.) Seminar, two and one half hours. Discussion of specific topics in comparative physiology of animals. Topics vary from year to year, with emphasis on systems physiology, neuroethology, or behavioral physiology. S/U or letter grading.

291A-291B-291C. Seminars: Cardiovascular Function and Adaptation. (2 to 4 each) Seminar, two to four hours. Selected topics on cardiovascular function and adaptation. Students required to present two-hour seminar. Letter grading.

292. Evolution and Development of Auditory System. (2 or 4) Seminar, two hours. Discussion of specific topics related to evolution, embryology, morphogenesis, cytodifferentiation, and onset of function of auditory system, with special attention to centrifugal pathways. Emphasis on primary literature sources as well as current methodological approaches. Two-hour

seminar presentation required for 2 units; seminar paper and two-hour seminar presentation required for 4 units. S/U or letter grading.

293A-293B-293C. Seminars: Musculoskeletal Function and Adaptation. (2 to 4 each) Seminar, one hour. Requisites: courses 138, 260. Selected topics on muscular determinants of movement, metabolic aspects of exercise, and mechanics of connective tissue. Students required to present two-hour seminar. S/U or letter grading.

294. Recent Advances in Neurophysiology. (1) Seminar, one hour. Requisite: Life Sciences 2 or undergraduate degree in science. Critical examination and discussion of recent data and publications that focus on synaptic function. Student presentations, readings, and participation in discussions required. S/U grading.

295A-295B-295C. Seminars: Cellular Neuroscience. (2 to 4 each) Seminar, two to four hours. Requisite: course M202. Selected topics in sensory transduction, cellular integration, synaptic processing, central nervous system function, and learning. Students required to present two-hour seminar. S/U or letter grading.

296. Research Seminar: Physiological Science. (2) Review of literature, discussion of original research, and analysis of current topics in physiological science. May not be applied toward MS or PhD course requirements. May be repeated for credit. S/U grading.

297. Seminar: Muscle Cell Biology. (2 to 4) Seminar, two hours. Selected topics in muscle cell biology. Students required to present two-hour seminar. May be repeated for credit.

298. Seminar: Nervous System Development. (1 to 2) Seminar, two hours. Selected topics in developmental neurobiology, such as neuronal migration, axonal guidance, gene expression, and synaptogenesis. Weekly primary literature student presentations. One-hour seminar presentation on assigned weekly reading required of all students; students enrolled for 2 units must also complete written analysis of additional primary literature papers. May be repeated for credit. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. In-Service Practicum for Teaching Assistants in Physiological Science. (2) Seminar, to be arranged. Required of all teaching assistants. Supervised practicum in teaching laboratory courses in physiological science; material preparation and use of teaching aids. May not be applied toward degree requirements. S/U grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Individual Studies for Graduate Students. (2 to 8) Tutorial, to be arranged. To enroll for letter grade, petition signed by faculty sponsor, graduate adviser, and graduate affairs committee chair must be submitted prior to end of second week of class. Eight units may be applied toward degree requirements for MS or PhD degree, provided that students enroll in two different 4-unit 596 courses in different laboratories under supervision of different mentors. Term paper required for letter grading. S/U or letter grading.

597. Preparation for MS Comprehensive Examination or PhD Qualifying Examinations. (2 to 16) Tutorial, to be arranged with faculty member serving as student's comprehensive examination chair or PhD committee chair. May not be applied toward MS or PhD course requirements. May be repeated as necessary. S/U grading.

598. Research for and Preparation of MS Thesis. (2 to 16) Tutorial, to be arranged with faculty member serving as student's thesis committee chair. May not be applied toward MS course requirements. May be repeated as necessary. S/U grading.

599. Research for and/or Preparation of PhD Dissertation. (2 to 16) Tutorial, to be arranged. May not be applied toward PhD course requirements. May be repeated as necessary. S/U grading.

INTERNATIONAL AND AREA STUDIES

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Adam D. Moore, PhD (Geography)
Lucia Re, PhD, Dottore in Lettere (Italian)
Helen M. Rees, PhD (Ethnomusicology)
Bonnie Taub, PhD (Community Health Sciences, Health Policy and Management)
Kevin B. Terraciano, PhD (History)
Michael F. Thies, PhD (Political Science)

Scope and Objectives

The International Institute offers a variety of area studies majors and minors through the International and Area Studies Interdepartmental Program (IDP). The overarching goal of each of these programs is to address the need for students to have a broad understanding of the international nature of the world and guide them through a course of study that allows them to apply that knowledge to a particular region of interest. The majors are structured so that area-specific content proceeds in tandem with instruction in the humanities and social sciences disciplines that provide the tools for analyzing the cultures, social structures, polities, and histories of the regional areas.

Emphasizing the contemporary world since 1750, the majors establish a common conceptual and thematic basis for study of regional areas. Students take a common core course that illuminates the international character of the contemporary world and introduces a set of contemporary issues and challenges that cross borders and regions. Thematic and conceptual courses equip students with a variety of disciplinary tools they can use to study a particular area or region. Studies culminate in a capstone seminar.

The IDP also offers a series of area studies minors which allow students to focus their interest in a particular region of the world.

Undergraduate Study

Four majors are offered—African and Middle Eastern Studies BA, Asian Studies BA, European Studies BA, and Latin American Studies BA. Seven minors are also offered—African and Middle Eastern Studies, African Studies, East Asian Studies, European Studies, Latin American Studies, South Asian Studies, and Southeast Asian Studies.

Students considering a major or minor in the interdepartmental program should consult the academic counselor as soon as possible in their University career, but in no case later than the point at which they are about to begin taking upper division courses. Students should select courses to fulfill major or minor requirements in consultation with the academic counselor.

The majors offered in International and Area Studies are designated capstone majors. Students majoring in African and Middle Eastern Studies, Asian Studies, European Studies, and Latin American Studies must complete a capstone seminar or travel abroad program in which they engage in an in-depth analysis of a specific region or a thematic subject that spans regions. Through conceiving and executing a project, students demonstrate their working knowledge of scholarly discourse relative to a specialized topic. Student research, analytic, and writing skills are exhibited through their capstone work, along with their collaborative and oral communication skills.

African and Middle Eastern Studies BA Capstone Major

The African and Middle Eastern Studies major allows students to analyze the area or a subregion (e.g., Middle east, North Africa, Arab states, sub-Saharan Africa) from an interdisciplinary and modern perspective. The major seeks to ground students in broad international issues that they can then use to focus on particular concerns of that part of the world.

Admission

Admission to the African and Middle Eastern Studies major is by application only. To be eligible to apply, students must have completed all nonlanguage preparation for the major courses and the foreign language courses through at least level 3 (elementary level). Any remaining language courses may be completed after students have been accepted to the major. Each preparation for the major course must be taken for a letter grade, and students must have a UC grade-point average of 2.0 or better in those courses.

The application period is once per year, and students must apply no later than the end of fall quarter of their junior year.

Meeting the above minimum requirements does not guarantee admission to the program. Admission is on a competitive basis, using the above qualifications as minimum standards for consideration.

African and Middle Eastern Studies Premajor

Incoming freshman and transfer students may be admitted as African and Middle Eastern Studies premajors on acceptance to UCLA. Premajor students must apply for major standing at the end of fall quarter of their junior year; they are not automatically accepted into the major.

Preparation for the Major

Required: (1) International and Area Studies 1, (2) one area studies course from Afrikaans 40, Art History 28, History 9D, 10B, 97F, 97J, Middle Eastern Studies 50C, Portuguese 40A, or Theater 4, (3) two *international politics and markets* courses from Economics 1, 2, Geography 4, 6, Political Science 50 (or 50R), Sociology 1, (4) two *international societies and cultures* courses from Anthropology 9, Comparative Literature 1D (or 2DW or 4DW), Ethnomusicology 5, 25, Geography 3, History 2B, 22, World Arts and Cultures 20, 33, and (5) one area-related foreign language sequence through the intermediate level (e.g., Arabic 102C, Armenian 102C, 105C, Hebrew 102C, Iranian 102C, Turkic Languages 102C, 112C, 116C). The language requirement can also be fulfilled in part or in total by taking a placement examination given through the appropriate language department. Each course must be taken for a letter grade.

Transfer Students

Transfer applicants to the African and Middle Eastern Studies premajor with 90 or more units must complete the following introductory courses prior to admission to UCLA: two courses from sociocultural anthropology, cultural geography, contemporary world history, and world literature and two courses from comparative politics, economic geography, macroeconomics, microeconomics, and introductory sociology. Transfer students must apply for the major by the end of fall quarter of their junior year.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

The major consists of International and Area Studies 191 (capstone seminar) and 11 upper division courses divided among area studies and international themes courses. To count as one 4-unit course, 2-unit courses must either be taken twice or two courses from the same category (if applicable) may be taken. Each course must be taken for a letter grade, with a minimum overall grade-point average of 2.0.

Area Studies: (1) Three *humanities and arts group 1* courses from Afrikaans 135, Arabic M110, 120, C141, M151, Armenian 150A, C151,

C152, C153, 160A, 160B, Art History C120, C145A, C145B, Comparative Literature M148, M162, 169, Ethnomusicology 136A, C136B, 161E (2 units), 161L (2 units), 161N (2 units), French 121, 142, Hebrew M113, C140, Iranian 141, 142, 150A, 150B, Islamic Studies 151, Jewish Studies M142, M144, 151B, 175, Turkic Languages 160, 165, 180, World Arts and Cultures 134; (2) three *social sciences group 1* courses from Anthropology 133P, 171, M171P, 176, Geography 122, 135, History 105C, 107C, 109B, 111C, 164B through 164E, 166B, 167A, 167B, 167C, 168B, M184D, Honors Collegium M157, Political Science 132A, 151A, 151B, 151C, 157, 165; and (3) one additional elective course selected from either item 1 or 2 above.

International Themes: (1) Two *international politics and markets* courses from Anthropology 153P, Economics 111, 112, 121, 122, Environment M134, Geography M128, 140, 148, International Development Studies 130, Management 109, 127C, Political Science 120B, 122A, M122B, 123A, 124A, 125A, 126, 129, 134, 137A, 138B, 150, 166, M167C, 167D, 168, Sociology 182, 183, Urban Planning M165 and (2) two *international societies and cultures* courses from Anthropology 130, 150, 161, 167, Art History C160, Communication Studies 179, Comparative Literature 100, Environment M133, Film and Television 110C, 112, Geography M109, 110, 133, 138, 142, 147, 151, 159C, History M186B, Honors Collegium M152, International Development Studies 110, Sociology 116, 151, 154, 191D, 191F, World Arts and Cultures M130.

The area studies electives listed above (group 1) focus on contemporary issues of that region after 1750. Students may substitute a maximum of three upper division courses with focus on earlier historical aspects of the region or on diasporas with origins related to the region toward the area studies electives as long the distribution between humanities and arts and social sciences is maintained. They may be selected from either of the following lists: *humanities and arts group 2:* Ancient Near East 124, M130, 150B, C165, Arabic 130, 132, 150, Armenian 130, 131, C155, Art History M110A, M110B, 119A, French 160, Hebrew 130, 135, Iranian M110A, M110B, M110C, 120, 131, 140, Islamic Studies M110, 130, Jewish Studies 140A, 140B, 143, M150A, 150B, M151A, M155, M182A, M182B, M182C, M184B, Turkic Languages 170, World Arts and Cultures C139 or *social sciences group 2:* Geography 114, History M103A, M103B, 105A, 105B, M106, 107A, 107D, 108A, 108B, 111A, 111B, 116A, 116B, 166A, 168A.

Asian Studies BA

Capstone Major

The Asian Studies major allows students to analyze the area or a subregion (e.g., Central Asia, East Asia, South Asia, Southeast Asia) from an interdisciplinary and modern perspective. The major seeks to ground students in broad international issues that they can then

use to focus on particular concerns of that part of the world.

Admission

Admission to the Asian Studies major is by application only. To be eligible to apply, students must have completed all nonlanguage preparation for the major courses and the foreign language courses through at least level 3 (elementary level). Any remaining language courses may be completed after students have been accepted to the major. Each preparation for the major course must be taken for a letter grade, and students must have a UC grade-point average of 2.0 or better in those courses.

The application period is once per year, and students must apply no later than the end of fall quarter of their junior year.

Meeting the above minimum requirements does not guarantee admission to the program. Admission is on a competitive basis, using the above qualifications as minimum standards for consideration.

Asian Studies Premajor

Incoming freshman and transfer students may be admitted as Asian Studies premajors on acceptance to UCLA. Premajor students must apply for major standing at the end of fall quarter of their junior year; they are not automatically accepted into the major.

Preparation for the Major

Required: (1) International and Area Studies 1, (2) one area studies course from Art History 29, 31, Asian 30, 70A, 70B, 70C, Chinese 50 (or 50W), M60 (or M60W), General Education Clusters 25A, History 9A, 9C, 9E, 11B (or 11BH), 97G, 97M, 97N, International and Area Studies 31, 33, Japanese 50, 70, Korean 50, M60, South Asian M60, Southeast Asian M60, or 90, (3) two *international politics and markets* courses from Economics 1, 2, Geography 4, 6, Political Science 50 (or 50R), Sociology 1, (4) two *international societies and cultures* courses from Anthropology 9, Comparative Literature 1D (or 2DW or 4DW), Ethnomusicology 5, 25, Geography 3, History 2B, 22, World Arts and Cultures 20, 33, and (5) one area-related foreign language sequence through the intermediate level (e.g., Chinese 6 or 6A, Filipino 6, Hindi-Urdu 6, Indonesian 6, Japanese 6, Korean 6, Thai 6, Vietnamese 6). The language requirement can also be fulfilled in part or in total by taking a placement examination given through the appropriate language department. Each course must be taken for a letter grade.

Transfer Students

Transfer applicants to the Asian Studies premajor with 90 or more units must complete the following introductory courses prior to admission to UCLA: two courses from sociocultural anthropology, cultural geography, contemporary world history, and world literature and two courses from comparative politics, economic geography, macroeconomics, microeconomics, and introductory sociology. Transfer students must apply for the major by the end of fall quarter of their junior year.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

The major consists of International and Area Studies 191 (capstone seminar) and 11 upper division courses divided among area studies and international themes courses. To count as one 4-unit course, 2-unit courses must either be taken twice or two courses from the same category (if applicable) may be taken. Each course must be taken for a letter grade, with a minimum overall grade-point average of 2.0.

Area Studies: (1) Three *humanities and arts group 1* courses from Art History C148D, C148E, C150B, C154C, 154D, Asian 130, 151, 152, 161, 162, 163, Chinese C120, 130A, 130B, 135, 139, C150A, 150B, 151, 152, 154, 155, C156, 157, CM160, 165, 174, 176, 180, 185, 191B, Comparative Literature M176, C178, Ethnomusicology 146, 147, C150, C156A, 156B, 157, 158A, 158B, 158C, C159, 160, 161B (2 units), 161D (2 units), 161F (2 units), Japanese C112, 130A, 130B, 130C, C131, C150, 151, 154, 155, 157, 158, CM160, 161, 170, 175, C177, C182, C186, 191B, Korean C105A, C105B, C105C, 130A, 130B, C149, C151, 154, 155, CM160, 172, 177, 178, 180C, 181, 182, 183, 187, 191B, South Asian 150, 155, Southeast Asian 130, 135, 140, 157, Theater 102A, 102B, Vietnamese M155, 180B; (2) three *social sciences group 1* courses from Anthropology M155, 175Q, 175R, 175S, Asian American Studies 171A through 171E, M172C, Gender Studies M164A, M170C, M173B, Geography 139, 158, 185, 186, History 170B, 170D, 172C, M173C, 174C, 175A, 175C, 176B, 176C, Political Science 135, 158, 159A, 159B, 160, Sociology 181A, 181B; and (3) one additional elective course selected from either item 1 or 2 above.

International Themes: (1) Two *international politics and markets* courses from Anthropology 153P, Economics 111, 112, 121, 122, Environment M134, Geography M128, 140, 148, International Development Studies 130, Management 109, 127C, Political Science 120B, 122A, M122B, 123A, 124A, 125A, 126, 129, 134, 137A, 138B, 150, 166, M167C, 167D, 168, Sociology 182, 183, Urban Planning M165 and (2) two *international societies and cultures* courses from Anthropology 130, 150, 161, 167, Art History C160, Communication Studies 179, Comparative Literature 100, Environment M133, Film and Television 110C, 112, Geography M109, 110, 133, 138, 142, 147, 151, 159C, History M186B, Honors Collegium M152, International Development Studies 110, Sociology 116, 151, 154, 191D, 191F, World Arts and Cultures M130.

The area studies electives listed above (group 1) focus on contemporary issues of that region after 1750. Students may substitute a maximum of three upper division courses with focus on earlier historical aspects of the region or on diasporas with origins related to the region toward the area studies electives as long as the distribution between humanities and arts

and social sciences is maintained. They may be selected from either of the following lists: *humanities and arts group 2:* Art History C148A, C148B, C148C, 150A, 152A through C152D, 154A, 154B, 156, Asian 164, Chinese C138, 140A through 140D, M153, C175, 182, M183, 184, 186, 191A, Japanese 140A, 140B, 140C, C149, 165, 172, C173, 191A, Korean 150, 175, 176, 180A, 180B, 184A, 191A, South Asian CM160, 185, Vietnamese 180A or *social sciences group 2:* Anthropology 116, 116N, 116P, Asian American Studies 111, 113, 121, 122B, 130A, M130C, 131A, 131B, 131C, 132A, 133, 134, History 152, 169A, 170A, 172A, 172B, 174A, M174D, M174G, 176A, 176D.

European Studies BA

Capstone Major

The European Studies major allows students to analyze the area or a subregion (e.g., Central and Eastern Europe, Mediterranean Europe, Scandinavia, Western Europe/European Union) from an interdisciplinary and modern perspective. The major seeks to ground students in broad international issues that they can then use to focus on particular concerns of that part of the world.

Admission

Admission to the European Studies major is by application only. To be eligible to apply, students must have completed all nonlanguage preparation for the major courses and the foreign language courses through at least level 3 (elementary level). Any remaining language courses may be completed after students have been accepted to the major. Each preparation for the major course must be taken for a letter grade, and students must have a UC grade-point average of 2.0 or better in those courses.

The application period is once per year, and students must apply no later than the end of fall quarter of their junior year.

Meeting the above minimum requirements does not guarantee admission to the program. Admission is on a competitive basis, using the above qualifications as minimum standards for consideration.

European Studies Premajor

Incoming freshman and transfer students may be admitted as European Studies premajors on acceptance to UCLA. Premajor students must apply for major standing at the end of fall quarter of their junior year; they are not automatically accepted into the major.

Preparation for the Major

Required: (1) International and Area Studies 1, (2) one *area studies* course from Central and East European Studies 91, Comparative Literature 1C, 2CW, 4CW, Dutch 10, English 88G, French 12, 14 (or 14W), 41, 60, German 50B, 57, 59, 61A through 61D, History 1C (or 1CH), 97C, International and Area Studies 40, Italian 42B, 46, 50B, Portuguese 40A, Romanian 90, Russian 25 (or 25W), 30, 31, 32, 90B (or 90BW), Scandinavian 50 (or 50W), Slavic 90, Spanish 42, (3) two *international politics and markets* courses from Economics 181, Geography 152, 183, History 120A, 120B, 120C, 121D, 121E, 121F, 122F, 123B, 123C, 124B, 124C, 125B, 125C, 125D, 127B, 127C, 127D, 129B, 131A, 131B, 134B, 134C, 135C, 136B, 136C, 183A, 183B, Honors Collegium 173A, Political Science 127A, 128A, 128B, 153A, 156A; and (3)

markets courses from Economics 1, 2, Geography 4, 6, Political Science 50 (or 50R), Sociology 1, (4) two *international societies and cultures* courses from Anthropology 9, Comparative Literature 1D (or 2DW or 4DW), Ethnomusicology 5, 25, Geography 3, History 2B, 22, World Arts and Cultures 20, 33, and (5) one area-related foreign language sequence through the intermediate level (e.g., Czech 102C, Dutch 103C, French 6, German 6, Hungarian 102C, Italian 6, Polish 102C, Portuguese 3, Romanian 102C, Russian 6, Scandinavian 29, 105B, 106B, 107B, Serbian/Croatian 102C, Spanish 5, Ukrainian 102C, Yiddish 102C). The language requirement can also be fulfilled in part or in total by taking a placement examination given through the appropriate language department. Each course must be taken for a letter grade.

Transfer Students

Transfer applicants to the European Studies premajor with 90 or more units must complete the following introductory courses prior to admission to UCLA: two courses from sociocultural anthropology, cultural geography, contemporary world history, and world literature and two courses from comparative politics, economic geography, macroeconomics, microeconomics, and introductory sociology. Transfer students must apply for the major by the end of fall quarter of their junior year.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

The major consists of International and Area Studies 191 (capstone seminar) and 11 upper division courses divided among area studies and international themes courses. To count as one 4-unit course, 2-unit courses must either be taken twice or two courses from the same category (if applicable) may be taken. Each course must be taken for a letter grade, with a minimum overall grade-point average of 2.0.

Area Studies: (1) Three *humanities and arts group 1* courses from Art History 127B, M127C, Central and East European Studies 125, 126, Comparative Literature C163, C164, Dutch 113, 131, English 115B, 164A, 164B, 164C, Ethnomusicology 133, 161C (2 units), Film and Television 106B, French 114C, 119, 120, 131, 132, 138, 139, M140, 141, German 102, 103, 104, 110, 112, 160, 161, 162, 164, 165, 166, 173, 174, Italian 102C, 120, 121, 150, M158, Polish 152B, 152C, Russian 107B, 120, 121, 122, 125, 126, M127, 128, 130A, 130B, 130C, 131, M132, 140A through 140D, 150, Scandinavian C141A, 141C, CM144A, 155, 156, 157, 161, C163A, C163B, C163C, 173A, C174A, 174B, C180, Yiddish 131A, 131B; (2) three *social sciences group 1* courses from Economics 181, Geography 152, 183, History 120A, 120B, 120C, 121D, 121E, 121F, 122F, 123B, 123C, 124B, 124C, 125B, 125C, 125D, 127B, 127C, 127D, 129B, 131A, 131B, 134B, 134C, 135C, 136B, 136C, 183A, 183B, Honors Collegium 173A, Political Science 127A, 128A, 128B, 153A, 156A; and (3)

one additional elective course selected from either item 1 or 2 above.

International Themes: (1) Two *international politics and markets* courses from Anthropology 153P, Economics 111, 112, 121, 122, Environment M134, Geography M128, 140, 148, International Development Studies 130, Management 109, 127C, Political Science 120B, 122A, M122B, 123A, 124A, 125A, 126, 129, 134, 137A, 138B, 150, 166, M167C, 167D, 168, Sociology 182, 183, Urban Planning M165 and (2) two *international societies and cultures* courses from Anthropology 130, 150, 161, 167, Art History C160, Communication Studies 179, Comparative Literature 100, Environment M133, Film and Television 110C, 112, Geography M109, 110, 133, 138, 142, 147, 151, 159C, History M186B, Honors Collegium M152, International Development Studies 110, Sociology 116, 151, 154, 191D, 191F, World Arts and Cultures M130.

The area studies electives listed above (group 1) focus on contemporary issues of that region after 1750. Students may substitute a maximum of three upper division courses with focus on earlier historical aspects of the region or on diasporas with origins related to the region toward the area studies electives as long the distribution between humanities and arts and social sciences is maintained. They may be selected from either of the following lists: *humanities and arts group 2*: French 114A, 114B, 115, 116, 117, 118, 169, German 169, 170, 171, 172, Italian 102A, 102B, 103A, 103B, 110, 113, 114A, 114B, 116A, 116B, 118, 119, 140, Russian C124C, C124D, C124G, C124N, C124P, C124T, Scandinavian 142A, 143C, 152, 154 or *social sciences group 2*: History 121A, 121B, 121C, 122A, 122B, 122C, 125A, 126, Political Science 111C.

Latin American Studies BA

Capstone Major

The Latin American Studies major allows students to analyze the area or a subregion (e.g., Amazonia, Caribbean, Central America, South America, Southern Cone) from an interdisciplinary and modern perspective. The major seeks to ground students in broad international issues that they can then use to focus on particular concerns of that part of the world.

Admission

Admission to the Latin American Studies major is by application only. To be eligible to apply, students must have completed all nonlanguage preparation for the major courses and the foreign language courses through at least level 3 (elementary level). Any remaining language courses may be completed after students have been accepted to the major. Each preparation for the major course must be taken for a letter grade, and students must have a UC grade-point average of 2.0 or better in those courses.

The application period is once per year, and students must apply no later than the end of fall quarter of their junior year.

Meeting the above minimum requirements does not guarantee admission to the program. Admission is on a competitive basis, using the above qualifications as minimum standards for consideration.

Latin American Studies Premajor

Incoming freshman and transfer students may be admitted as Latin American Studies premajors on acceptance to UCLA. Premajor students must apply for major standing at the end of fall quarter of their junior year; they are not automatically accepted into the major.

Preparation for the Major

Required: (1) International and Area Studies 1, (2) one *area studies* course from History 8A (or 8AH), 8B, 8C, 97E, International and Area Studies 50, Portuguese 40B, 46, Spanish 44, (3) two *international politics and markets* courses from Economics 1, 2, Geography 4, 6, Political Science 50 (or 50R), Sociology 1, (4) two *international societies and cultures* courses from Anthropology 9, Comparative Literature 1D (or 2DW or 4DW), Ethnomusicology 5, 25, Geography 3, History 2B, 22, World Arts and Cultures 20, 33, and (5) two area-related foreign language sequences through the intermediate level (e.g., Portuguese 3 or 11B, Spanish 5 or 7A, an indigenous language of Latin America such as Nahuatl, Quechua, or Zapotec, through that level). The language requirement can also be fulfilled in part or in total by taking a placement examination given through the appropriate language department. Each course must be taken for a letter grade.

Transfer Students

Transfer applicants to the Latin American Studies premajor with 90 or more units must complete the following introductory courses prior to admission to UCLA: two courses from sociocultural anthropology, cultural geography, contemporary world history, and world literature and two courses from comparative politics, economic geography, macroeconomics, microeconomics, and introductory sociology. Transfer students must apply for the major by the end of fall quarter of their junior year.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

The major consists of International and Area Studies 191 (capstone seminar) and 11 upper division courses divided among area studies and international themes courses. To count as one 4-unit course, 2-unit courses must either be taken twice or two courses from the same category (if applicable) may be taken. Each course must be taken for a letter grade, with a minimum overall grade-point average of 2.0.

Area Studies: (1) Three *humanities and arts group 1* courses from Art History C142A, C142B, 144, Comparative Literature 177, Ethnomusicology 107, M108A, 108B, 113, 161K (2 units), Film and Television 106C, Music M131, Portuguese 130A, 130B, 141B, 142A,

142B, Spanish 120, World Arts and Cultures C139; (2) three *social sciences group 1* courses from African American Studies M154C, M178, Anthropology 173Q, 174P, Chicana and Chicano Studies 111, 117, 132, C141, 143, 151, 169, Community Health Sciences 132, Gender Studies M147C, Geography 114, 181, 182A, 182B, History 159, 160A, 160B, 162A, Labor and Workplace Studies M125, M144, Political Science 124C, 154A, 154B, Public Health M106, Sociology 186, 191J; and (3) one additional elective course selected from either item 1 or 2 above.

International Themes: (1) Two *international politics and markets* courses from Anthropology 153P, Economics 111, 112, 121, 122, Environment M134, Geography M128, 140, 148, International Development Studies 130, Management 109, 127C, Political Science 120B, 122A, M122B, 123A, 124A, 125A, 126, 129, 134, 137A, 138B, 150, 166, M167C, 167D, 168, Sociology 182, 183, Urban Planning M165 and (2) two *international societies and cultures* courses from Anthropology 130, 150, 161, 167, Art History C160, Communication Studies 179, Comparative Literature 100, Environment M133, Film and Television 110C, 112, Geography M109, 110, 133, 138, 142, 147, 151, 159C, History M186B, Honors Collegium M152, International Development Studies 110, Sociology 116, 151, 154, 191D, 191F, World Arts and Cultures M130.

The area studies electives listed above (group 1) focus on contemporary issues of that region after 1750. Students may substitute a maximum of three upper division courses with focus on earlier historical aspects of the region or on diasporas with origins related to the region toward the area studies electives as long the distribution between humanities and arts and social sciences is maintained. They may be selected from either of the following lists: *humanities and arts group 2*: Art History C139A, C139B, C141, Chicana and Chicano Studies M105D, M105E, 109, 142, Ethnomusicology M116, Portuguese 143A or *social sciences group 2*: Anthropology 114P, 114R, Chicana and Chicano Studies M119, M159B, 184, M187, History 157B.

Honors Program

The honors program is designed to offer highly motivated students pursuing one of the International and Area Studies majors (African and Middle Eastern Studies, Asian Studies, European Studies, Latin American Studies) the opportunity to design and conduct their own independent research under the guidance of a faculty adviser and consists of a three-term directed-study series of courses—International and Area Studies 198A, 198B, 198C—culminating in an honors thesis.

Admission

To enter the honors program, students must (1) have completed all preparation for the major requirements with a minimum 3.5 grade-point average in those courses, (2) have a 3.5 grade-point average in all upper division coursework

for the major, (3) obtain agreement from a faculty member to supervise their honors thesis, and (4) formally submit an application to the honors program. Application should normally be made during the junior year so as to best plan for completion of the honors thesis during the senior year. Consult the academic counselor for further details about the application, thesis requirements, and guidelines regarding the selection of a faculty thesis adviser.

Requirements

Honors are awarded to students who (1) complete all requirements for the major with a cumulative grade-point average of 3.5 or better in upper division courses required for the major, (2) successfully complete courses 198A, 198B, and 198C, and (3) produce an honors thesis (approximately 35 to 50 pages) determined to be of honors quality by a committee of two faculty members—the chair of International and Area Studies and the faculty adviser of the student.

Highest honors are awarded to students who (1) complete all requirements for the major with a cumulative grade-point average of 3.75 or better in upper division courses required for the major, (2) successfully complete courses 198A, 198B, and 198C, and (3) produce an exceptional honors thesis (approximately 35 to 50 pages) determined to be of highest honors quality by a committee of two faculty members—the chair of International and Area Studies and the faculty adviser of the student.

Honors and highest honors are recorded on the final transcript and diploma after students successfully complete the program.

African and Middle Eastern Studies Minor

The African and Middle Eastern Studies minor is designed for students who wish to augment their major with concerted study of the history, culture, and society of the Africa and the Middle East from an interdisciplinary and modern perspective.

To enter the minor, students must be in good academic standing (overall grade-point average of 2.0 or better) and have completed all lower division minor courses with a GPA of 2.0 or better in those courses.

Required Lower Division Courses (13 to 15 units): International and Area Studies 1 and two *international societies and cultures* courses from Anthropology 9, Comparative Literature 1D (or 2DW or 4DW), Economics 1, 2, Ethnomusicology 5, 25, Geography 3, 4, 6, History 2B, 22, Political Science 50 (or 50R), Sociology 1, World Arts and Cultures 20, 33. Students may substitute one *area studies* preparation course (from History 9D, 97F, Middle Eastern Studies 50C, or Theater 4) toward the *international societies and cultures* preparation requirement.

Required Upper Division Courses (20 to 21 units): Five *area studies group 1* courses as follows: (1) two *humanities and arts group 1* courses from Arabic M110, 120, C141, M151,

Armenian C151, C152, C153, Art History C120, Comparative Literature M148, M162, Ethnomusicology 161N (must be taken twice to equal one 4-unit course), Hebrew M113, C140, Iranian 141, 142, Islamic Studies 151, Jewish Studies M142, M144, 175, (2) two *social sciences group 1* courses from Anthropology 133P, M171P, 176, History 105C, 107C, 109B, 111C, 167A, M184D, Honors Collegium M157, Political Science 132A, 157, 165, and (3) one additional elective course selected from the group 1 lists above or from the group 2 list below.

The area studies electives listed above (group 1) focus on contemporary issues of that region after 1750. Students may substitute a maximum of one upper division course with focus on earlier historical aspects of the region or on diasporas with origins related to the region toward the area studies additional elective category (item 3 above). The course may be selected from the following *group 2* list: Ancient Near East M130, 150B, C165, Arabic 130, 132, 150, Armenian C155, Art History M110A, M110B, 119A, Hebrew 130, 135, History M103A, M103B, 105A, 105B, M106, 107A, 107D, 111A, 111B, 116A, 116B, Iranian M110A, M110B, M110C, 120, 131, 140, Islamic Studies M110, 130, Jewish Studies M150A, 150B, M151A, M155, M182A, M182B, or M182C.

One upper division language course (advanced level) may be applied to item 3 above by petition to the chair of the program.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

African Studies Minor

The African Studies minor is designed for students who wish to augment their major with concerted study of the history, culture, and society of Africa from an interdisciplinary and modern perspective.

To enter the minor, students must be in good academic standing (overall grade-point average of 2.0 or better) and have completed all lower division minor courses with a GPA of 2.0 or better in those courses.

Required Lower Division Courses (13 to 15 units): International and Area Studies 1 and two *international societies and cultures* courses from Anthropology 9, Comparative Literature 1D (or 2DW or 4DW), Economics 1, 2, Ethnomusicology 5, 25, Geography 3, 4, 6, History 2B, 22, Political Science 50 (or 50R), Sociology 1, World Arts and Cultures 20, 33. Students may substitute one *area studies* preparation course (from Art History 29, Asian 30, 70A, 70B, 70C, Chinese 50, 50W, M60, M60W, General Education Clusters 25A, History 9C, 11B, 97G, International and Area Studies 33, Japanese 50, 70, Korean 50, or

Required Upper Division Courses (20 to 21 units): Five *area studies group 1* courses as follows: (1) two *humanities and arts group 1* courses from Afrikaans 135, Art History C145A, C145B, Ethnomusicology 136A, C136B, 161E (must be taken twice to equal one 4-unit course), French 121, 142, World Arts and Cultures 134, (2) two *social sciences group 1* courses from Anthropology 133P, 171, M171P, Geography 122, 135, History 164B through 164E, 166B, 167A, 167B, 167C, 168B, Political Science 151A, 151B, 151C, and (3) one additional elective course selected from the group 1 lists above or from the group 2 list below.

The area studies electives listed above (group 1) focus on contemporary issues of that region after 1750. Students may substitute a maximum of one upper division course with focus on earlier historical aspects of the region or on diasporas with origins related to the region toward the area studies additional elective category (item 3 above). The course may be selected from the following *group 2* list: Ancient Near East M130, 150B, C165, Art History M110A, M110B, French 160, Geography 114, History M103A, M103B, 166A, 168A, or World Arts and Cultures C139.

One upper division language course (advanced level) may be applied to item 3 above by petition to the chair of the program.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

East Asian Studies Minor

The East Asian Studies minor is designed for students who wish to augment their major with concerted study of the history, culture, and society of East Asia—China, Korea, and Japan—from an interdisciplinary and modern perspective.

To be admitted to the minor, students must be in good academic standing (overall grade-point average of 2.0 or better) and have completed all lower division minor courses with a GPA of 2.0 or better in those courses.

Required Lower Division Courses (13 to 15 units): International and Area Studies 1 and two *international societies and cultures* courses from Anthropology 9, Comparative Literature 1D (or 2DW or 4DW), Economics 1, 2, Ethnomusicology 5, 25, Geography 3, 4, 6, History 2B, 22, Political Science 50 (or 50R), Sociology 1, World Arts and Cultures 20, 33. Students may substitute one *area studies* preparation course (from Art History 29, Asian 30, 70A, 70B, 70C, Chinese 50, 50W, M60, M60W, General Education Clusters 25A, History 9C, 11B, 97G, International and Area Studies 33, Japanese 50, 70, Korean 50, or

M60) toward the *international societies and cultures* preparation requirement.

Required Upper Division Courses (20 to 21 units): Five *area studies group 1* courses as follows: (1) two *humanities and arts group 1* courses from Art History C148D, C148E, C150B, Asian 130, 151, 152, 161, 162, 163, Chinese C120, 130A, 130B, 135, 139, C150A, 150B, 151, 152, 154, 155, C156, 157, CM160, 165, 174, 176, 180, 185, 191B, Comparative Literature M176, Ethnomusicology C156A, 158C, C159, 160, 161D, 161J (both must be taken twice to equal one 4-unit course), Japanese C112, 130A, 130B, 130C, C131, C150, 151, 154, 155, 157, 158, CM160, 161, 170, 175, C177, C182, C186, 191B, Korean C105A, C105B, C105C, 130A, 130B, C149, C151, 154, 155, CM160, 172, 177, 178, 180C, 181, 182, 183, 187, 191B, Theater 102A, (2) two *social sciences group 1* courses from Anthropology M155, 175Q, 175R, 175S, Asian American Studies 171A, 171B, 171C, Gender Studies M170C, M173B, Geography 139, 158, 186, History 169B, 170B, 170D, 172C, 173A, M173C, Political Science 135, 159A, 159B, 160, Sociology 181A, 181B, and (3) one additional elective course selected from the group 1 lists above or from the group 2 list below.

The area studies electives listed above (group 1) focus on contemporary issues of that region after 1750. Students may substitute a maximum of one upper division course with focus on earlier historical aspects of the region or on diasporas with origins related to the region toward the area studies additional elective category (item 3 above). The course may be selected from the following *group 2* list: Anthropology 116N, 116P, Art History C148A, C148B, C148C, 152A, C152B, C152D, 154B, Asian American Studies 111, 113, 121, 122B, 130A, M130C, 131A, 131B, 131C, 132A, Chinese C138, 140A through 140D, M153, C175, 182, M183, 184, 186, 191A, History 152, 170A, 172B, Japanese 140A, 140B, 140C, C149, 165, 172, C173, 191A, Korean 150, 175, 176, 180A, 180B, 184A, or 191A.

One upper division language course (advanced level) may be applied to item 3 above by petition to the chair of the program.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

European Studies Minor

The European Studies minor is designed for students who wish to augment their major with concerted study of the history, culture, and society of Europe from an interdisciplinary and modern perspective.

To enter the minor, students must be in good academic standing (overall grade-point aver-

age of 2.0 or better) and have completed all lower division minor courses with a GPA of 2.0 or better in those courses.

Required Lower Division Courses (13 to 15 units): International and Area Studies 1 and two *international societies and cultures* courses from Anthropology 9, Comparative Literature 1D (or 2DW or 4DW), Economics 1, 2, Ethnomusicology 5, 25, Geography 3, 4, 6, History 2B, 22, Political Science 50 (or 50R), Sociology 1, World Arts and Cultures 20, 33. Students may substitute one *area studies* preparation course (from Comparative Literature 1C, 2CW, 4CW, Dutch 10, English 88G, French 12, 14, 14W, 41, 60, German 50B, 57, 59, 61A through 61D, History 1C, 1CH, 97C, International and Area Studies 40, Italian 42B, 46, 50B, Portuguese 40A, Romanian 90, Russian 25, 25W, 30, 31, 32, 90B, 90BW, Scandinavian 50, 50W, Slavic 90, or Spanish 42) toward the *international societies and cultures* preparation requirement.

Required Upper Division Courses (20 to 25 units): Five *area studies group 1* courses as follows: (1) two *humanities and arts group 1* courses from Art History 127B, M127C, Central and East European Studies 125, Comparative Literature C163, C164, Dutch 113, 131, English 115B, 164A, 164B, 164C, 171B, 171C, Ethnomusicology 133, 161C (must be taken twice to equal one 4-unit course), Film and Television 106B, French 114C, 119, 120, 131, 132, 138, 139, M140, 141, German 102, 103, 104, 110, 112, 160, 161, 162, 164, 165, 166, 173, 174, Italian 102C, 120, 121, 150, M158, Russian 107B, 120, 121, 122, M127, 128, 130A, 130B, 130C, 131, M132, 140A, 140B, 140C, Scandinavian C141A, 141C, CM144A, 155, 156, 157, 161, C163A, C163B, C163C, 173A, C174A, 174B, C180, Yiddish 131A, 131B, (2) two *social sciences group 1* courses from Economics 181, Geography 152, 183, History 120A through 120D, 121D, 121E, 121F, 122F, 123B, 123C, 124B, 124C, 125B, 125C, 125D, 127B, 127C, 127D, 128C, 129B, 131A, 131B, 134B, 134C, 135C, 136B, 136C, 137A, 137B, 183A, 183B, Honors Collegium 173A, Political Science 127A, 128A, 128B, 153A, 156A, and (3) one additional elective course selected from the group 1 lists above or from the group 2 list below.

The area studies electives listed above (group 1) focus on contemporary issues of that region after 1750. Students may substitute a maximum of one upper division course with focus on earlier historical aspects of the region or on diasporas with origins related to the region toward the area studies additional elective category (item 3 above). The course may be selected from the following *group 2* list: French 114A, 114B, 115, 116, 117, 118, 169, German 169, 170, 171, 172, History 121A, 121B, 121C, 122A, 122B, 122C, 125A, 126, Italian 102A, 102B, 103A, 103B, 110, 113, 114A, 114B, 116A, 116B, 118, 119, 140, Political Science 111C, Russian C124C, C124D, C124G, C124N, C124P, C124T, Scandinavian 142A, 143C, 152, or 154.

One upper division language course (advanced level) may be applied to item 3 above by petition to the chair of the program.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Latin American Studies Minor

The Latin American Studies minor is designed for students who wish to augment their major with concerted study of the history, culture, and society of Latin America from an interdisciplinary and modern perspective.

To enter the minor, students must be in good academic standing (overall grade-point average of 2.0 or better) and have completed all lower division minor courses with a GPA of 2.0 or better in those courses.

Required Lower Division Courses (13 to 15 units): International and Area Studies 1 and two *international societies and cultures* courses from Anthropology 9, Comparative Literature 1D (or 2DW or 4DW), Economics 1, 2, Ethnomusicology 5, 25, Geography 3, 4, 6, History 2B, 22, Political Science 50 (or 50R), Sociology 1, World Arts and Cultures 20, 33. Students may substitute one *area studies* preparation course (from General Education Cluster 26A, History 8A, 8AH, 8B, 8C, 97E, International and Area Studies 50, Portuguese 40B, 46, or Spanish 44) toward the *international societies and cultures* preparation requirement.

Required Upper Division Courses (20 to 25 units): Five *area studies group 1* courses as follows: (1) two *humanities and arts group 1* courses from Art History C142A, C142B, 144, Comparative Literature 177, English 135, Ethnomusicology 107, M108A, 108B, 161K (must be taken twice to equal one 4-unit course), Film and Television 106C, Portuguese 130A, 130B, 141B, 142A, 142B, Spanish 120, World Arts and Cultures C139, (2) two *social sciences group 1* courses from African American Studies M154C, M154D, M178, Anthropology 173Q, 174P, Chicana and Chicano Studies 111, 117, M125, 132, C141, 143, 151, 169, Community Health Sciences 132, Gender Studies 129, M144, M147C, Geography 114, 182A, 182B, History 159, 160A, 160B, 162A, 162B, 162C, Political Science 124C, 154A, 154B, Public Health M106, Sociology 186, 191J, and (3) one additional elective course selected from the group 1 lists above or from the group 2 list below.

The area studies electives listed above (group 1) focus on contemporary issues of that region after 1750. Students may substitute a maximum of one upper division course with focus on earlier historical aspects of the region or on diasporas with origins related to the region to-

ward the area studies additional elective category (item 3 above). The course may be selected from the following *group 2* list: Anthropology 114P, 114R, Art History C139A, C139B, C141, Chicana and Chicano Studies M105D, M105E, 109, M119, 142, M159B, 184, M187, Ethnomusicology M116, History 157A, 157B, or Portuguese 143A.

One upper division language course (advanced level) may be applied to item 3 above by petition to the chair of the program.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

South Asian Studies Minor

The South Asian Studies minor is designed for students who wish to augment their major with concerted study of the history, culture, and society of South Asia from an interdisciplinary and modern perspective.

To enter the minor, students must be in good academic standing (overall grade-point average of 2.0 or better) and have completed all lower division minor courses with a GPA of 2.0 or better in those courses.

Required Lower Division Courses (13 to 15 units): International and Area Studies 1 and two *international societies and cultures* courses from Anthropology 9, Comparative Literature 1D (or 2DW or 4DW), Economics 1, 2, Ethnomusicology 5, 25, Geography 3, 4, 6, History 2B, 22, Political Science 50 (or 50R), Sociology 1, World Arts and Cultures 20, 33. Students may substitute one *area studies* preparation course (from Art History 31, History 9A, 97N, or South Asian M60) toward the *international societies and cultures* preparation requirement.

Required Upper Division Courses (20 to 21 units): Five *area studies group 1* courses as follows: (1) two *humanities and arts group 1* courses from Art History C154C, 154D, Asian 151, 162, 163, Comparative Literature C178, Ethnomusicology 146, 147, 161F (must be taken twice to equal one 4-unit course), South Asian 150, 155, (2) two *social sciences group 1* courses from Asian American Studies M172C, Gender Studies M164A, History 174B, 174C, 175A, 175C, and (3) one additional elective course selected from the group 1 list above or from the group 2 list below.

The area studies electives listed above (group 1) focus on contemporary issues of that region after 1750. Students may substitute a maximum of one upper division course with focus on earlier historical aspects of the region or on diasporas with origins related to the region toward the area studies additional elective category (item 3 above). The course may be selected from the following *group 2* list: Anthropology 116, Art History 154A, 154B, Asian 164,

Asian American Studies M172A, 172B, History 174A, South Asian CM160, or 185.

One upper division language course (advanced level) may be applied to item 3 above by petition to the chair of the program.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Southeast Asian Studies Minor

The Southeast Asian Studies minor is designed for students who wish to augment their major with concerted study of the history, culture, and society of Southeast Asia—Brunei, Cambodia, East Timor, Indonesia, Laos, Malaysia, Myanmar (Burma), Philippines, Singapore, Thailand, and Vietnam—from an interdisciplinary and modern perspective.

To enter the minor, students must be in good academic standing (overall grade-point average of 2.0 or better) and have completed all lower division minor courses with a GPA of 2.0 or better in those courses.

Required Lower Division Courses (13 to 15 units): International and Area Studies 1 and two *international societies and cultures* courses from Anthropology 9, Comparative Literature 1D (or 2DW or 4DW), Economics 1, 2, Ethnomusicology 5, 25, Geography 3, 4, 6, History 2B, 22, Political Science 50 (or 50R), Sociology 1, World Arts and Cultures 20, 33. Students may substitute one *area studies* preparation course (from Art History 31, History 9E, 97M, International and Area Studies 31, Southeast Asian M60, or 90) toward the *international societies and cultures* preparation requirement.

Required Upper Division Courses (20 to 21 units): Five *area studies group 1* courses as follows: (1) two *humanities and arts group 1* courses from Ethnomusicology 161B (must be taken twice to equal one 4-unit course), Southeast Asian 130, 135, 140, 157, Theater 102B, Vietnamese M155, 180B, (2) two *social sciences group 1* courses from Asian American Studies M171D, 171E, Gender Studies M164A, History 176B, 176C, 176E, 177A, 177B, 185B, 185C, Political Science 158, and (3) one additional elective course selected from the group 1 list above or from the group 2 list below.

The area studies electives listed above (group 1) focus on contemporary issues of that region after 1750. Students may substitute a maximum of one upper division course with focus on earlier historical aspects of the region or on diasporas with origins related to the region toward the area studies additional elective category (item 3 above). The course may be selected from the following *group 2* list: Art History 156, Asian American Studies 111, 113,

121, 122B, 133, 134, History 152, 176A, 176D, or Vietnamese 180A.

One upper division language course (advanced level) may be applied to item 3 above by petition to the chair of the program.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Study Abroad

All majors and minors are highly encouraged to study abroad. Students can travel to all areas through a variety of programs with various lengths (summer or during the academic year).

Students may partially fulfill the area studies elective requirement by participating in an International Institute Summer Travel Study program consisting of two courses in and on a particular region of the world. Consult the academic counselor for more information on available programs.

More information about travel abroad programs is available through the UCLA International Education Office, 1332 Murphy Hall, 310-825-4995, info@ieo.ucla.edu. See <http://www.ieo.ucla.edu>.

International and Area Studies

Lower Division Courses

1. Introduction to International and Area Studies. (5) Lecture, three hours; discussion, one hour. Introduction to international and area studies from interdisciplinary framework, covering themes related to international politics and markets, as well as international societies and cultures, to illuminate and clarify profoundly international character of world we live in and to introduce set of contemporary issues and challenges that cross borders and affect every region of world. P/NP or letter grading.

M5A-M5B-M5C. Elementary Nahuatl. (4-4-4) (Same as Chicana and Chicano Studies M5A-M5B-M5C and Indigenous Languages of the Americas M5A-M5B-M5C.) Lecture, five hours. Course M5A is enforced requisite to M5B, which is enforced requisite to M5C. Introduction to Aztec language of central Mexico. Coverage of basic Nahuatl grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

31. Introduction to Southeast Asia. (5) Lecture, three hours; discussion, one hour (when scheduled). Interdisciplinary survey designed as introduction to modern Southeast Asia. P/NP or letter grading.

33. Introduction to East Asia. (5) Lecture, three hours; discussion, one hour (when scheduled). Interdisciplinary survey designed as introduction to modern East Asia. P/NP or letter grading.

40. Introduction to Europe. (5) Lecture, three hours; discussion, one hour (when scheduled). Interdisciplinary survey designed as introduction to modern Europe. P/NP or letter grading.

50. Introduction to Latin America. (5) Lecture, three hours; discussion, one hour (when scheduled). Interdisciplinary survey designed as introduction to modern Latin America. P/NP or letter grading.

Upper Division Courses

110A-110B. Field Studies in International and Area Studies. (4-4) Seminar, three hours. Exploration of culture, economy, history, and politics of important locations around world. Hands-on experiential programs offered for students participating in UCLA Travel Study Program. Field trips included to gain first-hand experience. May be repeated with topic and/or location change. Offered in summer only. P/NP or letter grading.

160. Selected Topics in International and Area Studies. (4) Lecture, three hours; discussion, one hour (when scheduled). Examination of one or more topics related to international and area studies. May be repeated for credit with topic change. P/NP or letter grading.

188. Special Courses in International and Area Studies. (4) Seminar, three hours. Program-sponsored experimental or temporary courses, such as those taught by resident or visiting faculty members. May be repeated for credit with topic change. Letter grading.

191. Variable Topics Senior Research Seminars: International and Area Studies. (4) Seminar, three hours. Enforced requisite: course 1. Limited to senior international and area studies majors. Organized on topics basis with readings, discussions, papers, and development of culminating project. May not be repeated for credit. Letter grading.

193. Colloquia and Speaker Series. (1) Seminar, two hours. Introduction to current scholarship in field of international and area studies. Attendance at selected presentations with required response papers. May be repeated for credit. P/NP grading.

195CE. Community or Corporate Internships in International and Area Studies. (4) Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. May be applied toward major requirements. May be repeated for credit with consent of Center for Community Learning. Individual contract with supervising faculty member required. P/NP or letter grading.

198A-198B-198C. Honors Research in International and Area Studies. (4-4-4) Tutorial, to be arranged. Limited to international and area studies honors program students. May be repeated for credit. Individual contract required. Letter grading. **198A.** Supervised individual research or investigation under guidance of faculty mentor. Development and planning of honors thesis. **198B.** Enforced requisite: course 198A. Supervised individual research or investigation under guidance of faculty mentor. Continued development and refinement of honors thesis. **198C.** Enforced requisite: course 198B. Final drafting and submission of completed honors thesis. Culminating paper of 35 to 50 pages required.

199. Directed Research in International and Area Studies. (4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be applied toward requirements via petition. May be repeated for credit. Individual contract required. Letter grading.

Graduate Course

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guid-

ance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

their work to peers as well as providing feedback on peers' work. The seminar culminates in a written paper or project and a formal class report.

INTERNATIONAL DEVELOPMENT STUDIES

*Interdepartmental Program
College of Letters and Science*

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Michael F. Lofchie, PhD, Chair

Faculty Committee

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Michael F. Lofchie, PhD (*Political Science*)
David L. Rigby, PhD (*Geography, Statistics*)
Ananya Roy, PhD (*Social Welfare, Urban Planning*)
Eric S. Sheppard, PhD (*Geography*)
Mary A. Yeager, PhD (*History*)

Scope and Objectives

The International Development Studies major familiarizes students with urgent global issues from a variety of disciplinary perspectives, including anthropology, economics, geography, history, political science, public health, and sociology. The purpose of the curriculum is to enable students to deepen their understanding of some of the most vital questions of our era: Why are the poor countries poor? Why are the rich countries rich? What can be done to enable poorer countries to become better off? To address these questions, students focus their studies on the challenges, opportunities, and concerns of the developing world, which includes the countries of Africa, Asia, Eastern Europe, Latin America, and the Middle East.

Undergraduate Study

The International Development Studies major is a designated capstone major. Seniors must complete an advanced seminar that provides unique opportunity to work closely with a faculty member on a focused topic of research. Students completing the capstone should be able to demonstrate skills and expertise acquired in earlier coursework; identify, analyze, and select relevant data from primary and secondary sources; acquire a working knowledge of broader scholarly discourse; conceive and execute an original research paper; and engage with a community of scholars, presenting

International Development Studies BA

Capstone Major

Admission

Admission to the International Development Studies major is by application only. To be eligible to apply, students must have first completed all nonlanguage preparation courses and the foreign language courses through at least level 3 (elementary level). Any remaining language courses may be completed after students have been accepted to the major. Each preparation for the major course must be taken for a letter grade, and students must have a UC grade-point average of 2.0 or better in those courses.

The application period is once per year, and students must apply no later than the end of fall quarter of their junior year.

Meeting the above minimums does not guarantee admission to the program. Admission is on a competitive basis, using the above qualifications as minimum standards for consideration.

International Development Studies Premajor

Incoming freshman and transfer students may be admitted as International Development Studies premajors on acceptance to UCLA. Premajor students must apply for major standing at the end of fall quarter of their junior year; they are not automatically accepted into the major.

Preparation for the Major

Required: (1) Two courses from Economics 1, 2, Geography 4; (2) one statistics course from Economics 41, Political Science 6, 6R, Statistics 10, or 12; (3) three social sciences/area studies courses, each from a different category, selected from (a) Anthropology 9, (b) Gender Studies 10, (c) Geography 3, 5, 6, (d) Global Studies 1, (e) History 8A, 8B, 8C, 9A, 9D, 9E, 10B, 10BW, 11B, 22, International and Area Studies 31, 50, (f) Political Science 20, 50, 50R, (g) Sociology 1; and (4) demonstrated proficiency in one modern foreign language equivalent to level 6 at UCLA. Each course must be taken for a letter grade.

Transfer Students

Transfer applicants to the International Development Studies premajor with 90 or more units must complete the following introductory courses prior to admission to UCLA: two introductory macroeconomics, microeconomics, and/or economic geography courses; one statistics course; three courses, each from a separate category, selected from sociocultural anthropology, cultural or economic geography, cultural area studies, world history, comparative politics, and introductory sociology; and demonstrated proficiency equivalent to level 3 at UCLA in one modern foreign language.

Transfer students must apply for the major by the end of fall quarter of their junior year.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Each course must be taken for a letter grade. Students must earn a grade of C or better in International Development Studies 110, M120, and 130; no more than one of these three courses may be repeated. All three core courses must be taken prior to the capstone senior seminar 191 course.

Required: (1) International Development Studies 110, M120, 130, 191; (2) one *research methodology* course from Anthropology 131, 139, Asian American Studies 103, 104A, 105, M108, C142A, 142D, 187A, 191A, Chicana and Chicano Studies M119, 123, 129, Economics 103, Education C126, Geography 163, Political Science 170A, Sociology 106A, 110, 113, Statistics 112, Urban Planning M122; (3) three *social and critical theory* courses, each from a different department, from Anthropology 130, 150, 153P, 161, 167, Economics 111, 112, Environment M132, M133, M161, Gender Studies 168, Geography 110, M115, M128, 132, 133, 140, 142, 148, 155, Political Science 122A, M122B, 124A, 150, 167D, 168, Sociology 101, M115, 116, 182, 183, 191D, Urban Planning 121, CM166; (4) two *regional* courses, either from the same or separate developing regions of the world (East Asia and East Central Asia, Eastern Europe and West Central Asia, Latin America and Caribbean Basin, Middle East and North Africa, South and Southeast Asia and Pacific Islands, Sub-Saharan Africa) and one disciplinary elective listed below:

East Asia and East Central Asia: Anthropology 175Q, Asian American Studies 171A, 171C, Chinese 152, Communication Studies 183, Gender Studies M170C, Geography 186, History 169B, 170B, M170C, 170D, Korean C151, 155, 180B, 180C, Political Science 135, 159A, 159B, Sociology 181A.

Eastern Europe and West Central Asia: Anthropology 175R, Central and East European Studies 125, 126, Czech 155, Gender Studies M127, History 107C, 107E, 120A through 120D, 127B, 127C, Political Science 128B, 156A, Romanian 152, Russian 120, 121, 122, 125, 126, M127, 131, Serbian/Croatian 154.

Latin America and Caribbean Basin: African American Studies M154C, M178, Anthropology 173Q, 174P, Art History C142B, Chicana and Chicano Studies M125, M126, M144, CM147, Community Health Sciences 132, Gender Studies M144, M147C, Geography 114, 181, 182A, 182B, History 157B, 159, 160A, 160B, 162A, 162B, 162C, Honors Collegium M145, Political Science 124C, 154A, 154B, M184A, Sociology M178, 186.

Middle East and North Africa: Anthropology M171P, 176, History 105C, M108C, 111C, Honors Collegium M157, Political Science 132A, M132B, 157, 165.

South and Southeast Asia and Pacific Islands: Anthropology 177, Asian American Studies 122A, 122B, M164, M171D, 171E, M173, Gender Studies M164A, Geography 185, History M144C, 174B, 174C, 175A, 175C, 176B, 176C, 176E, 177A, 177B, Political Science 158, Southeast Asian 135, 157, Vietnamese M155, 180B.

Sub-Saharan Africa: Anthropology 171, Art History C145A, C145B, Comparative Literature 169, Geography 122, 135, History 164B through 164E, 166B, 167A, 167B, 167C, 168B, Political Science 151A, 151B, 151C.

Disciplinary Electives: Anthropology M154Q, M155Q, M158Q, Economics 121, 122, 137, 150, 151, Education M108, Environment 122, 186, Film and Television 106C, 112, Gender Studies M154Q, M155Q, Geography M109, 147, M153, 159C, History 131A, Honors Collegium M152, Political Science 116A, 123A, 126, 137A, Sociology 154, M175, 191F, World Arts and Cultures 100A, 144.

Honors Program

Majors who have completed International Development Studies 110, M120, and 130 and who have a 3.5 grade-point average in all courses offered for the major are eligible to formally apply for the honors program. In addition to completing all courses required for the major, students must take courses 198A, 198B, and 198C, in which they research, write, and present an honors thesis. To receive honors at graduation, students must have at least a 3.5 GPA in courses applied toward the major (including 198A, 198B, 198C) and an overall GPA of 3.0.

Highest honors are awarded to students who complete the major (including courses 198A, 198B, 198C) with a 3.75 GPA and who produce an exceptional thesis.

Study Abroad

International Development Studies majors are highly encouraged to study abroad in developing areas of the world. Students can do so through a variety of programs with various lengths (summer or during the academic year). More information about travel abroad programs is available through the UCLA International Education Office, 1332 Murphy Hall, 310-825-4995, info@ieo.ucla.edu. See <http://www.ieo.ucla.edu>.

International Development Studies

Upper Division Courses

110. Economic Development and Culture Change. (4) (Formerly numbered 100A.) Lecture, three hours; discussion, one hour (when scheduled). Broad introduction to theoretical traditions in development studies, with focus on interactions between states, markets, and cultural value systems, with selected case studies in developing nations. Letter grading.

M120. Political Economy of Development. (4) (Formerly numbered M100B.) (Same as Political Science M167C.) Lecture, three or four hours; discussion, one hour (when scheduled). Political economy approach to puzzle of why some countries are rich and others

are poor and why, among latter, some have been able to achieve rapid rates of economic growth and others have not. Explanation and review of logic behind most important arguments that have been advanced to account for differences across countries in rates and levels of economic development. Letter grading.

130. Economics of Developing Countries. (4) (Formerly numbered 150.) Lecture, three hours; discussion, one hour. Economic analysis of developing countries. Issues underlying causes of underdevelopment and process of development. Topics include population growth, poverty, inequality, inflation, fiscal trade and monetary policy, and alternative development strategies. Letter grading.

160. Selected Topics in International Development Studies. (4) Lecture, three hours; discussion, one hour (when scheduled). Examination of one or more topics related to international development. May be repeated for credit with topic change. P/NP or letter grading.

188. Special Courses in International Development Studies. (4) Seminar, three hours. Program-sponsored experimental or temporary courses on selected contemporary topics in international development taught by visiting instructors or affiliated faculty members. May be repeated for credit with topic change. P/NP or letter grading.

191. Variable Topics Research Seminars: International Development Studies—Senior Seminar. (4) Seminar, three hours. Requisites: courses 110, M120, 130. Limited to senior International Development Studies majors. Organized on topics basis with readings, discussions, papers. May not be repeated for credit. Letter grading.

192. Undergraduate Practicum in International Development Studies. (2) Seminar, two hours; practicum, to be arranged. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to serve as undergraduate course assistants in international development studies courses. Students assist in preparation and presentation of materials and development of innovative programs with guidance of faculty members. Consult academic counselor for further information. May not be applied toward major requirements. May be repeated for credit. P/NP grading.

198A-198B-198C. Honors Research in International Development Studies. (4-4-4) Tutorial, to be arranged. Preparation: 3.5 grade-point average in courses for major, formal application to honors program. Requisites: courses 110, M120, 130. Limited to junior/senior International Development Studies majors. May be repeated for credit. Individual contract required. **198A.** Research, discussion, and planning of honors thesis under direct supervision of faculty member. Letter grading. **198B.** Enforced requisite: course 198A. Research, discussion, and planning of honors thesis under direct supervision of faculty member. In Progress grading. **198C.** Enforced requisite: course 198B. Final drafting and submission of honors thesis under direct supervision of faculty member. Letter grading.

199. Directed Research in International Development Studies. (4) Tutorial, to be arranged. Limited to junior/senior International Development Studies majors. Supervised intensive directed research program in which students conduct interdisciplinary research under guidance of faculty mentor. Culminating paper required. May be applied toward major via petition. May not be repeated. Individual contract required. Letter grading.

Graduate Course

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

ISLAMIC STUDIES

See Near Eastern Languages and Cultures

ITALIAN

College of Letters and Science

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Thomas J. Harrison, PhD
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Professors Emeriti

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Franco Betti, PhD
Marga Cottino-Jones, PhD, Dottore in Lettere
Edward F. Tuttle, PhD

Associate Professor

Peter J. Stacey, PhD

Assistant Professor

Andrea Moudarres, PhD

Lecturer S.O.E.

Elissa A. Tognazzi, PhD

Lecturer

Hoang T. M. Truong, PhD

Scope and Objectives

Italian art and letters provide an invaluable key to understanding many facets of European civilization. Examined in its own right or studied comparatively, Italian culture offers unmatched rewards. The Department of Italian faculty members view transmitting the Italian language as inseparable from transmission of the culture, so students consider in depth virtually all aspects of Italian civilization. After their linguistic initiation, ideally including a year abroad, students may pursue advanced studies in the department exclusively and through a wide range of interdisciplinary programs.

Bachelor of Arts degrees are offered in Italian and in Italian and Special Fields. Graduate study leads to the Master of Arts degree in Italian (with specializations in literature and language) and to the PhD (literature specialization).

Undergraduate Study

The Italian and Italian and Special Fields majors are designated capstone majors. Students are required to conceptualize, design, and complete an interdisciplinary research project or thesis. Through the capstone experience, students demonstrate their mastery of an area of Italian culture, as well as their skills in identifying and analyzing primary sources, integrating what they have learned in the course of

their major studies, and presenting their work to peers under the guidance of a faculty mentor who facilitates discussion and peer review.

Italian BA

Capstone Major

The program of studies leading to the Bachelor of Arts in Italian consists of two distinct phases: preparation in the language and study of the literature and culture. While literature courses constitute the bulk of the program, good knowledge of the language is requisite to most upper division literature courses credited toward the major in Italian. The uniqueness of Italian is stressed at all levels of study. Detailed information on programs and specific degree requirements is available from the department.

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 42C, 46, 50A, or 50B.

Transfer Students

Transfer applicants to the Italian major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Italian and one Italian civilization or culture course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Ten upper division Italian courses, including 100, 199B (senior capstone course), one medieval to 18th century course from 113 through 118, one Enlightenment to contemporary course from 119 through 125, and six elective courses from 103A through 191. With consent of the undergraduate adviser, students may substitute up to one each of Italian 195 and 199A and an upper division elective course from outside the department.

Majors who select courses taught in English must do additional work from the original Italian texts in consultation with the course instructor.

Italian and Special Fields BA

Capstone Major

Students with special interests or professional goals may select the Italian and Special Fields major, with coursework divided between Italian and a collateral field. Study programs fulfilling requirements for the major have been developed with the departments and programs listed below.

Majors who select courses taught in English must do additional work from the original Italian texts in consultation with the course instructor.

Transfer Students

Transfer applicants to the Italian and Special Fields major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Italian and related courses in civilization, culture, history, linguistics, literature, and closely related languages.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

Anthropology Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 42C, 46, 50A, 50B; Anthropology 8 or 9, and 33.

The Major

Required: Italian 100, 199B (senior capstone course), and three courses from 103A through 191 selected in consultation with the undergraduate adviser; five courses from Anthropology 111, 112, 130, 133Q, 135A, 135B, 135S, 135T, 139, M140, 141, 150 through M154Q, 161, 182 selected in consultation with the undergraduate adviser.

Art History Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 42C, 46, 50A, 50B; Art History 20 or 21, 22, 23.

The Major

Required: Italian 100, 199B (senior capstone course), and three courses from 103A through 191 selected in consultation with the undergraduate adviser; five courses from Art History M113A, M113B, M113C, C115A through 115E, 121A through 121D, C125A, 127A, 127B, 130, 132, 185 selected in consultation with the undergraduate adviser.

Classics Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 42C, 46, 50A, 50B; Classics 10 or 20, 40W or 41W, and Greek 1, 2, 3 or Latin 1, 2, 3, or equivalent.

The Major

Required: Italian 100, 199B (senior capstone course), and three courses from 103A through 191 selected in consultation with the undergraduate adviser; Greek 100 or Latin 100, two courses from Classics 141 through 197, and two courses from Greek 101A through 133 or Latin 101 through 133 (graduate seminars may be substituted for upper division author courses) selected in consultation with the undergraduate adviser.

English Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 42C, 46, 50A, 50B; English Composition 3, English 4W, 10A, 10B, 10C.

The Major

Required: Italian 100, 199B (senior capstone course), and three courses from 103A through 191 selected in consultation with the undergraduate adviser; five courses from English 100 through 113A, 114 through 135, 139 through 183C selected in consultation with the undergraduate adviser.

Film and Television Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, 46.

The Major

Required: Italian 100, 199B (senior capstone course), and three courses from 103A through 191 selected in consultation with the undergraduate adviser; five courses from Film and Television 106A, 106B, 106C, 107, 108, 110A, 110C, 112 through 116, 193A selected in consultation with the undergraduate adviser.

French Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 42C, 46, 50A, 50B; French 1, 2, 3, 4, 5, 6, and 12 or 14.

The Major

Required: Italian 100, 199B (senior capstone course), and three courses from 103A through 191 selected in consultation with the undergraduate adviser; five courses from French 108 through 172 selected in consultation with the undergraduate adviser.

Gender Studies Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 42C, 46, 50A, 50B; Gender Studies 10.

The Major

Required: Italian 100, 199B (senior capstone course), and three courses from 103A through 191 selected in consultation with the undergraduate adviser; five courses from Gender Studies 102 through M191E selected in consultation with the undergraduate adviser.

History Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 42C, 46; one course from History 1A, 1B, 1C, 20, 21, 22.

The Major

Required: Italian 100, 199B (senior capstone course), and three courses from 103A through 191 selected in consultation with the undergraduate adviser; five courses from History 100 through 188 selected in consultation with the undergraduate adviser.

Linguistics Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, Linguistics 20, and three terms of a second foreign language other than Italian.

The Major

Required: Italian 100, 199B (senior capstone course), and three courses from 103A through 191 selected in consultation with the undergraduate adviser; Linguistics 103, 120A, 120B, and two courses from 110 through 191B selected in consultation with the undergraduate adviser.

Music History Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, two courses from Music History M10A, M10B, M10C.

The Major

Required: Italian 100, 199B (senior capstone course), and three courses from 103A through 191 selected in consultation with the undergraduate adviser; five courses from Music History 125D, 125E, 125F, 135A, 135B, 135C, 191A through 191G selected in consultation with the undergraduate adviser.

Philosophy Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 42C, 46, 50A, 50B; one course from Philosophy 1 through 31.

The Major

Required: Italian 100, 199B (senior capstone course), and three courses from 103A through 191 selected in consultation with the undergraduate adviser; Philosophy 100A, 100B, 100C, and three courses from M101A through 191 selected in consultation with the undergraduate adviser.

Political Science Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 42C, 46, 50A, 50B; Political Science 10, 20, 30, 40, 50.

The Major

Required: Italian 100, 199B (senior capstone course), and three courses from 103A through 191 selected in consultation with the undergraduate adviser; five courses from Political Science M105 through 179 selected in consultation with the undergraduate adviser.

Portuguese Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 46, 50A, 50B; Portuguese 1, 2, 3, 25 (or 26 or equivalent as determined by placement test), 46.

The Major

Required: Italian 100, 199B (senior capstone course), and three courses from 103A through 191 selected in consultation with the undergraduate adviser; five courses from Portuguese 130A through 191 selected in consultation with the undergraduate adviser.

Spanish Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 46, 50A, 50B; Spanish 1, 2, 3, 4, 5, 25 (or equivalent as determined by placement test), 42 or 44.

The Major

Required: Italian 100, 199B (senior capstone course), and three courses from 103A through 191 selected in consultation with the undergraduate adviser; Spanish 120 and four

courses from 130 through 191B selected in consultation with the undergraduate adviser.

Theater Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 42C, 46, 50A, 50B.

The Major

Required: Italian 100, 199B (senior capstone course), and three courses from 103A through 191 selected in consultation with the undergraduate adviser; Theater 101A, 101B, and three courses from 102A through M114 selected in consultation with the undergraduate adviser.

Study in Italy

Students are encouraged to spend up to one year in Italy either to (1) study with an education abroad program or (2) study in an Italian university. They are also urged to take advantage of summer language workshops and study programs, including UCLA's own programs in Italy and Los Angeles. For additional information, contact the Education Abroad Program, 1332 Murphy Hall, or the Summer Sessions Office, 1331 Murphy Hall.

Honors Program

Admission

The honors program provides exceptional students an opportunity for advanced research and study, under the guidance of a faculty member, that leads to the completion of an honors thesis. Majors in Italian and in Italian and Special Fields with an overall grade-point average of 3.25 and a 3.5 GPA or better in Italian courses are eligible to participate in the honors program. Applications should be made during the last term of the junior year or early in the senior year. Consult the department adviser for more information.

Requirements

To qualify for graduation with honors, Italian majors must complete all requirements for the major and Italian 198 in the last term of the senior year in which they write a 15- to 20-page thesis in Italian on a subject expanding on one or more of the upper division courses they have taken. The thesis is written under the guidance of a departmental faculty member.

To qualify for graduation with honors, Italian and Special Fields majors must complete all requirements for the major and Italian 198 in which they write a 15- to 20-page thesis in Italian that combines their two disciplines of study. The thesis is written under the guidance of a departmental faculty member.

Successful completion of the honors program is indicated on the transcript and diploma.

Italian Minor

To enter the Italian minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (12 units): Italian 5, 6, and one course from 42A, 42B, 46, 50A, 50B.

Required Upper Division Courses (20 units): Italian 100 and four additional Italian courses. Three of the four courses must be taught in Italian.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Italian offers Master of Arts (MA), Candidate in Philosophy (CPHil), and Doctor of Philosophy (PhD) degrees in Italian.

Italian

Lower Division Courses

1. Elementary Italian—Beginning. (4) Lecture, five hours. P/NP or letter grading.

1G. Special Reading Course. (4) Readings, three hours. Open to graduate students in other fields. Preparation for Graduate Division foreign language reading requirement. S/U grading.

2. Elementary Italian—Continued. (4) Lecture, five hours. Enforced requisite: course 1. P/NP or letter grading.

2G. Special Reading Course. (4) Readings, three hours. Open to graduate students in other fields. Preparation for Graduate Division foreign language reading requirement.

3. Elementary Italian—Continued. (4) Lecture, five hours. Enforced requisite: course 2. P/NP or letter grading.

4. Intermediate Italian. (4) Lecture, five hours. Enforced requisite: course 3. P/NP or letter grading.

5. Intermediate Italian. (4) Lecture, five hours. Enforced requisite: course 4. P/NP or letter grading.

6. Intermediate Italian. (4) Lecture, three hours. Enforced requisite: course 5. Advanced grammar and composition course with readings from select literary works. P/NP or letter grading.

8A-8B-8C. Italian Conversation. (2-2-2) Seminar, three hours. Enforced requisite for course 8A: course 2; for 8B: course 3; for 8C: course 4. Each course may be repeated once for credit. P/NP or letter grading.

9. Intensive Italian. (12) Lecture, 20 hours. Intensive language program equivalent to first year of college Italian (courses 1, 2, 3) and designed to develop basic language skills. Offered in summer only. P/NP or letter grading.

42A-42B-42C. Italy through Ages in English. (5-5-5) Lecture, four hours; discussion, one hour. P/NP or letter grading. **42A.** Early Modern Italy. Survey of Italy's unique contribution to Western civilization in

development of humanist and Renaissance learning, political and philosophical thought, science, architecture, and arts in cities such as Venice, Padua, Florence, Rome, and Naples. Works by Giotto, Michelangelo, Leonardo, Raphael, Machiavelli, Galileo, and Vico. **42B.** Modern and Contemporary Italy. Cultural and political developments from 18th century to present. Topics include Beccaria and opposition to death penalty and absolutism; Garibaldi, Italian Risorgimento, national liberation, and unification; Lombroso and criminology in new Italy; Mussolini and Fascism; Gramsci and Communism; Italian Catholicism; Berlusconi and media; migration and today's multiethnic Italy. Assigned works include relevant literature and memoirs, music, and film, futurist and fascist art, and organized crime fiction and film. **42C.** Food and Literature in Italy. Profile of Italian history and culture through analysis of gastronomic and literary texts. Special emphasis on late Middle Ages, Renaissance, and Risorgimento.

46. Italian Cinema and Culture in English. (5) Lecture/screenings, five hours; discussion, one hour. Special topics in Italian culture as reflected and reinforced by the nation's prime artform, stressing aesthetics and ideology of films, contemporary Italian history, and politics. Rotating topics include sex and politics, comedy, integration, family networks, and neorealism. P/NP or letter grading.

50A-50B. Masterpieces of Italian Literature in English. (5-5) Lecture, four hours; discussion, one hour. P/NP or letter grading. **50A.** Middle Ages to Baroque. Leading philosophical, religious, and sociopolitical issues in Europe, examined in authors such as St. Francis, Dante, Boccaccio, Petrarch, Lorenzo de' Medici, Machiavelli, Castiglione, Ariosto, and Tasso. **50B.** Enlightenment to Postmodernity. Comparative study of major literary texts and their adaptations into different forms of public spectacle, including theater, opera, and film. Works by Goldoni, Gozzi, Mascagni, Verga, Puccini, Pirandello, Calvino, Ortese, Zavattini, de Sica, and Taviani Brothers. Emphasis on development of ideas of spectacle.

77. Encounters between Christianity, Islam, and New Worlds in Age of Discovery. (5) Lecture, four hours; discussion, one hour. Examination of cultural, religious, and racial differences in early modern world of Italy, America, Africa, and Ottoman Empire. Materials include films, artworks, Dante's *Divine Comedy*, Qur'an, Arab chronicles of Crusades, travel logs and letters of Christopher Columbus, Italian Renaissance epic poems, and anticolonial polemics. P/NP or letter grading.

Upper Division Courses

100. Composition and Style. (4) Lecture, three hours. Enforced requisite: course 6. Taught in Italian. Development of writing techniques and proficiency in composition and style, with emphasis on editing for grammar and style. P/NP or letter grading.

102A-102B-102C. Italian Cultural Experience in English. (4-4-4) Lecture, three hours. Study of cultural development of Italy. P/NP or letter grading.

102A. Roots of Western civilization; social and artistic achievements of communal society; Marco Polo, Dante, Boccaccio, Giotto, rise of Italian merchant class. **102B.** Renaissance discovery of human genius; crucial period between Machiavelli and Galileo, leading Italy and Europe to scientific revolution. **102C.** Birth of Italian nation from wars of independence to foundation of modern republic, delineated through narrative and cinema in historical context.

103A. Introduction to Classic Italian Literary and Cultural Studies. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Selected classic works of Italian literature, theater, art, and culture from medieval era to Renaissance and baroque. Emphasis on critical methods and skills for analyzing and interpreting wide range of Italian texts and cultural formations in their historical context and in comparison to contemporary and transnational views. Representative authors may include Saint Francis of Assisi, Dante, Petrarch, Boccaccio, Saint Catherine of Siena, Machiavelli, Giotto, Botticelli, Michelangelo, Leonardo, Caravaggio, Gaspara Stampa, Veronica Franco, Ariosto, Tasso, and Galileo. P/NP or letter grading.

Leonardo, Caravaggio, Gaspara Stampa, Veronica Franco, Ariosto, Tasso, and Galileo. P/NP or letter grading.

103B. Introduction to Modern Italian Literary and Cultural Studies. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Selected modern works of Italian literature, theater, art, and culture from Enlightenment to present. Emphasis on critical methods and skills for analyzing and interpreting wide range of Italian texts and cultural formations in their historical context and in comparison to contemporary and transnational views. Representative authors may include Vico, Goldoni, Alfieri, Beccaria, Rosalba Carriera, Piranesi, Tiepolo, Leopardi, Manzoni, Pirandello, Aleramo, Marinetti, Boccioni, Modigliani, De Chirico, Calvino, Ortese, Pasolini, Franca Rame, and Dario Fo. P/NP or letter grading.

110. Dante in English. (4) Lecture, three hours. Close study of one of world's greatest literary geniuses, particularly of his masterpiece, *Divine Comedy*, the archetypal medieval journey through the afterworld. P/NP or letter grading.

113. Dante's *La Divina Commedia*. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Study of medieval philosophy, religion, and politics in *La Divina Commedia*, greatest literary achievement of the age. P/NP or letter grading.

114A-114B. Middle Ages. (4-4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. P/NP or letter grading. **114A.** Tradition of Love from Sacred to Profane. Study of major love poets of all time (Dante, *Dolce Stil Novo* poets, and Petrarcha) caught between courtly and religious codes. **114B.** Medieval Humor, Moralism, and Society. Novelty of Boccaccio's witty and comic masterpiece, *Decameron*, analyzed within context of moral and social codes of culture of time.

116A-116B. Italian Renaissance. (4-4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. P/NP or letter grading. **116A.** Renewal of Art and Thought. Study of *Quattrocento* and its representatives in arts and humanistic thought (i.e., Mantegna, Botticelli, Pico, Valla, and Ficino). **116B.** Power and Imagination in Renaissance. Study of artistic world of Leonardo, Raffaello, Michelangelo, Titian, and literary masterpieces of Machiavelli, Castiglione, Ariosto, Tasso, in world molded by powerful political forces, such as Roman Papacy and Medici, Gonzaga, and D'Este courts.

118. Italian Enlightenment. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Study of philosophical and political prose, satiric poetry, and drama in 18th-century Italy. Writings by Vico, Metastasio, Parini, and Alfieri. P/NP or letter grading.

119. Italian Realism and Romanticism. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Study of literary trends and masterpieces in 19th-century Italy. Readings include realist novels and short stories by Manzoni, Verga, and Deledda addressing themes of social and political unrest, patriotism, North-South conflicts, family, and gender relations. Romantic lyric poetry by Foscolo and Leopardi expressing emotions and reflecting on erotic desire, nature versus culture, temporality, death, and yearning for aesthetic perfection. P/NP or letter grading.

120. Modern and Contemporary Literature. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Analysis of novels, short fiction, poetry, and drama in connection with modern and contemporary thought, politics, and culture. Authors may include D'Annunzio, Aleramo, Pirandello, Ungaretti, Montale, Pasolini, Ortese, Morante, Ginzburg, Calvino, Fo, Eco, Celati, and Tabucchi. P/NP or letter grading.

121. Literature and Film. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Comparative study of specific literary works and their adaptation into film and of different techniques in two media and forms of expression. Texts include literary works, screenplays, and works on literary and film theory. P/NP or letter grading.

122. Italian Theater. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Study of works for stage from Renaissance to present, including examples of opera and questions pertaining to acting, staging, and performance. May include texts by Machiavelli, Aretino, Alfieri, Gozzi, Goldoni, Verdi, Puccini, D'Annunzio, Amelia Rosselli, Dacia Maraini, Dario Fo, and Franca Rame. P/NP or letter grading.

123. Modern Italian Cultural Studies. (4) Seminar, three hours. Enforced requisite: course 100. Taught in Italian. Reading, research, and writing on various cultural aspects of modern and contemporary Italy. Examination of contemporary Italian food culture, fashion and design, photography and visual arts, mass media, politics, music, and sports. P/NP or letter grading.

124. Food and Literature in Italy. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Profile of Italian history and culture through analysis of gastronomic documents, food traditions, and literary and visual works. Emphasis on late Middle Ages, Renaissance, and Risorgimento, or modern and contemporary movements such as *Cucina futurista* and slow food. Examination of relation of Italian traditions of food and eating with health, body, gender, community, politics, biodiversity, and environment. P/NP or letter grading.

125. Italian through Opera. (4) Lecture, three hours. Requisite: course 6. Taught in Italian. Introduction to traditional Italian opera as means of appreciating culture of Italy, art form of opera, and study of Italian language at advanced level through reading of libretti. Six masterworks of Italian opera tradition—*Il Barbiere di Siviglia*, *La Bohème*, *Pagliacci*, *Otello*, *Tosca*, and *La Traviata*—offer culturally authentic contexts to learn about operas, their characters, plots, settings, and themes. Exploration of various historical, political, and cultural issues raised in each opera. P/NP or letter grading.

131. Reading and Reciting. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Emphasis on diction, interpretation, and performance of one-act plays as vehicles for perfection of pronunciation, comprehension, and fluency. P/NP or letter grading.

140. Italian Novella from Boccaccio to Basile in Translation. (4) Lecture, three hours. Analysis of development of Italian novella in its structure, historical context, and folk material. Special emphasis on how Italian novella influenced other European literatures. P/NP or letter grading.

150. Modern Fiction in Translation. (4) Lecture, three hours. Select issues in 20th-century thought traced in writers of international fame, with focus on concerns and styles of several prose works such as Umberto Eco's *The Name of the Rose*, Pasolini's *The Ragazzi*, Pirandello's *The Late Mattia Pascal*, and Calvino's *The Cosmicomics*. P/NP or letter grading.

151. Italy and Asia. (4) Lecture, three hours. Examination of portrayals of Asian culture in Italy and Italian culture in Asia, and ways in which Asia and Italy view each other through eyes of writers, travelers, and modern media. Discussion of how Italy has evolved from relatively homogeneous society into multiethnic country that includes growing Asian and Asian-Italian population. P/NP or letter grading.

152. Italy between Europe and Africa. (4) Lecture, three hours. Knowledge of Italian or background in Italian studies not required. Analysis and critical discussion of works by Italian, northern European, and African writers (including travelers and migrants) who from 18th century to present have seen or experienced Italian peninsula and islands as bridge between Europe and Africa, or mix of both. Readings include works by northern European and African authors about Italy, and Italian authors about Africa and southern Italy. P/NP or letter grading.

M158. Women, Gender, and Sexuality in Italian Culture. (4) (Same as Gender Studies M158.) Lecture, three hours; discussion, one hour. Analysis of gender roles, images of femininity and masculinity, patriarchy, myths of Madonna and Latin lover, condi-

tion of women in Italian society through history, politics, literature, film, and other media. Italian majors required to read texts in Italian. P/NP or letter grading.

180. History of Italian Language. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Main forces that have shaped literary or standard Italian and specific ways in which language has evolved. Tracing of its changing relations with other European languages and survey of effects wrought by historical events, changes in taste, and altered social functions. P/NP or letter grading.

191. Variable Topics Research Seminars: Italian Studies. (4) Seminar, three hours. Research seminar with focus on themes and issues outside uniquely Italian literature topics covered in regular departmental undergraduate courses. Reading, discussion, and development of culminating project. May be repeated once for credit. P/NP or letter grading.

195. Community or Corporate Internships in Italian. (4) Tutorial, three hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

198. Honors Research in Italian. (4) Tutorial, one hour. Limited to juniors/seniors. Development and completion of significant research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199A. Directed Research in Italian. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199B. Directed Capstone Research in Italian and Italian and Special Fields. (4) Tutorial, to be arranged. Requisites: courses 100, 103A or 103B, and at least three required courses for one field. Limited to senior Italian and Italian and Special Fields majors. Supervised individual research under guidance of faculty mentor. Capstone tutorial in which interdisciplinary paper (20 to 25 pages) is to be written in either Italian or English that requires students to synthesize their knowledge of Italian or Italian and one special field of study. Individual contract required. Letter grading.

Graduate Courses

201. Bibliography and Methods of Research. (4) Lecture, three hours. S/U or letter grading.

205. Studies in Criticism and Theory. (4) Seminar, three hours. History, theory, and practice of criticism. Presentation, discussion, and application of fundamental currents in aesthetics and criticism from Plato and Aristotle to present, including thematic and genre criticism, poststructuralist approaches, and feminist criticism. Letter grading.

210. Studies in Early Italian Literature. (4) Lecture, three hours. Topics include origins of Italian language and study of early texts, *Scuola Siciliana* and early poetry of Central and Northern Italy, and *Dolce Stil Novo*. S/U or letter grading.

214A-214F. Studies in Medieval Literature. (4 each) Lecture, three hours. S/U or letter grading:

214A. La Divina Commedia. (4) Lecture, three hours. S/U or letter grading.

214B. Dante's Other Works. (4) Lecture, three hours. S/U or letter grading.

214C. Petrarca's Canzoniere. (4) Lecture, three hours. S/U or letter grading.

214D. Boccaccio's Decameron. (4) Lecture, three hours. S/U or letter grading.

214E. Boccaccio's Other Works. (4) Lecture, three hours. S/U or letter grading.

214F. Variable Topics. (4) Lecture, three hours. Variable-content seminar on themes and issues of medieval literature, with coverage of authors such as St. Francis of Assisi or Jacopone de Todi. S/U or letter grading.

215A-215B. Studies in 15th-Century Literature. (4-4) Lecture, three hours. S/U or letter grading. **215A.** Variable Topics. Variable-content seminar on themes and issues of 15th-century literature, with coverage of authors such as Pulci or Poliziano. **215B.** Age of Lorenzo de' Medici and Poliziano.

216A-216E. Studies in the Renaissance. (4 each) Lecture, three hours. S/U or letter grading:

216A. Machiavelli and Renaissance Political Thought. (4) Lecture, three hours. S/U or letter grading.

216B. Ariosto and Renaissance Epic. (4) Lecture, three hours. S/U or letter grading.

216C. Tasso. (4) Lecture, three hours. S/U or letter grading.

216D. Renaissance Theater. (4) Lecture, three hours. S/U or letter grading.

216E. Variable Topics. (4) Lecture, three hours. Variable-content seminar on themes and issues of Renaissance literature, with coverage of authors such as Vasari, Leonardo, or Benvenuto. S/U or letter grading.

217. Studies in 17th-Century Literature. (4) Lecture, three hours. Topics include Galileo and birth of scientific prose, Giordano Bruno, Gian Battista Marino, and baroque poetry. S/U or letter grading.

218A-218D. Studies in 18th-Century Literature. (4 each) Lecture, three hours. S/U or letter grading:

218A. Vico. (4) Lecture, three hours. S/U or letter grading.

218B. Alfieri. (4) Lecture, three hours. S/U or letter grading.

218C. Goldoni. (4) Lecture, three hours. S/U or letter grading.

218D. Variable Topics. (4) Lecture, three hours. Variable-content seminar on themes and issues of 18th-century literature, with coverage of authors such as Vico or Ludovico. S/U or letter grading.

219A-219D. Studies in 19th-Century Literature. (4 each) Lecture, three hours. S/U or letter grading:

219A. Foscolo. (4) Lecture, three hours. S/U or letter grading.

219B. Leopardi. (4) Lecture, three hours. S/U or letter grading.

219C. Manzoni. (4) Lecture, three hours. S/U or letter grading.

219D. Variable Topics. (4) Lecture, three hours. Variable-content seminar on themes and issues of 19th-century literature, with coverage of authors such as Carducci, Tommaseo, or Nievo. S/U or letter grading.

220. Studies in Turn-of-the-Century Literature. (4) Lecture, three hours. Topics include Verga and *Verismo*, poetry, prose, and theater of D'Annunzio, and poetry of Carducci and Pascoli. S/U or letter grading.

221A-221E. Studies in 20th-Century Literature. (4 each) Lecture, three hours. S/U or letter grading:

221A. Variable Topics. (4) Lecture, three hours. Variable-content seminar on themes and issues of 20th-century literature, with coverage of authors such as D'Annunzio, Verga, Marinetti, and Pirandello. S/U or letter grading.

221B. Contemporary Poetry. (4) Lecture, three hours. Analysis of legacy of two major figures in Italian poetry from World War II—Ungaretti and Montale. Thorough examination of movements and individual poets active in the 1960s and 1970s. S/U or letter grading.

221C. 20th-Century Narrative to World War II. (4) Lecture, three hours. Assessment of turn-of-the-century narrative pattern (Gabriele D'Annunzio) and analysis of radical innovations brought about by such towering figures as Pirandello, Svevo, Bernari, Marinetti, etc. S/U or letter grading.

221D. 20th-Century Narrative since World War II. (4) Lecture, three hours. In-depth exploration of some major works that have made contemporary Italian lit-

erature famous throughout the world, with special emphasis on study of formalistic modes adopted by the neo-avant-garde. S/U or letter grading.

221E. Pirandello and Contemporary Theater. (4) Lecture, three hours. Thorough reading of theatrical texts, accompanied by analysis of how the plays have been realized on stage by important directors such as Strehler, Ronconi, and the playwrights/actors themselves. Emphasis on ritualistic implications of the theatrical performance. S/U or letter grading.

222A-222B. Comparative Romance Historical Grammar. (4-4) Lecture, three hours. Each course may be taken independently for credit. S/U or letter grading. **222A. Phonology.** Principal sound changes from late Latin to main Romance dialects. **222B. Morphology and Syntax.** Prime morpho-syntactic changes occurring between late Latin and main Romance dialects.

223. Structures of Modern Italian. (4) Lecture, three hours. Descriptive analysis of basic features of standard Italian from synchronic, typologic vantage. Topical emphasis may vary annually, but core progression departs from phonology (e.g., syllable types, prosodic patterns, phrasal phonetics), moves through morphologic constituents, passing to sentence sequences (coordination, ellipses, etc.). S/U or letter grading.

224. Italo-Romance Dialectology. (4) Lecture, three hours. Differentiation of late spoken Latin into myriad varieties spoken in Italy. Attention to discrete language types (e.g., Sardinian, Ladino, Friulian, and Franco-Provencal). Consideration of present-day sociolinguistic pressures. S/U or letter grading.

225. Cultural History of Italian Language. (4) Lecture, three hours. Historical survey of development of Italian language from medieval times to unification of country in 1861. *Questione della lingua*, general acceptance of Florentine speech, and its evolution into national language. S/U or letter grading.

230A-230B. Folk Tradition in Italian Literature. (4-4) Lecture, two hours. S/U or letter grading.

M241. Seminar: Political Geography of Italy. (4) (Same as Geography M241.) Seminar, three hours; reading period, two hours. Themes in political geography with particular emphasis on Italy. May be repeated for credit. S/U or letter grading.

250A-250D. Seminars: Dante. (4 each) Seminar, three hours. S/U or letter grading.

251. Seminar: Petrarch. (4) Seminar, three hours. S/U or letter grading.

252. Seminar: Boccaccio. (4) Seminar, three hours. S/U or letter grading.

253A-253B-253C. Seminars: Chivalric Poetry in Italy. (4-4-4) Seminar, three hours. Relationship between genre and its French medieval sources, with study of its evolution in Italy through Pulci, Boiardo, Ariosto, and Tasso. S/U or letter grading.

254. Seminar: Machiavelli. (4) Seminar, three hours. S/U or letter grading.

255A-255B. Seminars: Baroque. (4-4) Seminar, three hours. S/U or letter grading.

256A-256B. Seminars: 18th Century. (4-4) Seminar, three hours. S/U or letter grading.

257A-257B. Seminars: Romanticism. (4-4) Seminar, three hours. S/U or letter grading.

258A-258B. Seminars: Contemporary Italian Literature. (4-4) Seminar, three hours. S/U or letter grading.

260A. Alternative Perspectives in Italian Culture: Studies of Folk Tradition in Italian Literature. (4) Lecture, three hours. Open to undergraduate students with consent of instructor. Conspicuous diversity animating Italian society articulated through class, gender, and ethnolinguistic groups to be studied across range of texts, some selected from literary canon, but others purely oral (tales, songs, proverbs, cures and curses, secular and ritual drama). S/U or letter grading.

260B. Women in Italian Culture. (4) Lecture, three hours. Designed for graduate students. Conditions of women within Italian society, with concentration on specific works produced by women and/or repre-

senting women's conditions in either medieval/Renaissance or contemporary time. S/U or letter grading.

260C. Studies in Italian Cinema. (4) Lecture, three hours. Designed for graduate students. Italian cinema compared with other European countries' and Hollywood's cinema, with focus on its development from its origins through Fascist times to neorealism, its legacy, different genres, and contemporary scene. S/U or letter grading.

298. Variable Topics in Italian Studies. (4) Lecture, three hours; discussion, one hour. Designed for graduate students. Seminar focusing on themes and issues outside the uniquely Italian literature topics covered in regular departmental graduate courses.

370. Problems and Methods in Teaching Italian. (4) Lecture, two hours. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495A-495B-495C. Teaching Italian at College Level. (2 to 4 each) Seminar, to be arranged. S/U grading. **495A.** Study methods in preparation for teaching Italian at college level, with emphasis on teaching proficiency-oriented instruction. May not be applied toward MA course requirements. **495B.** Continuation of course 495A; study of contemporary issues in Italian language pedagogy. **495C.** Effective uses of technology in foreign language classroom. Project-based seminar in which students develop materials for classroom instruction as well as an electronic teaching portfolio.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Studies. (2 to 12) May be repeated twice for credit. S/U grading.

597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations. (2 to 12) S/U grading.

599. PhD Research and Writing. (2 to 12) May be repeated. S/U grading.

LABOR AND WORKPLACE STUDIES

*Interdisciplinary Minor
College of Letters and Science*

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Frank T. Higbie, PhD, Chair

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Janice L. Reiff, PhD (*History, Statistics*)
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Abel Valenzuela, Jr., PhD (*Chicana and Chicano Studies, Urban Planning*)
Noah D. Zatz, JD, MA (*Law*)

Scope and Objectives

The Labor and Workplace Studies minor offers an opportunity to learn about the workplace and the social, political, and economic forces that influence it. The program emphasizes the institutions of the labor market, public policy, employment relations, unions, and working-class movements. It also explores issues of race, class, and gender in the workplace. The interdisciplinary approach gives students exposure to disciplines in addition to their own majors; students should plan to take courses from multiple departments, as disciplinary breadth is encouraged.

The program is intended for students who wish to gain an in-depth understanding of the broad array of issues related to labor and the workplace. Students are encouraged to plan, with the faculty adviser and minor coordinator, either a coherent integration of courses according to a thematic or subtopical investigation or, alternatively, a comprehensive survey of the main issues involved in the study of labor and the workplace.

Undergraduate Study

Labor and Workplace Studies Minor

The Labor and Workplace Studies minor augments study in a traditional field. Students are required to complete both a departmental major and this minor. The faculty adviser certifies completion of the program.

To enter the minor, students must be in good academic standing (2.0 grade-point average or better), have completed 45 units, and file a petition and meet with the faculty adviser and minor coordinator in 9244 Bunche Hall, 310-206-0812, lsminor@irle.ucla.edu. Students are encouraged to meet early with the academic adviser to declare the minor and design a coherent program of coursework.

Required Courses (28 units minimum): Seven courses, with no more than two lower division courses (8 units), selected from African American Studies M173, Asian American Studies 113, M116, Chicana and Chicano Studies M125, M127, M128, 129, Economics 150, 151, Gender Studies M137E, M163, History 141B, 146A, 146B, any labor and workplace studies course, Management 180, Political Science 116A, Psychology M137E, Public Policy 141, C144, 145, Sociology 157, M163, 171, 173. Students may petition, prior to enrollment in the course, to apply other topical courses with substantial labor and workplace studies content.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have a minimum grade of C (2.0) in each and an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Labor and Workplace Studies

Lower Division Courses

M1A-M1B-M1CW. Work, Labor, and Social Justice in U.S. (6-6-6) (Same as GE Clusters M24A-M24B-M24CW.) Course M1A is enforced requisite to M1B, which is enforced requisite to M1CW. Limited to first-year freshmen. Letter grading. **M1A-M1B.** Lecture, three hours; discussion, two hours. Exploration of ways in which work has been transformed over last century, impact of this transformation on working people, and role of labor movement as force for social justice. **M1CW.** Special Topics. Seminar, three hours. Enforced requisite: course M1B. Topics include labor law/history, gender, race, and workplace. Satisfies Writing II requirement.

Upper Division Courses

M114C. African American Political Thought. (4) (Same as African American Studies M114C and Political Science M180A.) Lecture, three or four hours; discussion, one hour (when scheduled). Intensive introduction to African American political thought, with focus on major ideological trends and political philosophies as they have been applied and interpreted by African Americans. Debates and conflicts in black political thought, historical contest of African American social movements, and relationship between black political thought and major trends in Western thought. P/NP or letter grading.

M116. Asian American Social Movements. (4) (Same as Asian American Studies M116.) Lecture, three hours. Designed for juniors/seniors. Examination of several dimensions of Asian American social movements, including grassroots, mass movement character, political and social vision, and social and political relevance to current issues. How movement participants linked struggle for change with own personal transformation and growth. P/NP or letter grading.

M117. Negotiation. (4) (Same as Communication Studies M117.) Lecture, four hours. Art and science of negotiation in securing agreements between independent parties. Theory and practice that underlies successful negotiation. Experiential course in which students learn broad array of negotiation skills, including identifying one's own (and others') communication style, identifying and incorporating components of successful negotiation, and resolving conflict between parties. Letter grading.

M119. Asian American and Pacific Islander Labor Issues. (4) (Same as Asian American Studies M119.) Lecture, three hours. Examination of historical and contemporary labor issues in Asian and Pacific Islander American communities, with emphasis on key role that Asian and Pacific Islander American students can play in supporting labor struggles of low-income immigrants. P/NP or letter grading.

M121. Issues in Latina/Latino Poverty. (4) (Same as Chicana and Chicano Studies M121 and Urban Planning M140.) Lecture, four hours. Examination of nature and extent of urban and rural poverty confronting Latina/Latino population in U.S. Special emphasis on antipoverty policies of government and nonprofit organizations and social planning and economic development strategies. Attention also to literature on underclass. Letter grading.

M122. Planning Issues in Latina/Latino Communities. (4) (Same as Chicana and Chicano Studies M122 and Urban Planning M171.) Lecture, four hours. Exploration of socioeconomic, demographic, and political forces that shape low-income communities and analyses of planning intervention strategies. Emphasis on community and economic development and environmental equity. Letter grading.

M123. Chicano/Latino Community Formation: Critical Perspectives and Oral Histories. (4) (Same as Chicana and Chicano Studies M119.) Lecture, four hours. Analysis of historical formation and development of Chicano/Latino communities in 20th century, with focus on labor, immigration, economic structures, electoral politics, and international dimensions. Letter grading.

M125. U.S./Mexico Relations. (4) (Same as Chicana and Chicano Studies M125.) Lecture, four hours. Examination of complex dynamics in relationship between Mexico and U.S., using political economy approach to study of asymmetrical integration between advanced industrial economies and developing countries. P/NP or letter grading.

M127. Farmworker Movements, Social Justice, and United Farm Workers Legacy. (4) (Same as Chicana and Chicano Studies M127.) Lecture, four hours. Designed for juniors/seniors. Historical and social context of farmworker organizing, including its multiracial origins and its influence on fight for equality of working women. Specific focus on organizing of United Farm Workers and Farm Laborers Organizing Committee, and their relationship to AFL-CIO, other unions, and their influence on Chicano Movement. Letter grading.

M128. Race, Gender, and U.S. Labor. (4) (Same as Chicana and Chicano Studies M128.) Lecture, four hours. Designed for juniors/seniors. Introduction to history and organization of labor movement in U.S. and North America. Discussion of race, class, and gender issues raised within movement, and various strategies for social change and economic equity pursued through organized labor and other means. Letter grading.

M136. Working Families and Educational Inequalities in Urban Schools. (4) (Same as Education M136.) Seminar, three hours; fieldwork, five hours. Exploration of complex relationship between working-class and poor communities and inequalities in American urban schools. Drawing on multiple disciplinary frameworks that address issues of race, ethnicity, and immigration, schools viewed as sites where inequalities are produced and resisted. Review of history of exclusionary treatment and divergent conceptual frames that educational researchers have used to understand notion of inequality, access to quality public education, and how race, ethnicity, and class affect school experiences for working-class and poor communities. Look inside schools through community service learning opportunity to examine systems, structures, and everyday practices that sustain and reproduce inequality and policies that intend to remedy educational inequalities in urban schools. Opportunity to investigate issues of working-class families and inequalities as they relate to students' own communities and experiences. P/NP or letter grading.

M144. Women's Movement in Latin America. (4) (Same as Chicana and Chicano Studies M144 and Gender Studies M144.) Lecture, four hours. Course on women's movements and feminism in Latin America and Caribbean to examine diverse social movements and locations from which women have launched political and gender struggles. Discussion of forms of feminism and women's consciousness that have emerged out of indigenous rights movements, environmental struggles, labor movements, Christian-based communities, peasant and rural organizing, and new social movements that are concerned with race, sexuality, feminism, and human rights. Through comparative study of women's movements in diversity of political systems as well as national and transnational arenas, students gain understanding of historical contexts and political conditions that give rise to women's resistance, as well as major debates in field of study. P/NP or letter grading.

M149. Media: Gender, Race, Class, and Sexuality. (5) (Same as Communication Studies M149 and Gender Studies M149.) Lecture, four hours; activity, one hour. Limited to junior/senior Communication Studies and Gender Studies majors and Labor and Workplace Studies minors. Examination of manner in which media culture induces people to perceive various dominant and dominated and/or colonized groups of people. Ways in which women, gay, lesbian, bisexual, transgendered, racial, and ethnic marginalized peoples, class relations, and other subaltern or subordinated groups are presented and often misrep-

resented in media. Investigation and employment of practical applications of communications and feminist theories for understanding ideological nature of stereotyping and politics of representation through use of media, guest presentations, lectures, class discussions, and readings. Introduction to theory and practice of cultural studies. Letter grading.

M165. Sociology of Race and Labor. (4) (Same as African American Studies M165 and Sociology M165.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Exploration of relationship between race/ethnicity, employment, and U.S. labor movement. Analysis of underlying racial divisions in workforce and how they evolved historically. Consideration of circumstances under which workers and unions have excluded people of color from jobs and unions, as well as circumstances under which workers and unions have organized people of color into unions in efforts to improve their wages and working conditions. Impact of globalization on these dynamics. P/NP or letter grading.

M166A. Immigrant Rights, Labor, and Higher Education. (4) (Same as Asian American Studies M166A and Chicana and Chicano Studies M156A.) Seminar, three hours. New immigrant rights movement, with particular attention to labor and higher education. Overview of history of immigrant rights movement and examination of development of coalition efforts between labor movement and immigrant rights movement nationally and locally. Special focus on issue of immigrant students in higher education, challenges facing undocumented immigrant students, and legislative and policy issues that have emerged. Students conduct oral histories, family histories, research on immigration and immigrant rights, write poetry and spoken word about immigrant experience, and work to collectively develop student publication on immigrant students in higher education. P/NP or letter grading.

M166B. Research on Immigration Rights, Labor, and Higher Education. (4) (Same as Asian American Studies M166B and Chicana and Chicano Studies M156B.) Seminar, two hours. Requisite: course M166A. Expansion of research conducted by students in course M166A involving oral histories, research on immigration/labor/higher education, and evaluation of legislation and legal issues impacting undocumented students. Letter grading.

M166C. Research on Immigrant Students and Higher Education. (4) (Same as Chicana and Chicano Studies M156C.) Seminar, three hours. Enforced requisites: courses M166A, M166B. Expansion of research conducted by students in courses M166A and M166B involving oral histories, research on immigration/labor/higher education, and evaluation of legislation and legal issues impacting undocumented students. Designed around class project, where students work on showcasing all material collected throughout year. Letter grading.

M167. Worker Center Movement: Next Wave Organizing for Justice for Immigrant Workers. (4) (Same as African American Studies M167, Asian American Studies M166C, and Chicana and Chicano Studies M130.) Seminar, three hours. Development of theoretical and practical understanding of worker center movement, with focus on historical factors that have led to emergence and growth of worker centers. Role of worker centers in promoting multiracial and multiracial campaigns for workplace and economic justice. Transnational cross-border solidarity issues and rights of undocumented workers. P/NP or letter grading.

M170. Improving Worker Health: Social Movements, Policy Debates, and Public Health. (4) (Same as Community Health Sciences CM170.) Lecture, three hours; fieldwork, two hours. Examination of intersection between work, health, and environment, analysis of social causes of health disparities, investigation of historical trends and social movements, interpretation of current policy debates, and development of innovative interventions. P/NP or letter grading.

M172. Free Speech in Workplace. (4) (Same as Communication Studies M172.) Lecture, three hours. Focus on concept of freedom of expression in workplace and how First Amendment, case law, and federal and state statutes affect one's ability to speak at work. Conflict between discrimination law and ability to speak freely at work as well as meaning and limits of academic freedom. P/NP or letter grading.

M173. Nonviolence and Social Movements. (4) (Same as African American Studies M173 and Chicana and Chicano Studies M173.) Lecture, three hours; discussion, one hour. Overview of nonviolence and its impact on social movements both historically and in its present context in contemporary society, featuring lectures, conversations, films, readings, and guest speakers. Exploration of some historic contributions of civil rights struggles and role of nonviolent action throughout recent U.S. history. Examination of particular lessons of nonviolent movements as they impact social change organizing in Los Angeles. P/NP or letter grading.

M175. Agitational Communication. (4) (Same as Communication Studies M165.) Lecture, four hours; discussion, one hour (when scheduled). Theory of agitation; agitation as force for change in existing institutions and policies in democratic society. Intensive study of selected agitational movements and technique and content of their communications. Letter grading.

M176. Visual Communication and Social Advocacy. (4) (Same as Communication Studies M176.) Lecture, four hours. Visual communication reaches diverse audiences in communicating major social and political topics. Cartoons, posters, murals, and documentary photography have had powerful world impact. Survey of all four genres of visual communications as features of modern mass media. Letter grading.

M180. Southern California Regional Economy. (4) (Same as Urban Planning CM137.) Lecture, three hours. Introduction to regional economy, with emphasis on Los Angeles. Key economic sectors, labor market composition, and review of conflicting portrayals depicting dynamics of region. Two all-day bus tours of key economic regions and guest lectures by regional experts included. Letter grading.

188. Special Courses in Labor and Workplace Studies. (4) Seminar, four hours. Program-sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

194A. Research Group Seminars: Labor Summer Research Internship Program. (4) (Formerly numbered 160.) Seminar, three hours. Enforced corequisite: course 195A. Designed for undergraduate students who are part of Labor Summer Research Internship program. Discussion of qualitative applied research methods used by union researchers and scholars engaged in labor relations and workplace studies. Through combination of lectures, key readings, and active participation in hands-on research internship with local unions and organizations, development of understanding of critical debates regarding role of research and socioeconomic contexts that impact low-wage workers and their families. Offered in summer only. P/NP or letter grading.

194B. Research Group Seminars: Labor and Workplace Studies. (4) (Formerly numbered 194.) Seminar, three hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field of labor studies or of research of faculty members and/or students. May be repeated for credit. P/NP or letter grading.

195A. Community or Corporate Internships in Labor and Workplace Studies. (4) Tutorial, one hour; fieldwork, 15 hours. Enforced corequisite: course 194A. Limited to juniors/seniors. Internship in supervised setting in community agency, labor union, or other organization concerned with work and employment issues. Placements to be arranged by instructor. Students meet on regular basis with instructor and provide periodic written reports on their experience.

May be repeated for credit. Individual contract with supervising faculty member required. Offered in summer only. P/NP or letter grading.

195B. Community or Corporate Internships in Labor and Workplace Studies. (2 to 5) Tutorial, to be arranged; internship, up to 15 hours. Limited to juniors/seniors. Internship in supervised setting in community agency, labor union, or other organization concerned with work and employment issues. Placements to be arranged by instructor. Students meet on regular basis with instructor and provide periodic written reports on their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

199. Directed Research in Labor and Workplace Studies. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

LATIN AMERICAN STUDIES

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Scope and Objectives

UCLA has been in the forefront of U.S. universities with significant teaching and research interests in Latin American studies for more than 50 years. More than 100 faculty members from 22 departments and professional schools regularly offer a broad range of courses with an emphasis on Latin America. These course offerings in the humanities, social sciences, fine arts, and professional fields provide students a unique opportunity to focus on Latin America, a region of growing importance.

The Latin American Studies Program offers the Master of Arts degree. Students pursue specialized coursework and interests, culminating

in an interdisciplinary research study. Cooperative degree programs with the UCLA Schools of Education and Information Studies, Management, Public Health, and Public Affairs provide the opportunity to combine the MA in Latin American Studies with a master's degree in a professional field.

Information on the undergraduate program in this discipline, which offers a major and a minor in Latin American Studies, can be found in the International and Area Studies section earlier in this catalog.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Latin American Studies Program offers the Master of Arts (MA) degree in Latin American Studies.

Three articulated degree programs (Latin American Studies MA/Education MEd, Latin American Studies MA/Library and Information Science MLIS, and Latin American Studies MA/Public Health MPH) and two concurrent degree programs (Latin American Studies MA/Management MBA and Latin American Studies MA/Urban Planning MURP) are also offered.

Latin American Studies

Graduate Courses

205. Latin Americanist Scholarship. (4) Lecture, three hours. Panoramic introduction to methods and issues in various disciplines that study Latin America, with guest lecturers from various fields. (Latin American Studies core course.)

250B. Interdisciplinary Seminar: Latin American Studies. (4) Seminar, three hours. Problem-oriented seminar on critical areas stressed in University's cooperative programs in Latin America.

250C. Interdisciplinary Topics in Latin American Studies. (4) Reading knowledge of Spanish or Portuguese normally required. Seminar devoted to selected topics of an interdisciplinary nature.

M260. Health and Culture in Americas. (4) (Same as Anthropology M266 and Community Health Sciences M260.) Lecture, three hours. Recommended requisite: Community Health Sciences 132. Health issues throughout Americas, especially indigenous/Mestizo Latin American populations. Holistic approach covering politics, economics, history, geography, human rights, maternal/child health, culture. Letter grading.

M262. HIV/AIDS and Culture in Latin America. (4) (Same as Community Health Sciences M250.) Seminar, three hours. Exploration of cultural, political, and public health context for people living with and at risk for HIV/AIDS and their families in Latin America. Public health aspects, including epidemiology, comorbidity concerns and community interventions, medical anthropological study of experience of those impacted, and grass-roots responses, as well as political/economic context addressing poverty and structural violence. Letter grading.

M264. Latin America: Traditional Medicine, Shamanism, and Folk Illness. (4) (Same as Anthropology M264 and Community Health Sciences M264.) Lecture, three hours. Recommended preparation: Community Health Sciences 132, bilingual English/Spanish skills. Examination of role of traditional medicine and shamanism in Latin America and exploration of how indigenous and mestizo groups diagnose and treat folk illness and Western-defined diseases with variety of health-seeking methods. Examination of art, music, and ritual and case examples of religion and healing practices via lecture, film, and audiotape. Letter grading.

M268A-M268B. Seminars: Recent Latin American History. (4) (Same as History M268A-M268B.) Seminar, three hours. Course M268A is requisite to M268B. Reading knowledge of Spanish and Portuguese normally required. Seminar devoted to selected topics of interdisciplinary nature. In Progress (M268A) and letter (M268B) grading.

291A-291B. Variable Topics in Latin American Studies. (4-4) Seminar, three hours. Selected topics on Latin America. May be repeated for credit with topic change. S/U or letter grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. May be repeated, but only 4 units may be applied toward the minimum graduate course requirement. S/U or letter grading.

597. Preparation for MA Comprehensive Examination. (4) Tutorial, to be arranged. Ordinarily taken only during term in which student is being examined. S/U grading.

598. Research for and Preparation of MA Thesis. (4) Tutorial, to be arranged. Only 4 units may be applied toward minimum graduate course requirement. S/U grading.

LAW

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Jennifer L. Mnookin, JD, PhD, *Dean*

Professors

Khaled M. Abou El Fadl, JD, MA, PhD (*Omar and Azmeralda Alfi Professor of Islamic Law*)
E. Tendayi Achiume, JD, *Acting*
Iman Anabtawi, JD, MA
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Asli Ü. Bâli, JD, MPhil, MA, PhD
Steven A. Bank, JD (*Paul Hastings Endowed Professor of Business Law*)
Stuart A. Banner, JD (*Norman Abrams Endowed Professor of Law*)
Samuel L. Bray, JD
Taimie L. Bryant, JD, MA, PhD
Daniel J. Bussel, JD
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Ingrid Eagly, JD
Kristen E. Eichensehr, JD, MPhil
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Timothy Malloy, JD
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Angela R. Riley, JD
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Richard H. Sander, JD, MA, PhD
Joanna C. Schwartz, JD
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Sherod Thaxton, JD, MA, PhD, *Acting*
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Alex Wang, JD, *Acting*
Adam D. Winkler, JD, MA
Jonathan M. Zasloff, JD, MA, MPhil, PhD
Noah D. Zatz, JD, MA
Eric M. Zolt, JD, MBA (*Michael H. Schill Endowed Professor of Law*)

Professors Emeriti

Richard L. Abel, PhD, LLB, LLD (*Connell Professor Emeritus of Law*)
Norman Abrams, JD
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Peter Arenella, JD
Michael R. Asimow, JD
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Julianne B. Cramer, JD
Steven K. Derian, JD, MA
Skye Donald, JD, MA
Rachel S. Faulkner, JD
Patrick D. Goodman, JD, MEd
Deirdre P. Lanning, JD
Jason A. Light, JD
Kerry A. Lyon-Grossman, JD
Jyoti Nanda, JD
Paul Wonsowicz, JD

Adjunct Professors

Eileen A. Scallen, JD, MA
Robert Bradley Sears, JD

Adjunct Assistant Professors

Joel A. Feuer, JD, MA
Michael T. Roberts, JD, LLM

Academic Administrators

Susan Akens, JD
Joseph P. Berra, JD, MA, MDiv
Sean B. Hecht, JD
Cara Horowitz, JD
Jasleen Kohli, JD
Lisa M. Mead, JD
Lara Stemple, JD

Scope and Objectives

The UCLA School of Law is designed to produce lawyers who are well-prepared for the various private and public roles that are assigned to members of the legal profession. The school pioneered clinical teaching, is a leader in interdisciplinary research and training, and is at the forefront of efforts to link research to its effects on society and the legal profession. Students do not undertake a specific major but have the opportunity to enroll in a wide variety of courses dealing with various legal fields.

The law school is unique in that it also offers students an opportunity to specialize in six specific areas of law: business law and policy; critical race studies; entertainment, media, and intellectual property law; international and

comparative law; law and philosophy; and public interest law and policy.

The school offers a three-year curriculum leading to the JD degree and two advanced degrees—Master of Laws (LLM) and Doctor of Juridical Science (SJD).

Professional Study

The School of Law offers the Juris Doctor (JD), Doctor of Juridical Science (SJD), and Master of Laws (LLM) degrees.

Nine concurrent degree programs (Law JD/African American Studies MA, Law JD/American Indian Studies MA, Law JD/Education MEd, MA, EdD, or PhD, Law JD/Management MBA, Law JD/Philosophy PhD, Law JD/Public Policy MPP, Law JD/Public Health MPH, Law JD/Social Welfare MSW, and Law JD/Urban Planning MURP) are also offered.

The undergraduate courses offered by the School of Law are designed for undergraduate students only. For information about the legal curriculum of the School of Law, see <http://www.law.ucla.edu>.

Law, Undergraduate

Upper Division Courses

156. American Political Thought Seminar. (3) Seminar, nine hours. Examination of American political thought from founding to writings of Abraham Lincoln. Readings include Locke's *Second Treatise of Government*, Declaration of Independence, *Federalist* numbers 10 and 51, and numerous writings and speeches of Lincoln, including extensive portions of Lincoln-Douglas debates. Emphasis on class discussion. Letter grading.

161. Consumer Bankruptcy Policy Seminar. (3) Seminar, 13 hours. Examination of consumer bankruptcy policy with one architect of 1978 Bankruptcy Code. Discussion of debt payment in ancient Babylon where spouses and siblings could be sold into slavery for nonpayment of relative's debt. Examination of bankruptcy in U.S. history and analysis of heart of consumer bankruptcy policy, such as when debtors should be released from debts, what property debtors should keep, and how debtors can put together repayment plans. P/NP or letter grading.

163A. International Human Rights Colloquium. (3) Lecture, four hours. Alternative approaches to understanding international human rights law. Consideration of legal, political, sociological, and economic perspectives. Weekly presentations on topic by 11 leading human rights scholars from U.S. and abroad. Two-page critique of each paper presented by guest lecturers required. P/NP or letter grading.

163B. International Human Rights Colloquium. (1) Lecture, one hour. Requisite: course 163A. Continuation of course 163A. P/NP or letter grading.

170. Race and Racism in California Legal History, 1846 to the Present. (4) Seminar, 14 hours. Limited to freshmen/sophomores. Exploration of California legal history, with focus on issues of race and racism, beginning with mid-19th-century transition from Mexican Alta California to U.S. territory and statehood. Topics include state measures affecting California Indians in the 19th century, African Americans in California's 19th-century history, measures used to curtail Chinese immigration laws designed to prevent racial intermixing, Alien Land Laws aimed at Japanese residents of California, relocation of Japanese citizens after Pearl Harbor, California's response to U.S. immigrants from dust bowl during great depression, post-World War II through 1960s measures aimed at equal

access to things like home ownership, employment, and rental housing, and uses of initiative in modern era. P/NP or letter grading.

173. Topics in American Constitutional History. (4) Lecture, three hours. Introduction to major themes, events, and cases in American constitutional history. U.S. Supreme Court decisions and other sources of constitutional meaning, including popular movements and expressions of constitutional principle from actors in other branches of federal government and in states. Emphasis on historical background and ideological context for particular constitutional controversies at various points in American history, with more formal analysis of particular decisions and competing methods of constitutional interpretation considered. Topics include origins of judicial review, debates over meaning of federalism in early republic, slavery and constitution, Reconstruction Amendments, laissez-faire constitutionalism, citizenship and empire, origins of civil liberties, New Deal constitutionalism, and pre-history of Brown versus Board of Education. P/NP or letter grading.

175. Seminar: Individual Rights Protected by U.S. Constitution. (3) Seminar, two hours. Limited to juniors/seniors. Broad introduction to and examination of individual rights protected under Bill of Rights and 14th Amendment to U.S. Constitution, including freedom of speech and press, religious freedom, right to privacy (including procreative rights) and due process of law, constitutional protection against discrimination based on race and gender, and basic criminal procedure protections. Emphasis on principal Supreme court cases establishing scope of those rights and their limits. Letter grading.

180. Special Topics in Law. (4) Lecture, four hours. Topics of special interest to undergraduate students. Specific subjects may vary each term depending on particular interest of instructors or students. May be repeated for credit. P/NP or letter grading.

182. Law and Popular Culture. (4) Lecture, four hours. Focus on interface between two important subjects—law and popular culture. Students view series of films or television shows related to law, lawyers, and legal system. Discussion of pop culture treatment of subjects such as adversary system, good and bad lawyers, female lawyers, lawyers from lesbian, gay, bisexual, and transgender community, minority lawyers, work life of lawyers, legal education, ethical issues, jury system, and criminal and civil justice, drawing on film theory and filmmaking technique to deepen understanding of interrelationship between law and popular culture. Illumination of ways in which pop culture products both reflect and change social views about law and lawyers. Offered in summer only. P/NP or letter grading.

184. Introduction to Legal Education. (4) Lecture, four hours. Preliminary introduction to legal pedagogy and overview of American legal system. Analysis of appellate and U.S. Supreme Court cases and legislative materials to develop foundational law school skills and become familiar with principles of both scholarly and practice-oriented legal analysis. Topics include introduction to case analysis, reading cases, exploring precedent and stare decisis, separation of powers, and statutory interpretation. P/NP or letter grading.

185. Corporate Mock Trial. (4) Lecture, four hours. Introduction to basic principles of business law, such as how law applies to various business entities, duties and liabilities of corporate officers and directors, and shareholder derivative suits. American legal system and how litigation progresses from filing of complaints through trial. Students participate in mock trial at end of course. P/NP or letter grading.

186. Law and Order. (4) Lecture, four hours. Introduction to basic principles of criminal law. How to read and interpret judicial cases and provisions of penal code to learn how American criminal justice system works. Discussions structured to simulate experience of typical law school classroom. P/NP or letter grading.

187A. Legal History Colloquium. (3) Seminar, two hours. Corequisite: course 193. Reading of scholarly papers prepared by school faculty members and other scholars in fields of legal history, economics, and political science. Preparation of critiques and discussion of issues in seminar setting with author of papers. P/NP or letter grading.

187B. Politics and International Law Colloquium. (3) Seminar, two hours. Corequisite: course 193. Limited to College Honors students. Lectures on alternative theoretical approaches (including realism, institutionalism, and constructivism) to understand relationship between politics and international law. Weekly presentations on topic by 10 leading law and political science scholars from the U.S. and abroad. Reading of scholarly papers, preparation of critiques, and discussion of issues in seminar setting with authors of papers. P/NP or letter grading.

191. Variable Topics Research Seminars: Law—California Legal History. (4) Seminar, two hours. Requisite: course 170. Research project, selected in consultation with faculty member and using original and secondary materials, to be conducted, followed by major presentation of student work to class and writing of major research paper. Letter grading.

193. Journal Club Seminars: Law. (1) Seminar, one hour; discussion, two hours. Corequisite: course 187A. Adjunct course limited to undergraduate students taking law colloquium. Intensive review and follow-up of scholarly papers presented in colloquium series. Reading of legal cases and supplemental material to provide legal framework for each scholarly paper presented in colloquium. Supervised by faculty member in charge of colloquium series. May be repeated for credit. P/NP grading.

199. Directed Research in Law. (1 to 6) Tutorial, three hours per week per unit. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating scholarly paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

LESBIAN, GAY, BISEXUAL, TRANSGENDER, AND QUEER STUDIES

*Interdisciplinary Minor
College of Letters and Science*

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Alicia Gaspar de Alba, PhD, Chair

Faculty Committee

Anurima Banerji, PhD (*World Arts and Cultures/Dance*)
Maylei S. Blackwell, PhD (*Chicana and Chicano Studies, Gender Studies*)
Sue-Ellen Case, PhD (*Theater*)
Michelle F. Erail, PhD (*Gender Studies*)
Alicia Gaspar de Alba, PhD (*Chicana and Chicano Studies, English, Gender Studies*)
Gil Z. Hochberg, PhD (*Comparative Literature, Gender Studies*)
Ian W. Holloway, MSW, MPH, PhD (*Social Welfare*)
Kerri L. Johnson, PhD (*Communication Studies, Psychology*)
Rachel C. Lee, PhD, *ex officio* (*English, Gender Studies*)

Arthur L. Little, Jr., PhD (*English*)
 Elizabeth A. Marchant, PhD, *ex officio* (*Comparative Literature, Gender Studies*)
 Kathleen A. McHugh, PhD (*English; Film, Television, and Digital Media; Gender Studies*)
 Uri G. McMillan, PhD (*African American Studies, English, Gender Studies*)
 Sean A. Metzger, PhD (*Theater*)
 Mitchell B. Morris, PhD (*Musicology*)
 Laure Murat, Doctorat en Histoire (*French and Francophone Studies*)
 Sylvan M. Oswald, MFA (*Theater*)
 James A. Schultz, PhD (*Gender Studies, Germanic Languages*)
 Robert Bradley Sears, JD (*Law*)

Scope and Objectives

Although the initial focus in lesbian, gay, bisexual, transgender, and queer studies is usually on minority sexualities and transgenderism, it is impossible to study them in any meaningful way without raising questions about gender, race, ethnicity, economics/class, globalism, and the construction of scientific knowledge. Thus lesbian, gay, bisexual, transgender, and queer studies, which may at first seem to concern the private practices of a small number of people, inevitably leads to the much larger study of sexuality and culture. The Lesbian, Gay, Bisexual, Transgender, and Queer Studies program represents an important vantage point from which to investigate the social construction of sexual identity, social control of behavior, changing definitions of the family, and the place of sexual and gender expression in the public and private spheres. Because of the kinds of questions asked, lesbian, gay, bisexual, transgender, and queer studies is the site of some of the most exciting work being done today on the relationship between sexuality and culture.

UCLA's minor in Lesbian, Gay, Bisexual, Transgender, and Queer Studies provides the opportunity to study sexuality from a variety of cultural and disciplinary perspectives meant to engage students in some of the most cutting-edge research in lesbian, gay, bisexual, transgender, and queer studies. In addition, seniors in the minor are expected to do a capstone internship in an international, national, or community organization, thereby acquiring invaluable firsthand knowledge, experience, and data. After completing the minor, students should be familiar with the theoretical tools that different disciplines employ to study sexuality. They should be acquainted with some of the many different ways sexuality has been organized in the past and is organized in different cultures in the present and should have an enhanced understanding and appreciation both of the sexual diversity of the world in which they live and of the complex ways in which sexuality intersects with other categories of identity and practice.

Undergraduate Study

Lesbian, Gay, Bisexual, Transgender, and Queer Studies Minor

To enter the Lesbian, Gay, Bisexual, Transgender, and Queer Studies minor, students must have an overall grade-point average of 2.0 or better.

Required Upper Division Courses (28 units):

Lesbian, Gay, Bisexual, Transgender, and Queer Studies M114, 180SL, and five additional courses (including at least one 181 course and one 183 course) to be selected from Asian American Studies 187C, Education 147, Gender Studies 187, Lesbian, Gay, Bisexual, Transgender, and Queer Studies M101A through M101D, M107B, M115, M116, M118, M125, M126, M133, M134, M136, M137, M141, M142, M147A, M167, 181, 182, 183, 184, M191D, M191E, Psychology 129E, Scandinavian 174B, Sociology M162.

Students may petition to apply a non-listed course on the minor if they can show that lesbian, gay, bisexual, transgender, or queer issues represent a significant part (at least 25 percent) of the course content. Students are strongly urged to keep in close contact with the program coordinator who can help them plan their course of study.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Lesbian, Gay, Bisexual, Transgender, and Queer Studies

Upper Division Courses

M101A. Premodern Queer Literatures and Cultures. (5) (Same as English M101A and Gender Studies M105A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of discrete period of queer literature from beginning to circa 1850. Works by such writers as Sappho, Plato, Marlowe, Shakespeare, and Thomas Gray may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M101B. Queer Literatures and Cultures, 1850 to 1970. (5) (Same as English M101B and Gender Studies M105B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of discrete period of queer literature and culture from circa 1850 to 1970. Works by such authors as Walt Whitman, Radclyffe Hall, Gertrude Stein, Virginia Woolf, Langston Hughes, Tennessee Williams, Henry Blake Fuller, and James Baldwin may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M101C. Queer Literatures and Cultures after 1970.

(5) (Same as English M101C and Gender Studies M105C.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Examination of cultural production, specifically literature, produced by queers after Stonewall rebellion in New York in 1969, widely regarded as origins or beginning of modern lesbian and gay rights movement in U.S. Writings and films by such authors as Andrew Holleran, Leslie Feinberg, Achy Obejas, Essex Hemphill, Audre Lorde, Cheryl Dunye, and Alison Bechdel may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M101D. Studies in Queer Literatures and Cultures.

(5) (Same as English M101D and Gender Studies M105D.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in queer literatures and cultures. Topics focus on particular problem or issue in terms of its relationship to queer cultures and writings. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M107B. Studies in Gender and Sexuality.

(5) (Same as English M107B and Gender Studies M107B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Examination of literary and cultural production through lens of gender and sexuality. Depending on instructor, emphasis may be historical, regional, national, comparative, or thematic and include other intersectional vectors of identity and representation such as race and ethnicity. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies. (5) (Same as Gender Studies M114.) Lecture, three hours; discussion, one hour. Introduction to history, politics, culture, and scientific study of lesbians, gay men, bisexuals, and transgendered people; examination of sexuality and gender as categories for investigation; interdisciplinary theories and research on minority sexualities and genders. P/NP or letter grading.

M115. Topics in Study of Sexual and Gender Orientation. (4) (Same as Gender Studies M115.) Lecture/ discussion, three hours. Requisite: course M114 or Gender Studies 10. Studies in arts, humanities, social sciences, and/or life sciences on aspects of sexual orientation, gender identity, and lesbian, gay, and/or bisexual issues; variable topics may include cultural representations, historical and political change, life and health experiences, and queer or transgender theories; multiethnic and cross-cultural emphases. May be repeated for credit. Letter grading.

M116. Sexuality and the City: Queer Los Angeles. (4) (Same as Gender Studies M116.) Lecture, three hours. Requisite: course M114. Investigation of history, culture, and political economy of lesbian, gay, bisexual, and transgender Los Angeles. Letter grading.

M118. Queering American History. (4) (Same as Gender Studies M118.) Lecture, four hours. Enforced requisite: one prior lesbian, gay, bisexual, and transgender studies course. History of sexual and gender minorities in U.S. Topics include changing norms, romantic friendships, medical discourse, liberation politics, post-Stonewall culture, AIDS, transgender movement, queer theory, and politics. P/NP or letter grading.

M125. Exploring Intersections of Ability and Sexuality. (4) (Same as Disability Studies M125.) Lecture, three hours. Exploration of identity as means of understanding cultural formations, dominant/nondominant power dynamics, and systems of visual representation. Intersectional approach to explore how ability and sexuality intersect, overlap, and change notions of identity. Use of scholarly texts from disability studies, lesbian, gay, bisexual, and transgender studies, popular culture, performance, and film to investigate factors that shape ability and sexuality as basis for identity. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M126. Feminist and Queer Theory. (5) (Same as English M126 and Gender Studies M126.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Recommended: one course from English 120, 121, Gender Studies 102, 103, or 104. Investigation of key concepts and debates in study of gender, sexuality, and kinship, with focus on their interrelated significance for making of culture. Readings to be interdisciplinary, with possible emphasis on impact of changing ideas of gender and sexuality on specific historical cultures. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M133. Chicana Lesbian Literature. (4) (Same as Chicana and Chicano Studies M133 and Gender Studies M133.) Lecture, four hours. Exploration of intersection of radical First and Third World feminist politics, lesbian sexuality and its relationship to Chicana identity, representation of lesbianism in Chicana literature, meaning of *familia* in Chicana lesbian lives, and impact of Chicana lesbian theory on Chicana/Chicano studies. Letter grading.

M134. Cultural Construction of Gender and Sexuality: Homosexualities. (4) (Same as Anthropology M134 and Honors Collegium M129.) Seminar, three hours. Comparative analysis of role of environment, history, and culture in structuring of patterns of same-sex erotic behavior in Asia, Africa, Middle East, Pacific, Caribbean, and aboriginal America. P/NP or letter grading.

M136. Censored! Art on Trial. (4) (Same as Chicana and Chicano Studies M136.) Lecture, four hours. Examination of censorship in visual arts, particularly art of queer Chicana/Chicano and Latina/Latino artists such as Alma Lopez, Ester Hernández, and Alex Donis. Other censored artists include feminist artist Yolanda López, queer artists Robert Mapplethorpe and David Wojnarowicz, painter Christ Ofili, photographers Sally Mann and Andres Serrano, printmaker Enrique Chagoya, muralist Noni Olabisi, writer Salman Rushdie, and four performance artists—Karen Finley, Tim Miller, John Fleck, and Holly Hughes—whose work was vetoed by chair of National Endowment for Arts (NEA) in 1990 after they had successfully passed through NEA's peer review process and who came to be known as NEA Four. P/NP or letter grading.

M137. Lesbian, Gay, Bisexual, Transgender, and Queer Perspectives in Pop Music. (5) (Same as Music History M137.) Lecture, four hours; discussion, one hour. Survey of English-language popular music in 20th century, with focus on lesbians, gay men, and members of other sexual minorities as creators, performers, and audience members. Letter grading.

M141. African American Women's History. (4) (Same as African American Studies M141.) Lecture, four hours. Historical examination of black women's experiences in U.S. from antebellum era to present. By situating black women's experiences within major historical transitions in American history, exploration of key themes, including gender formation, sexuality, labor and class, collective action, gender and sexual violence, reproduction, and role of law. How have intersecting forms of oppression impacted black women's historical lives? How is difference constructed through interrelated and overlapping ideologies of race and gender? How do historians uncover black women's historical lives and what are challenges to such discoveries? Examination of black women's individual and collective struggles for freedom from racism, sexism, and heteropatriarchy, as well as black women's participation in and challenge to social movements, including suffrage, women's liberation, civil rights, and black power. Investigation of black women's intellectual history, including their cultural productions. Letter grading.

M142. Race, Gender, and Punishment. (4) (Same as African American Studies M142.) Seminar, four hours. Interdisciplinary examination of historical and contemporary development of modern prison industrial complex in U.S., with attention to impact of prison industrial complex on immigrants, including undocumented residents, homeless populations, women, African Americans, and transgender nonconforming and lesbian, gay, bisexual, and transgender communities.

Why does U.S. have largest prison population in world? What historical conditions and ideologies gave rise to this massive explosion in U.S. prisoner population? What policies have fueled mass imprisonment? Who is imprisoned? How have politicians used imprisonment as response to economic transformations and perceived social disorders? How is current crisis analogous to or distinct from regimes of racialized punishment in prior historical moments? Letter grading.

M147A. Psychology of Lesbian Experience. (4) (Same as Gender Studies M147A and Psychology M147A.) Lecture, two hours; discussion, one hour. Requisite: course M114 or Gender Studies 10 or Psychology 10. Designed for juniors/seniors. Review of research and theory in psychology and gender studies to examine various aspects of lesbian experience, impact of heterosexism/stigma, gender role socialization, minority status of women and lesbians, identity development within a multicultural society, changes in psychological theories about lesbians in sociohistorical context. P/NP or letter grading.

M167. Contested Sexualities. (4) (Same as Gender Studies M167.) Lecture, three hours; discussion, one hour. Sociological perspectives on formation, control, and resistance of lesbian, gay, bisexual, and transgendered people. Variable topics include identity and community; age, class, gender, and racial diversity; and analysis of contemporary issues affecting contested sexualities. Letter grading.

180SL. Lesbian, Gay, Bisexual, and Transgender Institutions and Organizations. (4) Lecture, three hours; fieldwork, five hours. Preparation: one prior lesbian, gay, bisexual, and transgender studies course. Service-learning course that offers opportunity for students to work in lesbian, gay, bisexual, and transgender-related community organizations, to reflect on political and theoretical issues involved in such work and such organizations, and to draw ideas from various courses they have already taken and test them in settings outside UCLA. P/NP or letter grading.

181. Variable Topics in Queer Diversities. (4) Lecture, four hours. Study of topics about queer diversities from lesbian, gay, bisexual, and transgender studies perspective. May be repeated for credit with consent of instructor. P/NP or letter grading.

182. Variable Topics in Education, Law, and Public Policy. (4) Lecture, four hours. Study of law, education, and public policy topics from lesbian, gay, bisexual, and transgender studies perspective. May be repeated for credit with consent of instructor. P/NP or letter grading.

183. Variable Topics in Queer Subjectivities/Theories/Histories. (4) Lecture, four hours. Study of topics about queer subjectivities/theories/history from lesbian, gay, bisexual, and transgender studies perspective. May be repeated for credit with consent of instructor. P/NP or letter grading.

184. Variable Topics in Science, Health, and Genetics. (4) Lecture, four hours. Study of science, health, and genetics topics from lesbian, gay, bisexual, and transgender studies perspective. May be repeated for credit with consent of instructor. P/NP or letter grading.

187. Selected Topics in Lesbian, Gay, Bisexual, and Transgender Studies. (4) Lecture, four hours. Study of selected topics in lesbian, gay, bisexual, and transgender studies. Consult Schedule of Classes for topics and instructors. May be repeated for credit with consent of instructor. P/NP or letter grading.

M191D. Topics in Queer Literatures and Cultures. (5) (Same as English M191D and Gender Studies M191D.) Seminar, three or four hours. Enforced requisite: English Composition 3 or 3H. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

M191E. Topics in Gender and Sexuality. (5) (Same as English M191E and Gender Studies M191E.) Seminar, three or four hours. Enforced requisite: English Composition 3 or 3H. Consult Schedule of Classes for

author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

194. Research Group or Internship Seminars: Lesbian, Gay, Bisexual, and Transgender Studies. (2) Seminar, two hours. Preparation: completion of four courses toward minor. Requisite: course M114. Corequisite: course 195. Designed for seniors who are doing internship in lesbian, gay, bisexual, or transgender organization. Discussion of organization theoretical and political issues in context of internship and relation of those issues to ideas explored in minor courses already taken. May be repeated for credit. P/NP grading.

195. Community or Corporate Internships in Lesbian, Gay, Bisexual, and Transgender Studies. (4) Tutorial, one hour. Preparation: completion of four courses toward minor. Requisite: course M114. Corequisite: course 194. Limited to seniors. Internship in supervised setting in lesbian, gay, bisexual, or transgender community organization. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

197. Individual Studies in Lesbian, Gay, Bisexual, and Transgender Studies. (2 to 4) Tutorial, one hour. Requisite: course M114. Limited to juniors/seniors. Directed program of independent study or research on specific topic within lesbian, gay, bisexual, and transgender studies, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

LIFE SCIENCES

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Frank A. Laski, PhD, *Director*

Scope and Objectives

Students who wish to study life sciences have a choice of eight majors, all of which lead to a Bachelor of Science degree: Biology, Ecology, Behavior, and Evolution, and Marine Biology (Ecology and Evolutionary Biology Department), Microbiology, Immunology, and Molecular Genetics (Microbiology, Immunology, and Molecular Genetics Department), Molecular, Cell, and Developmental Biology (Molecular, Cell, and Developmental Biology Department), Neuroscience (Neuroscience Interdepartmental Program), Physiological Science (Integrative Biology and Physiology Department), and Psychobiology (Psychology Department). This choice reflects the diversity of undergraduate instruction in life sciences at UCLA. Despite this diversity, all of these majors require a common core of introductory courses that forms the foundation for any study of life sciences and that is required for more advanced courses in each major. The common core includes courses in chemistry, physics, and mathematics, as well as introductory courses in evolution and biodiversity, cellular and or-

ganismal biology, molecular biology, and genetics. During the first two years, students may also gain experience in a research laboratory through the Student Research Program. For more information on each major, see the individual departmental listings in this section of the catalog. For additional information on the life sciences core curriculum, see <https://www.lscore.ucla.edu>.

Students considering one of the life sciences majors are encouraged to declare a major as early as possible, even in their first year. In this way, they are identified by the life sciences advising offices and receive important curricular and other information. Because the core curriculum prepares them for any of the eight majors, they have the flexibility to switch to another life sciences major at any time during their progression through the core curriculum. Note: The Marine Biology and Psychobiology majors may require some courses in addition to the life sciences core curriculum as part of the preparation. Consult the course requirements for both majors.

Undergraduate Study

Life Sciences Core Curriculum

Required: Chemistry and Biochemistry 14A, 14B, 14BL, 14C, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, or Life Sciences 30A, 30B, and Statistics 13; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

Students must also complete one of two life sciences sequences—either Life Sciences 1, 2, 3, 4, and 23L OR 7A, 7B, 7C, 23L, and 107. They may not substitute courses in either sequence.

Each core curriculum course must be passed with a grade of C– or better, and all courses must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2 OR 7A, 7B, and 7C, one year of calculus, one year of general chemistry with laboratory for majors, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

Undergraduate Research Consortium in Functional Genomics

The Undergraduate Research Consortium in Functional Genomics (URCFG) offers a se-

quence of laboratory-intensive courses designed for undergraduate students committed to pursuing research. The innovative partnership between UCLA and the Howard Hughes Medical Institute (HHMI) was formed through a major award to Professor Utpal Banerjee. The HHMI Professors Program seeks to engage leading scientists in transmitting the excitement and values of scientific research to undergraduate education. The goal of the URCFG is to emphasize the importance for academia and industry of research in the fields of medicine and biotechnology.

Sponsored by the Life Sciences Core, the URCFG provides undergraduate students from any UCLA major with the opportunity to learn biological research techniques early in their educational careers and within a structured institutional environment. Students devote between one and four terms to the study of biological research in genetics, bioinformatics, and functional genomics. The training emphasizes research concepts in basic science such as the model organism and in advanced research techniques such as electron microscopy.

Students participate in one structured lower division course—Biomedical Research 10H—which is limited to 30 students per term and is offered every term. After satisfactorily completing course 10H and with instructor consent, students may participate in up to three terms of upper division research in genes, genetics, and genomics. The upper division courses—Life Sciences 100HA, 100HB, 100HC—do not involve preexisting laboratory experiments. Syllabi for the courses are instead based on individual research projects whose outcomes students discover through the course of their studies. It is anticipated that only about one third of the students who complete course 10H will subsequently enroll in course 100HA, and students are advised that they can benefit significantly from course 10H alone.

Each course must be taken for a letter grade. Under special circumstances, one course may be waived for students who have prior research experience in fields covered by the courses. Students who complete the required courses receive a certificate of merit indicating their completion of the consortium.

To participate, students must be accepted into the Undergraduate Research Consortium in Functional Genomics. Interested students should contact the URCFG coordinator in the Molecular, Cell, and Developmental Biology Student Affairs Office, 128A Hershey Hall, 310-825-7109, for information regarding admission and an application. Applications are due no later than Friday of the fourth week of the term prior to the term in which students plan to enroll in course 10H. See <https://www.lscore.ucla.edu/research/index.html>.

Life Sciences

Lower Division Courses

1. Evolution, Ecology, and Biodiversity. (5) Lecture, three hours; laboratory, two hours; one field trip. Introduction to principles and mechanisms of evolution by natural selection; population, behavioral, and community ecology; and biodiversity, including major taxa and their evolutionary, ecological, and physiological relationships. P/NP or letter grading.

2. Cells, Tissues, and Organs. (4) Lecture, three hours; discussion, 75 minutes. Enforced requisite: Chemistry 14A or 20A. Introduction to basic principles of cell structure, organization of cells into tissues and organs, and principles of organ systems. Letter grading.

3. Introduction to Molecular Biology. (4) Lecture, three hours; discussion, 75 minutes. Enforced requisites: course 2, and Chemistry 14C or 30A. Corequisite: course 23L (students must take 23L concurrently with course 3 if they do not plan to take course 4). Introduction to basic principles of biochemistry and molecular biology. Letter grading.

3A. Introduction to Molecular Biology Laboratory. (1) Laboratory, three hours; discussion, one hour. Enforced corequisite: course 3. Introductory wet-laboratory designed to prepare students for upper division laboratory courses for all life sciences departments. Use of wet-laboratory/bioinformatics methods and tools applicable in variety of biological fields, molecular biology, microbial biology, genomic biology, bioinformatics, and psychology. Students conduct inquiry-based laboratory experiments and learn basic wet-laboratory skills to guide them to refine their skills to write their own laboratory reports and to work in groups as team. Letter grading.

3H. Introduction to Molecular Biology (Honors). (5) Lecture, two and one half hours; discussion, 90 minutes; movie section, two and one half hours. Enforced requisites: course 2, and Chemistry 14C or 30A. Honors course parallel to course 3, but at a more advanced level. Letter grading.

4. Genetics. (5) Lecture, three hours; discussion, 75 minutes. Enforced requisites: courses 2, 3, Chemistry 14A (or 20A), 14C (or 30A). Enforced corequisite: course 23L. Principles of Mendelian inheritance and chromosomal basis of heredity in prokaryotes and eukaryotes, recombination, biochemical genetics, mutation, DNA, genetic code, gene regulation, genes in populations. Letter grading.

4A. Collaborative Learning Workshop. (1) Lecture, two hours. Enforced corequisite: course 4. Development of problem-solving skills and intuition in genetics in collaborative learning environment. P/NP grading.

7A. Cell and Molecular Biology. (5) Lecture, three hours; discussion, 75 minutes. Introduction to basic principles of cell structure and cell biology, biochemistry, and molecular biology. P/NP or letter grading.

7B. Genetics, Evolution, and Ecology. (5) Lecture, three hours; discussion, 110 minutes. Enforced requisite: course 7A. Principles of Mendelian inheritance and population genetics. Introduction to principles and mechanisms of evolution by natural selection, population, behavioral, and community ecology, and biodiversity, including major taxa and their evolutionary, ecological, and physiological relationships. Letter grading.

7C. Physiology and Human Biology. (4) Lecture, three hours; discussion, 75 minutes. Enforced requisite: course 7B. Organization of cells into tissues and organs and principles of physiology of organ systems. Introduction to human genetics and genomics. Letter grading.

15. Life: Concepts and Issues. (5) Lecture, three hours; discussion, two hours. Introduction to important concepts and issues in the field for non-life sciences majors. Topics include chemistry of life, genetics, physiology, evolution, and ecology—all explored in lecture and debates, with a writing component. P/NP or letter grading.

15L. Life: Concepts and Issues Laboratory. (1) Laboratory, two hours. Enforced corequisite: course 15. Broad introduction to biology, with focus on scientific literacy and thinking. Topics include scientific thinking and decision making to interpret and analyze data, evolution and genetics, physiology (chemistry, nutrition, reproduction, endocrinology, and neurobiology), and human behavioral biology. Letter grading.

20. Quantitative Concepts for Life Sciences. (5) Lecture, three hours; discussion, two hours. Preparation: three years of high school mathematics (to algebra II), some basic familiarity with computers. Introduction to variety of quantitative concepts that are relevant to biology. Designed to enhance quantitative skills that are essential for success in life sciences, chemistry, mathematics, and physics courses that make up core curriculum for life sciences majors at UCLA. Biological examples used throughout to gain appreciation of relevance of mathematics to biology. Letter grading.

23L. Introduction to Laboratory and Scientific Methodology. (2) Laboratory, three hours; discussion, one hour. Enforced requisite: course 2. Must be taken concurrently with either course 3 or 4. Introductory life sciences laboratory designed for undergraduate students. Opportunity to conduct wet-laboratory cutting-edge bioinformatics laboratory experiments. Students work in groups of three conducting experiments in areas of physiology, metabolism, cell biology, molecular biology, genotyping, and bioinformatics. Letter grading.

30A. Mathematics for Life Scientists. (5) Lecture, three hours; laboratory, one hour. Preparation: three years of high school mathematics (to algebra II), some basic familiarity with computers. Mathematical modeling as tool for understanding dynamics of biological systems. Fundamental concepts of single-variable calculus and development of single- and multi-variable differential equation models of dynamical processes in ecology, physiology, and other subjects in which quantities change with time. Use of free computer program Sage for problem solving, plotting, and dynamical simulation in laboratory. Letter grading.

30B. Mathematics for Life Scientists. (5) Lecture, three hours; laboratory, two hours. Enforced requisite: course 30A. Introduction to concept of matrices and linear transformations to equip students with some basic tools to understand dynamics of multivariable nonlinear systems. Examples from ecological, physiological, chemical, and other systems. Letter grading.

97. Variable Topics in Life Sciences. (1 to 4) Seminar, two to four hours. Current issues in research and/or development in life sciences. Consult Schedule of Classes for topics and instructors. May be repeated once for credit with consent of instructor. P/NP or letter grading.

98X. PEERS Collaborative Learning Workshops for Life Sciences Majors. (1) Laboratory, three hours. Corequisite: associated undergraduate lecture course in life sciences. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated three times, but only 1 unit may be applied toward graduation. P/NP grading.

Upper Division Courses

100HA-100HB-100HC. Advanced Research in Genes, Genetics, and Genomics. (4-4-4) Lecture, two hours; laboratory, 10 hours. Requisite: course 10H. Course 100HA is requisite to 100HB, which is requisite to 100HC. Designed for undergraduates who are committed to pursuing research. Advanced research training in genetics, cell and developmental biology, bioinformatics, functional genomics. Techniques include electron microscopy, other light microscopies, immunohistochemistry. Part of Undergraduate Research Consortium in Functional Genomics sponsored by Howard Hughes Medical Institute Professors Program. Letter grading.

107. Genetics. (5) Lecture, three hours; discussion, 75 minutes. Enforced requisites: courses 7C, 23L, Chemistry 14A (or 20A), 14C (or 30A). Advanced Men-

delian genetics, recombination, biochemical genetics, mutation, DNA, genetic code, gene regulation, genes in populations. Letter grading.

110. Career Exploration in Life Sciences. (2) (Formerly numbered 5.) Seminar, two hours. Recommended for sophomore and incoming transfer students. Designed to help life sciences students expand awareness of their interests, needs, and skills to make deliberate career choices. Introduction to many components that go into making effective career decisions to help students explore diversity of career options for life sciences majors. P/NP grading.

130. Science Classroom Observation and Participation. (1) Seminar, one hour. Preparation: completion of three mathematics and/or science courses at level required of science majors. Observation, participation, and assisting in science classes at elementary, middle, and secondary schools. May be repeated for credit. P/NP grading.

M174. Health Disparities. (4) (Same as Psychology M174.) Lecture, three hours. Examination of health disparities and ways in which societal responses to race and ethnicity in combination with variety of other factors create differential quality and access to healthcare resulting in poor health outcomes in racial/ethnic minorities. Basic foundation for critical thinking about assumptions that shape life sciences, medical research, clinical practice, and social and behavioral sciences as they relate to racial and ethnic minority populations and to teach students to integrate concepts of culture and health disparities into other social, biological, political, psychological, genetic, and clinical health interests. P/NP or letter grading.

192A. Undergraduate Practicum in Life Sciences. (4) Seminar, two hours; laboratory, three hours. Enforced requisite: course 23L. Limited to sophomores/juniors/seniors. Introductory training and supervised practicum in laboratory setting for advanced undergraduate students in courses related to life sciences. Students work on oral presentation and professional communication skills, with constant assessment of progress. Resources provided for undergraduate students to improve their public speaking abilities under guidance of faculty members. Letter grading.

192B. Undergraduate Practicum in Life Sciences. (4) Seminar, two hours; laboratory, three hours. Enforced requisites: courses 23L, 192A. Limited to sophomores/juniors/seniors. Advanced training and supervised practicum in laboratory setting for experienced undergraduate students in courses related to life sciences. Students refine their professional skills and take leadership roles in mentoring students under guidance of faculty members. Students gain understanding of how to develop academic courses in life sciences, including design of group activities, curriculum development, and assessment of student learning. Letter grading.

192C. Undergraduate Practicum in Life Sciences. (4) Seminar, two hours. Enforced requisite: course 4. Limited to sophomores/juniors/seniors. Training and supervised practicum in development of problem-solving skills and intuition in genetics in collaborative learning environment for advanced undergraduate students in courses related to life sciences. Students work on oral presentation skills and assist in preparation and presentation of materials and development of programs under guidance of faculty members. May be repeated once for credit. Letter grading.

192D. Undergraduate Practicum in Life Sciences. (4) Laboratory, two hours; activity, two hours. Enforced requisites: courses 30A, 30B. Limited to sophomores/juniors/seniors. Introductory training and supervised practicum for advanced undergraduate students in courses related to mathematics for life sciences. Students work on oral presentation and professional communication skills, with constant assessment of progress. Resources provided for undergraduate students to improve their public speaking abilities under guidance of faculty members. May be repeated for credit. Letter grading.

192E. Undergraduate Practicum in Life Sciences. (4) Laboratory, two hours; activity, two hours. Enforced requisites: courses 30A, 30B, 192D. Limited to sophomores/juniors/seniors. Advanced training and supervised practicum for experienced undergraduate students in courses related to mathematics for life sciences. Students refine their professional skills and take leadership roles in mentoring students under guidance of faculty members. Students gain understanding of how to develop academic courses in life sciences, including design of group activities, curriculum development, and assessment of student learning. May be repeated for credit. Letter grading.

192F. Learning Assistant Program in Life Sciences Core. (4) Seminar, three hours; activity, one hour. Enforced requisite: course 3. Limited to sophomores/juniors/seniors. Training and supervised practicum for advanced undergraduate students who assist in preparation of materials and development of innovative instruction methods with guidance of faculty members in small course settings. Students trained in current topics in pedagogy and education research. May be repeated twice for credit. P/NP or letter grading.

192G. Learning Assistant Pedagogy. (1) Seminar, one hour. Limited to sophomores/juniors/seniors. Training and supervised practicum seminar for advanced undergraduate students who are learning assistants (LAs) or peer learning facilitators (PLFs). Exploration of current topics in pedagogy and education research. P/NP or letter grading.

199. Directed Research or Senior Project in Life Sciences. (2) Tutorial, two hours. Enforced requisite: course 3. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper/project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Course

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

LINGUISTICS

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Lecturer

Benjamin J. Lewis, MA

Scope and Objectives

The goal of the Department of Linguistics is the enrichment of knowledge about the nature, grammar, and history of human language. Linguistics is a theoretical discipline, akin to philosophy, anthropology, and cognitive psychology. It is important for prospective students to understand that studying linguistics is not a matter of learning to speak many languages. Linguistics courses draw examples from the grammars of a wide variety of languages, and the more languages linguists know about in depth (as distinct from possessing fluency in the use of them), the more likely they are to discover universal properties. It is also possible to pursue these universal aspects of human language through the intensive in-depth study of a single language. This accounts for the high proportion of examples from English and familiar European languages found in linguistics courses and research publications.

The core areas of linguistic theory are phonology (with its roots in phonetics), morphology, syntax, and semantics. A grammar is a system of rules that characterize the phonology, morphology, syntax, and semantics of a natural language. The properties of grammars are the central focus of linguistic theory.

Because language is central to all humanistic disciplines, as well as to several social sciences areas, it is studied from many points of view. Linguistics itself cannot be said to recognize a single optimal approach to the subject. Hence, the courses provide a variety of approaches that reflect the diversity of the field.

The Linguistics Department has consistently been ranked among the very best linguistics departments in the country. It offers programs leading to the Bachelor of Arts, Master of Arts, and PhD degrees.

Undergraduate Study

The majors described below are of three types: (1) a major that concentrates entirely on general linguistics, (2) several majors that combine the basic courses of the general program with a language concentration or other related fields, and (3) a major in Applied Linguistics. The combined majors in conjunction with instructional certification programs are espe-

cially appropriate for students who have non-university teaching careers as goals.

A 2.0 grade-point average in linguistics courses is required for all Linguistics Department majors.

Applied Linguistics BA

The Applied Linguistics major provides students with the opportunity to combine training in the analysis of linguistic structure with coursework in areas that relate language to culture, social organization, and learning. Students can select suites of courses that have the potential of leading to career paths involving language, including but not limited to language teaching (both foreign and English as a second language), interpretation and translation, editing, speech pathology and communication disorders, accent improvement, computational work with language data, and work in an international setting with government and private organizations.

Preparation for the Major

Required: Anthropology 33 or Psychology 10, Linguistics 11, 20, and completion of the equivalent of the sixth term of one foreign language.

Students who complete an advanced upper division language course are considered to have completed the equivalent of whatever courses are requisite to that advanced language course (e.g., if students complete German 152, they have automatically satisfied the requirement of the sixth term in German).

Transfer Students

Transfer applicants to the Applied Linguistics major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of one foreign language, one introduction to linguistics course, one introduction to psychology course, and one introduction to linguistic anthropology course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Ten upper division courses as follows: Linguistics 102 (or 103), 119A (or 120A), 119B (or 120B), two upper division elective courses taught in the Linguistics Department, and five courses selected from Anthropology 141, 147, M148W, 149A through 149F, M162, Applied Linguistics 102W, 153, 155, Arabic 180, 181, Armenian 110, Chicana and Chicano Studies 164SL, M167SL, M170SL, Communication Studies 119, M125, M144A, French 105, German 140, Hebrew 180A, 180B, Iranian 131, Linguistics 114, M116, M146, M176A, M176B, M177, M178, Portuguese 100A, 100B, Slavic CM114, Spanish 100A, 100B, 160.

Only one course may be selected from Anthropology 149A through 149F. No more than one service learning course may be applied. Only one language course beyond the second year may fulfill an elective requirement (e.g., Korean 100A can fulfill an elective requirement, but not Korean 100B or 100C). No more than one

course from Linguistics 197, 198A, and 199 may be applied toward the major.

Linguistics BA

The Linguistics major is designed for students with an exceptional interest in and aptitude for the study of languages and linguistics. It enables undergraduates to gain substantial familiarity with several languages and types of linguistic structure and to become conversant with the historical study of language and formal theories of linguistics.

Preparation for the Major

Required: Linguistics 20; two of the following: Philosophy 31, Psychology 10 (or 100A), one cultural anthropology course; completion of the equivalent of the sixth term of one foreign language and the third term of a second foreign language.

Students who complete an advanced language course are considered to have completed the equivalent of whatever courses are requisite to that one (e.g., if students complete French 100, they have automatically satisfied the requirement of the sixth term of work in one language). Students are required to complete at least the equivalent of the third term in a language other than those in the Romance, Slavic, or Germanic families. This requirement may be satisfied either as part of or in addition to the language requirement described in the preceding paragraph.

Transfer Students

Transfer applicants to the Linguistics major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one introduction to linguistics course, two courses from symbolic logic, introductory psychology or psychological statistics, or cultural anthropology, and two years of one foreign language and one year of a second foreign language (at least one year must be in a language other than those in the Romance, Slavic, or Germanic families).

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division or graduate courses, including Linguistics 103, 120A, 120B, two courses from 110, 120C, and 130 (or 132), and two courses from 165A, 165B, 165C (students may substitute courses 200A, 200B, and 200C for 165A, 165B, and 165C respectively if they receive grades of A in 120A, 120B, and 120C respectively and have consent of instructor). Courses 165A, 165B, and 165C, or 200A, 200B, and 200C, are recommended for students planning linguistics graduate work. The remaining four courses are electives, three of which must be linguistics courses (no more than one course from 197, 198A, and 199 may be applied toward the major). The other course may be in linguistics or in another field as follows: Classics 180, English 113A, 113B, Philosophy C127A, C127B, 172,

Psychology 120A, 124E, 133C, or an upper division course in a foreign language beyond the sixth term. Nonlinguistics courses not on the list may be used as electives only in consultation with an adviser.

Linguistics 198A and 198B, or 199, are recommended for students planning to pursue graduate work in linguistics, since they provide an opportunity to engage in independent research and to write a paper that can be submitted to graduate admissions committees. To enroll in the courses, students must consult with the department's senior essay and honors counselor.

Linguistics and Anthropology BA

Preparation for the Major

Required: Linguistics 20, completion of the equivalent of the sixth term of one foreign language and the third term of a second foreign language (at least three terms must be in a language other than those in the Romance, Slavic, and Germanic families). Anthropology 33 is strongly recommended, when offered.

Transfer Students

Transfer applicants to the Linguistics and Anthropology major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one introduction to linguistics course and two years of one foreign language and one year of a second foreign language (at least one year must be in a language other than those in the Romance, Slavic, or Germanic families). One cultural and communication course is strongly recommended.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division courses as follows: Linguistics 102 (or 103), 110, 119A (or 120A), 119B (or 120B or 127), M146; two courses from 114, 120C, 144, 160, 161, 170; one course from Anthropology 141 or Sociology M124A; and three upper division electives from the Anthropology 130 series (one course only), the 140 series (one course only), the 170 series (one course only), Sociology M124A, CM125. Linguistics 165A and 165B (or 200A and 200B with grades of A in 120A and 120B respectively and consent of instructor) are recommended for students planning to pursue graduate work in linguistics.

Linguistics and Asian Languages and Cultures BA

Preparation for the Major

Required: Completion of the sixth term in either Chinese, Japanese, or Korean; Linguistics 20; one cultural anthropology course; either Chinese 50, Japanese 50, or Korean 50, as appropriate; completion of the equivalent of the third term of a second foreign language.

Transfer Students

Transfer applicants to the Linguistics and Asian Languages and Cultures major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of either Chinese, Japanese, or Korean, one introduction to linguistics course, one cultural anthropology course, one Chinese, Japanese, or Korean civilization course, and one year of a second foreign language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Linguistics 103, 110, 120A, 120B, 165A (or 165B), one upper division elective in linguistics; for the classical Japanese track: Japanese 100A, 100B, four courses from CM122, 140A, 140B, 140C, C149; for the modern Japanese track: Japanese 100A, 100B, 100C, three courses from M120, CM122, CM123 or CM127, 130B; for the classical Chinese track: Chinese 110A, 110B, 110C, three courses from 140A through 140D, 165, 187; for the modern Chinese track: Chinese 100A, 100B, 100C, three courses from 101A, 101B, 130A, 130B; for the Korean track: Korean 100A, 100B, 100C, three courses from 101A, 101B, 101C, CM120, CM127, 130A, 130B.

Linguistics and Computer Science BA

Preparation for the Major

Required: Linguistics 20, Computer Science 31, 32, 33, 35L, Mathematics 31A, 31B, 61 or 180, Philosophy 31, completion of the sixth term in one foreign language or the third term in each of two foreign languages.

Transfer Students

Transfer applicants to the Linguistics and Computer Science major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one introduction to linguistics course, two calculus courses, one symbolic logic course, four computer programming courses, and two years of one foreign language or one year in each of two foreign languages. One discrete structures course is recommended.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division courses as follows: Linguistics 102 (or 103), 119A (or 120A), 120B, 120C, 165A (or 165B or 165C), 180, 185A, Computer Science 131, 132 (or 161), 180, 181.

Linguistics and English BA

Preparation for the Major

Required: Linguistics 20, English 4W (or 4HW), 10A, 10B, 10C, Philosophy 31, completion of the equivalent of the sixth term of one foreign language and the third term of a second foreign language.

Transfer Students

Transfer applicants to the Linguistics and English major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one introduction to linguistics course, one critical reading and writing course, one year of English literature survey courses, one symbolic logic course, and two years of one foreign language and one year of a second foreign language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Twelve upper division courses as follows: Linguistics 103, 110, 120A, 120B, 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor), one upper division elective in linguistics, English 113A, 113B, 120, and three electives from 140A, 140B, 150A, 150B, 151, the 150 series (one course only), the 160 series (one course only), the 170 series (one course only).

Linguistics and French BA

Preparation for the Major

Required: Linguistics 20, French 1, 2, 3, 4, 5, 6, 12, completion of the equivalent of the third term of a second foreign language.

Transfer Students

Transfer applicants to the Linguistics and French major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of French, one introduction to linguistics course, one French literature course, and one year of a second foreign language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division courses as follows: Linguistics 103, 110, 120A, 120B, 165A (or 165B), one upper division elective in linguistics, French 100, 101, 105, 107, and one elective upper division French course beyond the sixth term.

Linguistics and Italian BA

Preparation for the Major

Required: Linguistics 20, Italian 1, 2, 3, 4, 5, 6, Latin 1, 2, 3, one cultural anthropology course.

Transfer Students

Transfer applicants to the Linguistics and Italian major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of Italian, one year of Latin, one introduction to linguistics course, and one cultural anthropology course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Twelve upper division courses as follows: Linguistics 103, 110, 120A, 120B, 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor), two upper division electives in linguistics, Italian 102A, 180, and three upper division electives in Italian.

Linguistics and Philosophy BA

Preparation for the Major

Required: Linguistics 20, Philosophy 31, and two courses from 1, 6, 7, 21, completion of the equivalent of the sixth term of one foreign language and the third term of a second foreign language.

Transfer Students

Transfer applicants to the Linguistics and Philosophy major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one introduction to linguistics course, one symbolic logic course and two courses from Western philosophy, political philosophy, philosophy of mind, or skepticism and rationality, and two years of one foreign language and one year of a second foreign language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Twelve upper division courses as follows: Linguistics 102 (or 103), 119A (or 120A), 120B, 120C, 165B (or 165C or 180), one upper division elective in linguistics; six upper division courses in philosophy, including at least five from Philosophy 124 through 135, 170, 172, 174, 180, 181, 184, of which at least two must be from 127A, 127B, 172.

Linguistics and Psychology BA

Preparation for the Major

Required: Linguistics 20, Psychology 10, 85, 100A, 100B, completion of the equivalent of the sixth term of one foreign language and the third term of a second foreign language. Program in Computing 10A is strongly recommended.

Transfer Students

Transfer applicants to the Linguistics and Psychology major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one introduction to linguistics course, one introduction to psychology course, one introduction to cognitive science course, one psychological statistics course, one psychology research methods course, and two years of one foreign language and one year of a second foreign language. One introduction to programming course is strongly recommended.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division courses (six in linguistics and five in psychology) as follows: Linguistics 102 (or 103), 119A (or 120A), 119B (or 120B), 130, 132, and one upper division elective in linguistics (multiple-listed courses may not be applied). Linguistics C135 or 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor) is strongly recommended. Also required are Psychology 120A, 121, 133B, and two electives to be selected from 115, 116, M117C, 118, M119L, 124A, 124B, 124C, 124E, 130, 133C, 133E, 133F, 186A, 186B.

Linguistics and Scandinavian Languages BA

Preparation for the Major

Required: Linguistics 20, Scandinavian 1, 2, 3, 4, and 5, or 11, 12, 13, 14, and 15, or 21, 22, 23, 24, and 25, completion of the equivalent of the third term of a second foreign language.

Transfer Students

Transfer applicants to the Linguistics and Scandinavian Languages major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of either Swedish, Norwegian, or Danish, one introduction to linguistics course, and one year of a second foreign language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division courses as follows: Linguistics 103, 110, 120A, 120B, 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor), one upper division elective in linguistics, two courses from Scandinavian 105, 106, 107 (or one of these courses twice), 197 (in a topic related to Scandinavian linguistics, under the direction of a Scandinavian or Linguistics faculty member), and three upper division electives in Scandinavian.

Linguistics and Spanish BA

Preparation for the Major

Required: Linguistics 20, Spanish 1, 2, 3, 4, 5, 25 (or 27), 42, 44, completion of the equivalent of the third term of a second foreign language.

Transfer Students

Transfer applicants to the Linguistics and Spanish major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of Spanish, one Spanish composition course, one Spanish civilization course, one Spanish American civilization course, one introduction to linguistics course, and one year of a second foreign language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Twelve upper division courses as follows: Linguistics 103, 110, 120A, 120B, 165A (or 165B), one additional upper division course in linguistics, Spanish 100A, 100B, 119, 160, and two additional upper division Spanish courses.

Honors Program

Departmental honors are awarded at graduation to those students who have a grade-point average of 3.6 or better in their junior and senior years and who have received a grade of A in Linguistics 198A and 198B or in 199. Qualified students may be proposed by any member of the faculty to the faculty as a whole for the award of highest honors on the basis of a piece of research in linguistics completed at UCLA.

Computing Specialization

Students in any of the departmental majors (except Linguistics and Computer Science) may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major and (2) completing Program in Computing 10A and 10B and 10C (or Computer Science 31 and 32), Linguistics 180, 185A, Mathematics 61. Students graduate with a bachelor's degree in their major and a specialization in Computing.

Linguistics Minor

The Linguistics minor is designed for students where training in linguistic analysis could be an enhancement to their major programs and to students who are interested in language(s) but do not have time in their undergraduate programs to pursue multiquarter language sequences. In addition, the minor provides students with a way to design custom joint degrees with linguistics where the Linguistics Department does not have an existing joint degree program combining linguistics and another field.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Course (5 units): Linguistics 20.

Required Upper Division Courses (27 to 30 units): Six courses, which must include Linguistics 102 (or 103), 119A (or 120A), 119B (or 120B), two elective courses selected from 104 through 185B, and an additional elective linguistics course, which may be upper or lower division.

Students who plan to complete the 165 course series must first take the corresponding 120 course series.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Linguistics offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Linguistics.

American Sign Language

Lower Division Courses

1. Elementary American Sign Language. (5) Lecture, five hours. Introduction to fundamentals of American sign language. P/NP or letter grading.

2. Elementary American Sign Language. (5) Lecture, five hours. Enforced requisite: course 1. Introduction to fundamentals of American sign language. P/NP or letter grading.

3. Elementary American Sign Language. (5) Lecture, five hours. Enforced requisite: course 2. Introduction to fundamentals of American sign language. P/NP or letter grading.

4. Intermediate American Sign Language. (5) Lecture, five hours. Enforced requisite: course 3. Intermediate American sign language. P/NP or letter grading.

5. Intermediate American Sign Language. (5) Lecture, five hours. Enforced requisite: course 4. Intermediate American sign language. P/NP or letter grading.

6. Intermediate American Sign Language. (5) Lecture, five hours. Enforced requisite: course 5. Intermediate American sign language. P/NP or letter grading.

8. Intensive Elementary American Sign Language. (15) Lecture, 20 hours. Intensive elementary instruction in American sign language equivalent to courses 1, 2, and 3. Offered in summer only. P/NP or letter grading.

Upper Division Courses

M115. Enforcing Normalcy: Deaf and Disability Studies. (4) (Same as Disability Studies M115.) Lecture, three hours. Exploration of historical, medical, social, political, philosophical, and cultural influences that have constructed categories of normalcy, disability, and deafness. Building on writing of Michel Foucault and critical work in field of disability studies, inquiry into institutions that have enforced standards of normalcy throughout 19th and 20th centuries to present. Primary attention to rise of medical authority in West, history of eugenics, and contemporary bioethics issues confronting disability and deaf communities. P/NP or letter grading.

M120. History of Deaf Communities in America. (4) (Same as History M147E.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of history and culture of deaf communities in America (circa 1800 to present) by exploring major events impacting deaf people, including development of sign language, deaf education, autism, politics of deafness, eugenics, deaf revolution movements, and role of hearing technology. Historical development of emergence, growth, and survival of America's deaf community and development of deaf identity over time. P/NP or letter grading.

121. History of Mass Media and Deaf Community. (4) Lecture, three hours. Historical survey of mass media (print, film, television, and Internet) as sources and interpreters of deafness and deaf people within context of U.S. social and cultural history. Examination of historical changes in products of mass media within deaf community and ways of critiquing media sources. P/NP or letter grading.

Linguistics

Lower Division Courses

1. Introduction to Study of Language. (5) Lecture, three hours; discussion, one hour. Summary, for general undergraduates, of what is known about human language; unique nature of human language, its structure, its universality, and its diversity; language in its social and cultural setting; language in relation to other aspects of human inquiry and knowledge. P/NP or letter grading.

2. Language in U.S. (5) Lecture, four hours; discussion, one hour (when scheduled). Survey of languages of U.S. (American Indian languages, oldest immigrant languages, ethnic and regional varieties of English, and newest arrival languages) and social and political aspects of American language use. P/NP or letter grading.

3. American Sign Language: Structure and Culture. (5) Lecture, four hours; discussion, one hour (when scheduled). Knowledge of American Sign Language (ASL) not required. Introduction to principles of linguistics through study of structure of American Sign Language and culture of deaf Americans. Phonology, morphology, syntax of ASL, historical change, signed language universals, education, identity, and ASL literature. P/NP or letter grading.

4. Language and Evolution. (5) Lecture, four hours; discussion, one hour (when scheduled). Basic concepts and tools of evolutionary theory and linguistics relevant to how organisms with linguistic abilities could evolve, and how particular languages, as cultural artifacts, survive and change so rapidly. P/NP or letter grading.

5. World Languages. (5) Lecture, four hours; discussion, one hour (when scheduled). Introduction to linguistic diversity of world and to such core areas of linguistics as study of sound production and patterning (phonetics and phonology), word formation (morphology), and sentence formation (syntax). Structural characteristics of world languages and methods of classifying languages into families and types. Detailed discussion of representative languages with audiovisual illustrations to acquaint students with distinctive features of several key language families. Discussion of such linguistic concepts as pidgins and creoles,

unaffiliated languages, language contact, and language endangerment, together with related sociopolitical issues. P/NP or letter grading.

6. Out of Mouths of Babes. (4) Lecture, six hours. How children acquire language, most complex of human cognitive achievements. Look at amazing linguistic abilities of infants and their first perception and production of speech sounds, then investigation of how children learn words and rules for producing and understanding sentences. Language acquisition in special populations such as children acquiring sign languages, bilingual children, and people acquiring language beyond critical period. Focus mainly on English, with consideration of other languages. Offered in summer only. P/NP or letter grading.

8. Language in Context. (4) Lecture, four hours; discussion, one hour (when scheduled). How is meaning of language influenced by world around us? Introduction to pragmatics, speech acts, ordinary language philosophy, and linguistic relativity. Good foundation for students of linguistic theory, philosophy, sociology, anthropology, and communication studies. P/NP or letter grading.

M10. Structure of English Words. (5) (Same as English M40.) Lecture, four hours; discussion, one hour. Introduction to structure of English words of classical origin, including most common base forms and rules by which alternate forms are derived. Students may expect to achieve substantial enrichment of their vocabulary while learning about etymology, semantic change, and abstract rules of English word formation. P/NP or letter grading.

11. Language in Action: Perspectives from Applied Linguistics. (5) (Formerly numbered Applied Linguistics 10.) Lecture, three hours; discussion, two hours. Not open for credit to students with credit for former Applied Linguistics 10 or 10W. Introduction to rich variety of topics, approaches, research, and resources in interdisciplinary field of applied linguistics as it is practiced at UCLA. Series of presentations by various faculty members whose work is in those areas. Introduction to various ways language works in real life and how this can be described and studied in systematic ways; designed to teach students to write effectively. Letter grading.

20. Introduction to Linguistic Analysis. (5) Lecture, four hours; discussion, one hour (when scheduled). Introduction to theory and methods of linguistics: universal properties of human language; phonetic, phonological, morphological, syntactic, and semantic structures and analysis; nature and form of grammar. P/NP or letter grading.

88A-88B. Lower Division Seminars. (4-4) Seminar, three hours. Limited to freshmen/sophomores. Variable topics; consult Schedule of Classes, College of Letters and Science, or department for topics to be offered in specific term. May be repeated for credit. P/NP or letter grading.

97. Variable Topics in Linguistics. (1 to 4) Seminar, three hours; fieldwork, two hours. Variable topics offered by departmental faculty members. May be repeated for credit with topic change. P/NP or letter grading.

Upper Division Courses

102. Introduction to Applied Phonetics. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: course 20 with grade of B- or better. Not open for credit to students with credit for course 103. Basics of articulation and acoustics of phonetic categories used in world's languages, including English in comparison with other languages. Practice in speech-sound perception and transcription using International Phonetic Alphabet (IPA). Applications to language learning/teaching and other fields. P/NP or letter grading.

103. Introduction to General Phonetics. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: course 20 with grade of B- or better. Not open for credit to students with credit for course 102. Phonetics of variety of languages and

phonetic phenomena that occur in languages of world. Extensive practice in perception and production of such phenomena. P/NP or letter grading.

104. Experimental Phonetics. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 102 or 103. Survey of principal techniques of experimental phonetics. Use of laboratory equipment for recording and measuring phonetic phenomena. P/NP or letter grading.

105. Morphology. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: course 20. In linguistics, morphology is study of word structure. Morphological theory seeks to answer questions such as how should words and their component parts (roots, prefixes, suffixes, vowel changes) be classified crosslinguistically? how do speakers store, produce, and process complex words (words with affixes, compounds)? how do speakers know how to produce correct word forms even when they have not previously heard them and how do speakers know that particular words are well-formed or ill-formed? is there principled distinction in traditional division between inflection and derivation? how can we best account for variation in forms that are same (e.g., root in keep/kept even though vowels are different)? can we formulate crosslinguistic generalizations about word structure? P/NP or letter grading.

110. Introduction to Historical Linguistics. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 20, 102 or 103, 119A or 120A. Methods and theories appropriate to historical study of language, such as comparative method and method of internal reconstruction. Sound change, grammatical change, semantic change. P/NP or letter grading.

110G. Introduction to Historical Linguistics for Graduate Students. (2) Lecture, four hours. Limited to and designed for entering linguistics graduate students to help remedy entrance deficiencies in historical linguistics. Basic historical linguistics: methods and theories appropriate to historical study of language, such as comparative methods and method of internal reconstruction. Sound change, grammatical change, semantic change. S/U grading.

111. Intonation. (4) Lecture, two hours; laboratory, two hours. Requisites: courses 20, 102 or 103, one course from 119A, 119B, 120A, or 120B. Recommended: course 104 or 204A. Survey of intonational theory for English and other languages, with particular emphasis on phonological models of intonation. Laboratory equipment used for recording and analyzing intonation, and students learn to transcribe intonational elements. Letter grading.

114. American Indigenous Linguistics. (5) Lecture, four hours; discussion, one hour (when scheduled). Strongly recommended preparation: course 20. Survey of genetic, areal, and typological classifications of American indigenous languages; writing systems for American indigenous languages; American indigenous languages in social and historical context. One or more languages may be investigated in detail. P/NP or letter grading.

M116. Introduction to Japanese Linguistics. (4) (Same as Japanese M120.) Lecture, three hours; discussion, one hour. Enforced requisite: Japanese 3 or 8 or Japanese placement test. Introduction to Japanese grammar and sociolinguistics through reading, discussion, and problem solving in phonology, syntax, semantics, and discourse pragmatics. Letter grading.

119A. Phonological Structures. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 20, and 102 or 103. Not open for credit to students with credit for course 120A. Sound structures and sound patterns in world's languages. Rules, rule ordering, features, syllable, and higher structure. Comparison of sound patterns of different languages. Tools of phonology as applicable to other fields. P/NP or letter grading.

119B. Syntactic Structures. (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: course 20 with grade of B- or better. Not open for credit to students with credit for course 120B. Syntactic structures and syntactic patterns in world's

languages. Basic tools of syntactic analysis. Comparison of syntactic patterns of different languages. Tools of syntax as applicable to other fields. P/NP or letter grading.

120A. Phonology I. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 20, 103. Introduction to phonological theory and analysis. Rules, representations, underlying forms, derivations. Justification of phonological analyses. Emphasis on practical skills with problem sets. P/NP or letter grading.

120B. Syntax I. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 20 with grade of B- or better. Course 120A is not requisite to 120B. Descriptive analysis of morphological and syntactic structures in natural languages; emphasis on insight into nature of such structures rather than linguistics formalization. P/NP or letter grading.

120C. Semantics I. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 120B. Survey of most important theoretical and descriptive claims about nature of meaning. P/NP or letter grading.

127. Syntactic Typology and Universals. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 20. Study of essential similarities and differences among languages in grammatical devices they use to signal the following kinds of concepts: relations between nouns and verbs (case and word order), negation, comparison, existence/location/possession, causation, interrogation, reflexivization, relativization, attribution (adjectives), time (tense and aspect), and backgrounding (subordination). Data from a range of languages presented and analyzed. P/NP or letter grading.

C128A-C128B. Romance Syntax: French. (4-4) Lecture, four hours. Preparation: some knowledge of French (or one Romance language). Enforced requisite: course 120B. Course C128A is enforced requisite to C128B. Aspects of structure of French language, with emphasis on properties of construction not found in English. Concurrently scheduled with courses C228A-C228B. P/NP or letter grading.

130. Language Development. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 20, 119A or 120A, 119B or 120B. Survey of research and theoretical perspectives in language development in children. Discussion and examination of child language data from English and other languages. Emphasis on universals of language development. Topics include infant speech perception and production, development of phonology, morphology, syntax, and word meaning. P/NP or letter grading.

132. Language Processing. (5) Lecture, four hours; laboratory, one hour (when scheduled). Requisites: courses 20, 119A or 120A, 119B or 120B. Central issues in language comprehension and production, with emphasis on how theories in linguistics inform processing models. Topics include word understanding (with emphasis on spoken language), parsing, anaphora and inferencing, speech error models of sentence production, and computation of syntactic structure during production. P/NP or letter grading.

C135. Neurolinguistics. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 1 or 20, and 130. Examination of relationship between brain, language, and linguistic theory, with evidence presented from atypical language development and language disorders in the mature brain. Topics include methodologies to investigate normal and atypical hemispheric specialization for language and children and adults with acquired and/or congenital language disorders. Concurrently scheduled with course C235. P/NP or letter grading.

C140. Bilingualism and Second Language Acquisition. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 119A or 120A, 119B or 120B, 130. Introduction to study of childhood bilingualism and adult and child second language (L2) acquisition, with focus on understanding nature of L2 grammar and grammatical processes underlying L2/

bilingual acquisition. Discussion of neurolinguistic and social aspects of bilingualism. Concurrently scheduled with course C244. P/NP or letter grading.

M141. Current Methods of Language Teaching. (5) (Same as English Composition M141.) Lecture, four hours; discussion, one hour. Enforced requisite: course 20. Survey of theory and practice in teaching second languages, including (1) past and present methods used to teach second languages, (2) current theory and practice underlying skills-based instruction and integrated approaches, and (3) factors that affect second language acquisition and learning. Development of knowledge base in and rational base for design, development, implementation, and evaluation of second language instruction programs. P/NP or letter grading.

144. Fundamentals of Translation and Interpreting. (5) (Formerly numbered M144.) Lecture, four hours; discussion, one hour. Recommended preparation: knowledge of English and at least one other language. Enforced requisite: course 20. Examination of salient lexical, structural, cultural, and social aspects of translating and interpreting between two languages or dialects. Survey of development of translation theories and rise of community interpreting and critical role of language brokering. P/NP or letter grading.

M146. Language in Culture. (5) (Same as Anthropology M140.) Lecture, three hours; discussion, one hour; fieldwork, two hours. Requisite: course 20 or Anthropology 33. Study of language as aspect of culture; relation of habitual thought and behavior to language; and language and classification of experience. Holistic approach to study of language, with emphasis on relationship of linguistic anthropology to fields of biological, cultural, and social anthropology, as well as archaeology. P/NP or letter grading.

M150. Introduction to Indo-European Linguistics. (5) (Same as Indo-European Studies M150.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: course 1 or 20. Indo-European languages (ancient and modern), including their relationships, chief characteristics, writing systems, and sociolinguistic contexts; nature of reconstructed Indo-European proto-language and proto-culture. One or more Indo-European languages may be investigated in detail. P/NP or letter grading.

160. Field Methods. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 102 or 103, 119A or 120A, 119B or 120B. Analysis of language unknown to members of class from data elicited from native speaker of that language. P/NP or letter grading.

161. Language Documentation. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 20 (enforced), and 105 or 119A or 120A. Issues in documenting languages, including collection of primary data using linguistic field methods, organizing data into documents (annotated texts, dictionaries, multimedia presentations, technical articles), audiences for language documents (speakers of target languages, linguists, scholars outside linguistics, general public), presentation and storage of documents (paper publication, online publication, electronic and physical archives), documenting endangered languages, and organizations and initiatives for documenting endangered languages. Presentations focus on case studies. Student projects in assembling primary data and creating annotated texts with commentary. P/NP or letter grading.

165A. Phonology II. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 120A. To be taken in term following completion of course 120A or as soon as possible thereafter. Further study in phonological theory and analysis: autosegmental theory, syllable structure, metrical theory, interface of phonology and grammar. P/NP or letter grading.

165B. Syntax II. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 120B. To be taken in term following completion of course 120B or as soon as possible thereafter. Recommended for students who plan to do graduate work in

linguistics. Form of grammars, word formation, formal and substantive universals in syntax, relation between syntax and semantics. P/NP or letter grading.

165C. Semantics II. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 120C. Recommended for students who plan to do graduate work in linguistics. Further study in relevant logics, relations between sentences, lexical semantics, tense and aspect, adverbs, modality and intensionality. P/NP or letter grading.

170. Language and Society: Introduction to Sociolinguistics. (4) Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 20. Study of patterned covariation of language and society; social dialects and social styles in language; problems of multilingual societies. P/NP or letter grading.

175. Linguistic Change in English. (5) Lecture, four hours. Requisites: courses 110, 120A, 120B. Principles of linguistic change as exemplified through detailed study of history of English pronunciation, lexicon, and syntax. P/NP or letter grading.

M176A. Japanese Phonology and Morphology. (4) (Same as Japanese CM122.) Lecture, three hours; discussion, one hour. Recommended preparation: two or more years of Japanese. Survey of Japanese phonetics, phonology, and morphology. Letter grading.

M176B. Structure of Japanese. (4) (Same as Japanese CM123.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese. Functional linguistic analysis of grammatical structures of Japanese, often in form of contrastive analysis of Japanese, English, and other languages. Letter grading.

M177. Structure of Korean. (4) (Same as Korean CM120.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Korean, or one year of Korean and some knowledge of linguistics. Discussion of major syntactic, semantic, and pragmatic characteristics of Korean in light of linguistic universals, with brief introduction to formation, typological features, and phonological structure of Korean. Letter grading.

M178. Contrastive Analysis of Japanese and Korean. (4) (Same as Japanese CM127 and Korean CM127.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese and knowledge of Hangul, or two years of Korean and knowledge of Hiragana. Prior linguistic background also recommended. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. Letter grading.

180. Mathematical Structures in Language I. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 119B or 120B. Recommended: Philosophy 31. Prior mathematics knowledge not assumed. Mathematical introduction to phonology, syntax, and semantics. Elementary material on logic, sets, functions, relations, and trees. P/NP or letter grading.

185A. Computational Linguistics I. (5) Lecture, four hours; laboratory, one hour. Requisites: courses 120B, 180, Program in Computing 10B (or Computer Science 32). Recommended: course 165B or 200B. Survey of recent work on natural language processing, including basic syntactic parsing strategies, with brief glimpses of semantic representation, reasoning, and response generation. P/NP or letter grading.

185B. Computational Linguistics II. (5) Lecture, four hours; laboratory, one hour. Requisite: course 185A. Extensions of basic language processing techniques to natural language processing. Recent models of syntactic, semantic, and discourse analysis, with particular attention to their linguistic sophistication and psychological plausibility. P/NP or letter grading.

191A. Variable Topics Research Seminars: Linguistics. (4) Seminar, three hours. Requisite: course 1 or 20. Research seminar on selected topics. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

191B. Variable Topics Research Seminars: Linguistics. (2 or 4) Seminar, three hours. Research seminar on selected topics. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

192A-192B. Undergraduate Practicum in Linguistics. (4-2) Seminar, seven hours (course 192A) and six hours (course 192B). Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to assist in linguistics courses. Students assist in preparation of materials and development of innovative programs under guidance of faculty members and teaching assistants. May not be applied toward course requirements for any Linguistics Department major. Individual contract required. Information and contracts may be obtained from Linguistics Department. P/NP grading.

197. Individual Studies in Linguistics. (2 to 4) Tutorial, four hours. Requisite: course 1 or 20. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198A. Honors Research in Linguistics I. (4) Tutorial, to be arranged. Preparation: 3.5 grade-point average. Requisite or corequisite: course 165A (or 200A) or 165B (or 200B). Recommended: completion of both courses 165A and 165B (or 200A and 200B) before or during term in which course 198A is taken. Limited to juniors/seniors. Development of honors thesis or comprehensive research project on linguistic topic selected by student under direct supervision of faculty member. Consult professor in charge to enroll. May be repeated for credit. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

198B. Honors Research in Linguistics II. (2) Tutorial, to be arranged. Requisite: course 198A. Limited to juniors/seniors. Completion of honors thesis or comprehensive research project begun in course 198A under direct supervision of faculty member. Consult professor in charge to enroll. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Linguistics. (4) Tutorial, to be arranged. Limited to senior Linguistics majors. Supervised individual research or investigation of linguistic topic selected by student under guidance of faculty mentor. Culminating paper required. Consult professor in charge to enroll. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Phonological Theory I. (4) Preparation: graduate linguistics student or grade of A in course 120A or equivalent course in phonology. Courses 200A and 201 form two-course survey of current research in phonological theory. Interaction of phonology with morphology and syntax, syllable structure, stress.

200B. Syntactic Theory I. (4) Preparation: graduate linguistics student or grade of A in course 120B or equivalent course in syntax. In-depth introduction to selected topics in theory of constituent structure and syntax of predicates, arguments, and grammatical relations. Topics include levels of representation, X-bar theory, case theory, thematic roles, the lexicon, grammatical function-changing rules, head-complement relations.

200C. Semantic Theory I. (4) Lecture, four hours. Requisite: course 180 or 208. Overview of current results and research methods in linguistic semantics. Topics include generalized quantifiers and semantic universals, predicate argument structures, variable

binding and pronominalization, formal semantic interpretation, syntax and LF, tense, ellipsis, and focus. Letter grading.

201A. Phonological Theory II. (4) Lecture, four hours. Requisite: course 200A. Continuation of course 200A. Second course in two-course survey of current research in phonological theory. Topics include autosegmentalism (tone, tiers, segment structure), feature theory, underspecification, prosodic morphology. S/U or letter grading.

201B. Syntactic Theory II. (4) Lecture, four hours. Requisite: course 200B. In-depth introduction to selected topics in theory of movement processes and topics selected from following areas: WH-movement and related rules, subadjacency and other constraints on movement; ECP and related conditions on distribution of empty categories; resumptive pronoun constructions; parametric variation in movement constructions; LF WH-movement; filters; reconstruction; parasitic gaps; barriers theory; control theory; null subject parameter. S/U or letter grading.

201C. Semantic Theory II. (4) Lecture, four hours. Requisites: courses 200C, 208. Survey of current approaches to model-theoretic semantics and its relation to current linguistic theory. Approaches include generalized categorial grammars, Montague grammar, Boolean-based systems, generalized quantifier theory, logical form. S/U or letter grading.

202. Language Change. (4) Requisites: courses 110, 200A, 200B. Survey of current theories and research problems in language change.

203. Phonetic Theory. (4) Requisite: course 120A. Preliminaries to speech analysis. Functional anatomy of vocal organs; fundamental principles of acoustics and of acoustic theory of speech production; issues in perception of speech; nature and design of feature systems for phonetic and phonological analysis.

204A. Experimental Phonetics. (4) Lecture, three hours. Requisite: course 103. Use of laboratory equipment to investigate articulatory, acoustic, and perceptual properties of speech. Topics include experimental design and statistics; theoretical basis of acoustic structure of speech sounds; computer-based speech processing, analysis, and modeling; perceptual and acoustic evaluation of synthetic speech. S/U or letter grading.

204B. Speech Production. (4) Lecture, three hours; laboratory, one hour. Requisite: course 104 or 204A. Survey of topics in speech production research, especially as related to linguistic phonetics. Topics include physiology of vocal tract and models of speech production and articulatory/acoustic relations. Emphasis on use of laboratory methods such as aerodynamic transducers, electroglottography, static and electropalatography, electromagnetic articulography, and imaging techniques. S/U or letter grading.

204C. Speech Perception. (2 to 4) Lecture, four hours. Recommended requisite: course 104 (or 204A) or 111 (or 211). Limited to graduate students. Survey of topics in speech perception research. Topics include auditory physiology and psychophysics, categorical speech perception, and cross-linguistic speech perception and word recognition. Emphasis on use of experimental methods such as lexical decision, gating, priming, eye tracking, phoneme monitoring, and word spotting. S/U or letter grading.

205. Morphological Theory. (4) Requisites: courses 200A, 200B. Survey of current theories and research problems in morphology. Nature of morphological structure; derivational and inflectional morphology; relation of morphology to phonology, syntax, and the lexicon.

208. Mathematical Structures in Language I. (5) Lecture, four hours; discussion, one hour. Requisite: course 120B. Recommended: Philosophy 31. Prior mathematics knowledge not assumed. Mathematical introduction to phonology, syntax, and semantics. Elementary material on logic, sets, functions, relations, and trees. S/U or letter grading.

209A. Computational Linguistics I. (5) Lecture, four hours; laboratory, one hour. Survey of recent work on natural language processing, including basic syn-

tactic parsing strategies, with brief glimpses of semantic representation, reasoning, and response generation. S/U or letter grading.

209B. Computational Linguistics II. (5) Lecture, four hours; laboratory, one hour. Requisite: course 209A. Extensions of basic language processing techniques to natural language processing. Recent models of syntactic, semantic, and discourse analysis, with particular attention to their linguistic sophistication and psychological plausibility. S/U or letter grading.

209C. Computational Semantics. (4) Lecture, four hours. Preparation: basic knowledge of semantics. Requisite: course 185A or 209A. Study of algorithms to compute and reason with meanings of sentences and texts. Phenomena such as anaphor resolution, presupposition projection, and tracking time, objects, and space to be covered. S/U or letter grading.

210A. Field Methods I. (4) Lecture, four hours. Preparation: grade of B or better in course 103 or in examination on practical phonetics. Requisites: courses 200A, 200B. Analysis of a language unknown to members of class from data elicited from a native speaker of the language. Term papers to be relatively full descriptive sketches of the language. May be repeated for credit with topic change. S/U or letter grading.

210B. Field Methods II. (4) Lecture, four hours. Requisite: course 210A in preceding term. Because different languages are investigated in different years, course 210B can only be taken as direct continuation of 210A in same year. When there are multiple sections, continuation must be in same section. May be repeated for credit with topic change. S/U or letter grading.

211. Intonation. (4) Lecture, two hours; laboratory, two hours. Requisite: course 120A or 120B. Survey of intonational theory for English and other languages, with particular emphasis on phonological models of intonation. Laboratory equipment used for recording and analyzing intonation, and students learn to transcribe intonational elements. Letter grading.

212. Learnability Theory. (4) Lecture, four hours. Requisite: course 180 or 208. Survey of some of most significant results on capabilities of learners, given precise assumptions about their memory, time, and computational power, and precise assumptions about information provided by environment. S/U or letter grading.

213A. Grammatical Development. (4) Requisites: courses 200A, 200B. Recommended: course 130 or 233. Survey of theoretical perspectives and contemporary empirical research in development of syntax and other components of grammar, with particular emphasis on acquisition theory, linguistic theory, and issues of learnability.

213B. Brain Bases for Language. (4) Requisites: courses 200A, 200B. Recommended: course C135 or C235. Survey of theoretical perspectives and contemporary empirical research in neurological and cognitive bases for language, language development, and language breakdown.

213C. Linguistic Processing. (4) Lecture, four hours. Requisites: courses 165B and/or 200B. Recommended: courses 132 or 232, 201B. Survey of theoretical perspectives and contemporary empirical research in human processing of language (comprehension and/or production), with emphasis on syntactic processing, ambiguity resolution, effects of memory load, and relationship between grammar and processor. S/U or letter grading.

214. Survey of Current Syntactic Theories. (4) Lecture, four hours. Requisite: course 201B. Survey of several current syntactic theories, compared with one another and with theory discussed in course 201B, from point of view of theories' relative descriptive and explanatory power. S/U or letter grading.

215. Syntactic Typology. (2 or 4) Lecture, four hours. Requisite: course 200B. Current results in word-order universals; genetic classification of world's languages; cross-language properties of specific construction types, including relative clauses, passives, positive

and negative coreference systems, agreement systems, deixis systems, and types of sentence complements. S/U or letter grading.

216. Syntactic Theory III. (4) Lecture, four hours. Requisite: course 201B. Selected topics on syntactic theories of anaphora and quantification from the following areas: typology of binding categories (pronouns, anaphors, etc.); theory of locality conditions in binding theory; parametric variation in binding; quantifier movement; existential quantification and unselective binding; strong and weak crossover; superiority; scope interactions; complex quantifier structures. S/U or letter grading.

217. Experimental Phonology. (4) Lecture, four hours. Requisite: course 200A. Survey of experimental work that bears on claims about speakers' knowledge of phonology, including theories of lexicon, relation between perception and phonology, and universal markedness relations. Letter grading.

218. Mathematical Structures in Language II. (4) Lecture, four hours. Requisite: course 180 or 208. In-depth study of generalized quantifier theory; selected topics from distinctive feature theory, formal syntax, partial orders and lattices, formal language theory, variable binding operators. May be repeated for credit with consent of instructor. S/U or letter grading.

219. Phonological Theory III. (4) Lecture, four hours. Requisite: course 201A. Current research and issues in phonological theory. Topics include structure of phonological representations, relations between representations, architecture of grammar, and explanations for phonological typology. S/U or letter grading.

220. Linguistic Areas. (4) Requisites: courses 120A, and 120B or 127. Recommended: courses 165A or 200A, 165B or 200B. Analysis and classification of languages spoken in a particular area (e.g., Africa, the Balkans, South Asia, Southeast Asia, Australia, Aboriginal North America, Aboriginal South America, Far East, etc.). May be repeated for credit with topic change.

225. Linguistic Structures. (4) Lecture, four hours. Requisites: courses 120A, and 120B or 127. Recommended: courses 165A or 200A, 165B or 200B. Phonological and grammatical structure of a selected language and its genetic relationships to others of its family. May be repeated for credit with topic change. S/U or letter grading.

C228A-C228B. Romance Syntax: French. (4-4) Lecture, four hours. Preparation: some knowledge of French (or one Romance language). Enforced requisite: course 120B. Course C228A is enforced requisite to C228B. Aspects of structure of French language, with emphasis on properties of construction not found in English. Concurrently scheduled with course C128A-C128B. S/U or letter grading.

230. History of Linguistics. (4) Requisites: courses 200A, 200B. Aspects of history of linguistics. Different course offerings may deal with different areas of linguistics (e.g., phonology, syntax) or with different historical periods. May be repeated for credit with topic change.

232. Language Processing. (5) Lecture, four hours; laboratory, one hour. Central issues in language comprehension and production, with emphasis on how theories in linguistics inform processing models. Topics include word understanding (with emphasis on spoken language), parsing, anaphora and inferencing, speech error models of sentence production, and computation of syntactic structure during production. S/U or letter grading.

233. Language Development. (5) Lecture, four hours. Requisites: courses 20, 120A, 120B. Survey of research and theoretical perspectives in language development in children. Discussion and examination of child language data from English and other languages. Emphasis on universals of language development. Topics include infant speech perception and production, development of phonology, morphology, syntax, and word meaning. S/U or letter grading.

C235. Neurolinguistics. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 1 or 20, and 130. Examination of relationship

between brain, language, and linguistic theory, with evidence presented from atypical language development and language disorders in the mature brain. Topics include methodologies to investigate normal and atypical hemispheric specialization for language and children and adults with acquired and/or congenital language disorders. Concurrently scheduled with course C135. Graduate students expected to read more advanced neurolinguistic literature and produce research papers of greater depth. S/U or letter grading.

236. Computational Phonology. (4) Lecture, four hours. Introduction to computational models of phonology and phonological acquisition. Topics include finite state machines, probabilistic automata, over-constrained models, dynamic programming methods. Letter grading.

M238. Analyzing Historical Texts. (4) (Same as History M266C.) Seminar, four hours. Designed for graduate students. Analysis of linguistic structure and ethnohistorical context of legal and other documents written by native-speaking scribes and translators. Topics include paleographic technique and text analysis software. May be repeated for credit. S/U grading.

239. Research Design and Statistical Methods. (2 or 4) Lecture, four hours. Topics include identifying and defining research topics, selecting appropriate research design and measurements, designing student experiments, recording, analyzing, and interpreting data. S/U or letter grading.

C244. Bilingualism and Second Language Acquisition. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 119A or 120A, 119B or 120B, 130. Introduction to study of childhood bilingualism and adult and child second language (L2) acquisition, with focus on understanding nature of L2 grammar and grammatical processes underlying L2/bilingual acquisition. Discussion of neurolinguistic and social aspects of bilingualism. Concurrently scheduled with course C140. Graduate students expected to read more advanced literature, do in-class presentation, and submit graduate-level term paper. S/U or letter grading.

M246C. Topics in Linguistic Anthropology. (4) (Same as Anthropology M241.) Problems in relations of language, culture, and society. May be repeated for credit.

251A. Topics in Phonetics and Phonology. (4) Seminar, four hours. Requisite: course 200A. Course 201A, 203, or 204A may be required. Specialized topics in phonetics and phonology. Meets with course 251B. May be repeated for credit. Letter grading.

251B. Topics in Phonetics and Phonology. (2) Seminar, four hours. Requisite: course 200A. Course 201A, 203, or 204A may be required. Specialized topics in phonetics and phonology. May not be applied toward MA degree requirements. Meets with course 251A. May be repeated for maximum of 8 units. S/U grading.

252A. Topics in Syntax and Semantics. (4) Seminar, four hours. Requisite: course 200B. Course 201B, 201C, 214, 215, or 216 may be required. Specialized topics in syntax and semantics. Meets with course 252B. May be repeated for credit. Letter grading.

252B. Topics in Syntax and Semantics. (2) Seminar, four hours. Requisite: course 200B. Course 206, 207, 214, 215, or 216 may be required. Specialized topics in syntax and semantics. May not be applied toward MA degree requirements. Meets with course 252A. May be repeated for credit. S/U grading.

253A. Topics in Language Variation. (4) Seminar, four hours. Requisite: course 110. Course 202 may be required. Specialized topics in language variation. Meets with course 253B. May be repeated for credit. Letter grading.

253B. Topics in Language Variation. (2) Seminar, four hours. Requisite: course 110. Course 202 may be required. Specialized topics in language variation. May not be applied toward MA degree requirements. Meets with course 253A. May be repeated for credit. S/U grading.

254A. Topics in Linguistics. (4) Seminar, four hours. Requisites: courses 200A, 200B. Course 201A, 201B, 201C, 202, 203, 204A, 205, 208, 209A, 209B, 212, 213A, 213C, 214, 215, 216, or 218 may be required. Individual proseminars on topics such as child language, sociolinguistics, neurolinguistics, computational linguistics, psycholinguistics, etc. Meets with course 254B. May be repeated for credit. Letter grading.

254B. Topics in Linguistics. (2) Seminar, four hours. Requisites: courses 200A, 200B. Course 201A, 201B, 201C, 202, 203, 204A, 205, 208, 209A, 209B, 212, 213A, 213C, 214, 215, 216, or 218 may be required. Individual proseminars on topics such as child language, sociolinguistics, neurolinguistics, computational linguistics, psycholinguistics, etc. May not be applied toward MA degree requirements. Meets with course 254A. May be repeated for credit. S/U grading.

260A-260B-260C. Seminars: Phonetics. (2 or 4 each) Seminar, three hours. Each course may be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

261A-261B-261C. Seminars: Phonology. (2 or 4 each) Seminar, three hours. Each course may be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

262A-262B-262C. Seminars: Syntax and Semantics. (2 or 4 each) Seminar, three hours. Each course may be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

264A-264B-264C. Seminars: Psycholinguistics/Neurolinguistics. (2 or 4 each) Seminar, three hours. Special topics may include child language, neurolinguistics, psycholinguistics, sociolinguistics, etc. Each course may be taken independently for credit. May not be applied toward MA degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

265A-265B-265C. American Indian Linguistics Seminar. (1 or 4 each) Seminar, two hours; fieldwork, four hours. Presentation of research on American Indian linguistics. Each course may be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 1 unit. May be repeated for credit. S/U grading.

275. Linguistics Colloquium. (4) Preparation: completion of MA requirements. Varied linguistic topics, generally presentations of new research by students, faculty, and visiting scholars. S/U grading.

276. Linguistics Colloquium. (No credit) Designed for graduate students. Same as course 275, but taken without credit by students not presenting a colloquium. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

403. Practical Phonetics Training. (1) Extensive practice in production, perception, and transcription of sounds from a wide range of languages. Concurrently scheduled with practical sections of course 103. S/U grading.

411A-411B. Research Orientation. (2-2) Designed for graduate students. Sequence of lectures by department faculty to acquaint new graduate students with research directions and resources of department and elsewhere on campus. May not be applied toward MA or PhD degree requirements. S/U grading.

422. Practicum: Phonetic Data Analysis. (2) Designed for graduate students. Workshop in examination of phonetic data, such as sound spectrograms, oscillographic records, and computer output. May not be applied toward MA or PhD degree requirements. S/U grading.

444. MA Thesis Preparation Seminar. (4) Student presentations, two hours. Student presentations of proposed topics for MA theses, with discussion and criticism by other students and faculty. May not be applied toward MA or PhD degree requirements. S/U grading.

495. College Teaching of Linguistics. (2) Seminar, to be arranged. Designed for graduate students. Required of all new teaching assistants. Seminars, workshops, and apprentice teaching. Selected topics, including curriculum development, various teaching strategies and their effects, teaching evaluation, and other topics on college teaching. Students receive unit credit toward full-time equivalence but not toward any degree requirements. S/U grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596A. Directed Studies. (1 to 8) Preparation: completion of all undergraduate deficiency courses. Directed individual study or research. May be applied toward MA course requirements. May be repeated for credit. S/U grading.

596B. Directed Linguistic Analysis. (1 to 8) Preparation: completion of MA degree requirements. Intensive work with native speakers by students individually. May be repeated for credit. S/U grading.

597. Preparation for MA Comprehensive and PhD Qualifying Examinations. (1 to 8) Preparation: at least six graduate linguistics courses. May be taken only in terms in which students expect to take comprehensive or qualifying examinations. May not be applied toward MA course requirements. May be repeated for credit. S/U grading.

598. Research for MA Thesis. (1 to 8) Research and preparation of MA thesis. May not be applied toward MA course requirements. May be repeated for a maximum of 8 units. S/U grading.

599. Research for PhD Dissertation. (1 to 16) Preparation: advancement to PhD candidacy. May not be applied toward PhD course requirements. May be repeated for credit. S/U grading.

Swahili

Lower Division Courses

1. Elementary Swahili. (4) (Formerly numbered African Languages 1A.) Lecture, five hours. Major language of East Africa, particularly Tanzania. P/NP or letter grading.

2. Elementary Swahili. (4) (Formerly numbered African Languages 1B.) Lecture, five hours. Enforced requisite: course 1. Major language of East Africa, particularly Tanzania. P/NP or letter grading.

3. Elementary Swahili. (4) (Formerly numbered African Languages 1C.) Lecture, five hours. Enforced requisite: course 2. Major language of East Africa, particularly Tanzania. P/NP or letter grading.

4. Intermediate Swahili. (4) (Formerly numbered African Languages 2A.) Lecture, four hours. Enforced requisite: course 3. P/NP or letter grading.

5. Intermediate Swahili. (4) (Formerly numbered African Languages 2B.) Lecture, four hours. Enforced requisite: course 4. P/NP or letter grading.

6. Intermediate Swahili. (4) (Formerly numbered African Languages 2C.) Lecture, four hours. Enforced requisite: course 5. P/NP or letter grading.

Upper Division Courses

101. Advanced Swahili. (4) (Formerly numbered African Languages 103A.) Lecture, four hours. Enforced requisite: course 6. P/NP or letter grading.

102. Advanced Swahili. (4) (Formerly numbered African Languages 103B.) Lecture, four hours. Enforced requisite: course 101. P/NP or letter grading.

103. Advanced Swahili. (4) (Formerly numbered African Languages 103C.) Lecture, four hours. Enforced requisite: course 102. P/NP or letter grading.

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Edward E. Leamer, PhD (*Chauncey J. Medberry Professor of Management*)
Marvin B. Lieberman, PhD
Steven A. Lippman, PhD (*George Robbins Professor of Management*)
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 Glenn W. Graves, PhD
 Martin Greenberger, PhD (*IBM Professor Emeritus of Computers and Information Systems*)
 Dominique M. Hanssens, PhD (*Bud Knapp Marketing Professor Emeritus*)
 Alfred E. Hofflander, PhD
 Sanford M. Jacoby, PhD (*Howard Noble Professor Emeritus of Management*)
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 J. Clayburn La Force, Jr., PhD
 Barbara S. Lawrence, PhD
 Bennet P. Lientz, PhD
 James B. MacQueen, PhD
 John J. McDonough, DBA
 Bill W. McKelvey, PhD
 Bruce L. Miller, PhD
 Daniel J.B. Mitchell, PhD (*Ho-Su Wu Professor Emeritus of Management*)
 Frank G. Mittelbach, MA
 Donald G. Morrison, PhD (*William E. Leonhard Professor Emeritus of Management*)
 Rosser T. Nelson, PhD
 William G. Ouchi, PhD (*Sanford and Betty Sigoloff Professor Emeritus of Corporate Renewal*)
 William P. Pierskalla, PhD
 Richard W. Roll, PhD (*Joel Fried Professor Emeritus of Applied Finance*)
 Hans Schöllhammer, DBA
 Carol A. Scott, PhD
 John P. Shelton, PhD
 George A. Steiner, PhD, LittD
 E. Burton Swanson, PhD
 Walter N. Torous, PhD (*Lee and Seymour Graff Endowed Professor Emeritus*)
 Harold M. Williams, JD
 Bruce G. Willison, MBA

Associate Professors

Corinne B. Bendersky, PhD
 Anand V. Bodapati, PhD
 Leonardo A. Bursztyn, PhD
 Bruce I. Carlin, PhD
 Felipe Caro, PhD
 Judson A. Caskey, PhD
 M. Keith Chen, PhD
 Sanford E. DeVoe, PhD
 Paola Giuliano, PhD
 Noah J. Goldstein, MA, PhD
 Guillaume Y. Roels, PhD
 Jenessa R. Shapiro, PhD
 Suzanne B. Shu, MEng, MBA, PhD
 Miguel M. Unzueta, PhD
 Nico Voigtlander, MSc, PhD
 Maia J. Young, PhD
 Robert Zeithammer, PhD
 Shi Zhang, PhD

Assistant Professors

Daniel D. Andrei, PhD
 Christiane Barz, PhD
 Fernanda Bravo, PhD
 Christian Dippel, MA, PhD
 Henry L. Friedman, PhD

Jana Gallus, MS, PhD
 Barney P. Hartman-Glaser, PhD
 Hal E. Hershfield, PhD
 Bernard Herskovic, PhD
 Brett W. Hollenbeck, PhD
 Sylvia Hristakeva, PhD
 Ian I. Larkin, PhD
 Elisa F. Long, PhD
 William G. Mann, PhD
 Beatrice Michaeli, PhD
 Velibor V. Mišic, PhD
 N. Bugra Ozel, PhD
 Ricardo Perez-Truglia, PhD
 Daniel A. Saavedra, PhD
 Matthew Schmitt, MS, PhD
 Steven A. Spiller, BA, PhD
 Suhas A. Sridharan, PhD
 Melanie Wasserman, PhD
 Jennifer Whitson, PhD

Senior Lecturers

Ariella D. Herman, PhD
 David S. Ravetch, MA
 Robert S. Spich, PhD
 Eric H. Sussman, MBA

Lecturers

Derek J. Alderton, MBA
 Julie Ann Gardner-Treloar, MBA
 Peter Guber, LLM
 Jane Guerin, JD
 Paul B. Habibi, MBA
 Gordon L. Klein, JD
 Danny S. Litt, MBA

Adjunct Professors

William M. Cockrum, MBA
 Janis S. Forman, PhD
 Robert F. Foster, MBA
 Gonzalo Freixes, JD
 George T. Geis, PhD
 Farhad A. Hagigi, PhD
 Jason C. Hsu, MSc, PhD
 Robert M. McCann, PhD
 Gerald Nickelsburg, PhD
 Peter S. Pao, PhD
 James R. Stengel, MBA

Adjunct Associate Professor

Andres Terech, PhD

Adjunct Assistant Professor

James J. Kim, MEng, MBA

Scope and Objectives

The John E. Anderson Graduate School of Management at UCLA offers a variety of programs leading to graduate degrees at the master's and doctoral levels. These include a professional (MBA) master's and a Master of Financial Engineering (MFE), as well as an Executive MBA Program designed for working managers who are moving from specialized areas into general management and a three-year Fully Employed MBA Program for emerging managers. The school also offers a Global Executive MBA degree with the National University of Singapore (NUS) Business School that prepares participants for top positions in organizations around the world. A PhD in Management is also offered (an MA degree may be earned in the process of completing PhD requirements), as are a certificate Executive Program and research conferences and seminars for experienced managers.

The school offers an undergraduate minor in Accounting and several undergraduate courses in management. Enrollment in these courses, although open to all University students who have completed the requisites, is limited.

Undergraduate Study

Accounting Minor

The Accounting minor provides students with a comprehensive accounting background; admission is competitive and based on overall UCLA grade-point average, grade-point average in preadmission courses, and the grades in Management 1A and 1B. Decisions on admission to the minor are made by the Anderson School Accounting Area. Applications are accepted in fall, winter, and spring quarters. Nontransfer students must apply subsequent to completing 90 units. Transfer students must apply after completing two academic quarters (excluding summer sessions) at UCLA.

To enter the minor, students must (1) have a minimum cumulative UCLA grade-point average of 3.2, (2) complete all required preadmission courses with a minimum course grade-point average of 3.2, and (3) receive grades of B or better in Management 1A and 1B. Repetition of more than one preadmission course or of any preadmission course more than once results in automatic denial of admission to the minor. Satisfying these requirements does not guarantee admission to the program, as only a limited number of students are admitted each year. For further information, see <http://www.anderson.ucla.edu/programs-and-outreach/accounting-minor>.

Required Preadmission Courses (31 units minimum): Economics 1, 2, any statistics course offered or considered transferable to UCLA, Management 1A and 1B (former course 100 taken at UCLA may be substituted), Mathematics 3A or 31A, 3B or 31B or 31E, one Writing II course. If Management 1A and/or 1B are not taken at UCLA, students must complete courses 120A and 122 prior to admission to the minor.

Required Upper Division Courses (36 units): Management 120A, 120B, 122, 127A, and three courses from 107, 108, 109, 123, 124, 126, 127B, 127C, 128, 130A.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Transfer credit for any of the above courses is subject to department approval and is considered only for the preadmission courses. Only one preadmission and one upper division course repeat is allowed.

Each preadmission and upper division course must be taken for a letter grade; if taken on a Passed/Not Passed basis, it cannot be applied toward the minor program. Each upper division course must be completed at UCLA. All courses applied toward minor requirements must receive a grade of C or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate

Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The John E. Anderson Graduate School of Management offers Master of Science (MS), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Management, the Master of Business Administration (MBA) degree, and the Master of Financial Engineering (MFE) degree. The school also offers the Executive MBA Program (EMBA), Fully Employed MBA Program (FEMBA), and Global Executive MBA for Asia Pacific (dual degree program with the National University of Singapore Business School).

Ten concurrent degree programs (Management MBA/Computer Science MS, Management MBA/Dentistry DDS, Management MBA/Latin American Studies MA, Management MBA/Law JD, Management MBA/Library and Information Science MLIS, Management MBA/Medicine MD, Management MBA/Nursing MSN, Management MBA/Public Health MPH, Management MBA/Public Policy MPP, and Management MBA/Urban Planning MURP) are also offered.

Management

Lower Division Courses

1A-1B. Principles of Accounting. (4-4) Lecture, three hours; discussion, one hour. Not open to freshmen. P/NP or letter grading. **1A.** Introduction to financial accounting principles, including preparation and analysis of financial transactions and financial statements. Valuation and recording of asset-related transactions, including cash, receivables, marketable securities, inventories, and long-lived assets. Current liabilities. **1B.** Requisite: course 1A. Completion of balance sheet with emphasis on debt and equity, including in-depth introduction to time value of money concepts. Introduction to partnership and individual income tax accounting.

88. Lower Division Seminar: Special Topics in Management. (1 to 4) Seminar, three hours; outside study, nine hours. Requisite: satisfaction of Entry-Level Writing requirement. Variable topics seminar that examines specific issues or problems and ways that professionals in management approach study of them. Students define, prepare, and present their own research projects with guidance of professional school faculty member. Letter grading.

Upper Division Courses

107. Business Communications. (4) Process and discipline of effective spoken presentations. Examination and application of classical and contemporary thinking on substance, structure, and delivery of messages. Elements of graphic presentation of data and presentation technology. Students design and deliver informative and persuasive presentations on key management issues. Critique of all efforts; certain efforts to be videotaped for review. P/NP or letter grading.

108. Business Law. (4) Lecture, three hours. Not open to freshmen. Essentials of contracts, agency, partnerships, corporations, and other select areas of law in a business environment. P/NP or letter grading.

109. International Business Law. (4) Lecture, three hours. Recommended requisite: course 108. Study of international business legal environment, including general overview of international laws and organizations and comprehensive review of U.S. regulations of

international business transactions. Special emphasis on international litigation, commercial transactions, regulation of investments, multinational corporations, and international banking. P/NP or letter grading.

120A. Intermediate Financial Accounting I. (5) Lecture, four hours. Requisite: course 1B. Intermediate-level course in theory and practice of financial accounting. Underlying concepts of asset valuation and income measurement. Measurement and reporting of current and long-term assets, including cash and marketable securities, inventories, plant assets and depreciation, and intangibles. P/NP or letter grading.

120B. Intermediate Financial Accounting II. (5) Lecture, four hours. Requisite: course 120A. Intermediate-level course in theory and practice of financial accounting. Underlying concepts of liability recognition and expense, including leases, bonds, and pensions. Shareholder's equity, including earnings per share. Accounting for changing prices. P/NP or letter grading.

121. Ethical Leadership in Accounting. (4) Lecture, seven and one half hours. Not open to freshmen. Review of range of ethical considerations in business decisions involving individuals, corporations, society, and international business. Analysis of cases for presentation and discussion. What is ethical dilemma posed? What is range of possible decisions and band of ethical choices supporting them? Offered in summer only. Letter grading.

122. Management Accounting. (4) Lecture, three hours. Requisites: course 1B, one statistics course. Nature, objectives, and procedures of cost accounting and control; job costing and process costing; accounting for manufacturing overhead; cost budgeting; cost reports; joint-product costing; distribution cost; standard costs; differential cost analysis; profit-volume relationships and break-even analysis. P/NP or letter grading.

123. Auditing. (4) Lecture, three hours. Requisite: course 120B. Comprehensive study of procedures used in verification of financial statements and related information, including ethical, legal, and other professional issues. Auditing of a complete set of financial statements. P/NP or letter grading.

124. Advanced Accounting. (4) Lecture, three hours. Requisite: course 120B. Specialized accounting topics in business combinations, consolidated financial statements, branch accounting, leveraged buyouts, Securities and Exchange Commission, foreign currency transactions, translation of foreign financial statements, partnership ownership changes and liquidations, governmental accounting, and bankruptcy. P/NP or letter grading.

125. Special Applications in Accounting. (4) Requisite: course 120B. Recommended: course 122. Designed for seniors. Use of "Strategic Management," a computer program that simulates experience on a senior management team. Under real and sometimes adverse economic conditions, teams must make strategic and tactical decisions, evaluate performance results, and compete for key resources, market share, and business opportunities. Emphasis on theories of return on equity, product life cycles, product line margin analysis, issuing debt versus equity, and other topics that allow students to apply accounting principles learned in previous courses. P/NP or letter grading.

126. Financial Statement Analysis. (4) Lecture, four hours. Requisite: course 120B. Comprehensive study of concepts and procedures used to interpret and analyze balance sheet, income statement, and statement of cash flows. Calculation and interpretation of financial ratios and credit analysis. Valuation theory using both discounted cash flows and residual income model. P/NP or letter grading.

127A. Tax Principles and Policy. (4) Lecture, three hours. Requisite: course 1B. Study of fundamental income tax problems encountered by individuals and other entities in analyzing business, investment, employment, and personal decisions. Special emphasis on role of tax rules in capital transactions and decision making. P/NP or letter grading.

127B. Corporate and Partnership Taxation. (4) Lecture, three hours. Requisite: course 1B. Recommended: course 127A. Study of tax issues arising in formation, operation, and termination of corporations and partnerships. Special emphasis on closely held enterprises, including S corporations. P/NP or letter grading.

127C. International Taxation. (4) Lecture, three hours. Recommended requisite: course 127A. Study of two principle areas of international taxation from U.S. regulatory perspective: taxation of American citizens and companies conducting business in international arena (outbound transactions) and taxation of foreign nationals and companies who invest or conduct business in the U.S. (inbound transactions). P/NP or letter grading.

128. Special Topics in Accounting. (4) Lecture, three hours. Requisite: course 120B. Selected topics in public accounting, such as audit and fraud examination, mergers and acquisitions, public-company status and going-public process, role of partner, serving entrepreneurial clients, and fund accounting. Discussion of case study of current interest in accounting profession. Business plan preparation. P/NP or letter grading.

130A. Basic Managerial Finance. (4) Lecture, three hours. Requisites: course 1B, one statistics course. Study of financial decision making by business firms, with emphasis on applications of economic and accounting principles in financial analysis, planning, and control. Extensive use of problems and cases to illustrate varied analytical techniques employed in decision making. P/NP or letter grading.

130B. Advanced Managerial Finance. (4) Lecture, three hours. Requisite: course 130A. Analysis of capital budgeting and working capital management. Review of long-term financing through security markets and lease contracts. Management of financial risk using options, futures, and forward contracts. Study of merger and acquisition processes and reorganization under bankruptcy laws. P/NP or letter grading.

132. Financial Planning. (4) Lecture, seven and one half hours. Not open to freshmen. Application of behavioral finance to domestic world. Biases and simplifying rules of thumb feature prominently in students' real-life decisions, whether they are choosing which wine to buy or deciding whether to get an MBA. Effect of these behavioral influences and consideration of some ways to adjust for them, helping people spend wisely, invest for future, and generally live happier lives. How behavioral principles can turn profit by developing new financial services and products for consumers. Offered in summer only. Letter grading.

133. Investment Principles and Policies. (4) Lecture, three hours. Requisite: course 130A. Principles underlying investment analysis and policy; salient characteristics of governmental and corporate securities; policies of investment companies and investing institutions; relation of investment policy to money markets and business fluctuations; security price-making forces; construction of personal investment programs. P/NP or letter grading.

134. Options, Futures, and Derivative Securities. (4) Lecture, seven and one half hours. Not open to freshmen. Introduction to derivative markets. Derivatives are both exchange traded and over-the-counter securities. Derivative markets are world's largest and most liquid. Focus on organization, role, and evolution of put and call options markets, future and forward markets, and their relations, with emphasis on arbitrage relations, valuation, and hedging with derivatives. Full introduction to evolution of modern derivatives pricing and hedging theory and practice—from basic features of futures and options to binomial option pricing model and Black/Scholes formula for stocks, to advanced stock option models, to aspects of measuring volatility, coping with trading costs, and to modifications required to value and hedge variety of other options on different underlying and exotic options. Offered in summer only. Letter grading.

140. Elements of Production and Operations Research. (4) Lecture, four hours. Requisites: Mathematics 3A, 3B, 3C, Statistics 11. Principles and decision analysis related to effective utilization of factors of production in manufacturing and nonmanufacturing activities. Analytical models and methods for allocation, transportation, inventories, replacement, scheduling, and facilities design. P/NP or letter grading.

141. Data and Decisions in Business. (4) Lecture, seven and one half hours. Not open to freshmen. Business decisions are made with partial information in uncertain environment. Introduction to data analyses that are appropriate for generating information useful in decision making and to framework for analyzing decisions based on partial information. Development of foundation of probability and statistics necessary for career in auditing. Offered in summer only. Letter grading.

142A. Information Technology in Accounting. (4) (Formerly numbered 142.) Lecture, seven and one half hours. Not open to freshmen. Introduction to role and use of models and modeling in managerial decision making, with focus on important types of models, their formulation and application, and insight and information that may be gained from use of modeling. Enables managers to understand role of quantitative models in firms that are most often applicable in business planning and decision making. Discussion of applications in area of accounting, finance, marketing, and operations, with emphasis on model formulation, interpretation of solutions, and understanding of mathematical versus verbal explanation of situations. Use of solution techniques and computer to solve problems. Offered in summer only. Letter grading.

142B. Communication Technology, Programming, and Accounting. (4) Lecture, six hours. Preparation: intermediate Excel user. Requisite: course 142A (or former 142). Not open to freshmen. Hands-on experience in accounting uses of Microsoft Excel. Topics include creating data boxes in financial accounting, using multiple sheets with Excel formulas, preparing professional quality financial reports, creating graphs to interpret business results, and using Excel functions to evaluate accounting data. Exploration of utility of QuicBooks and functionality for small businesses. Offered in summer only. P/NP or letter grading.

143. Technology and Operations Management. (4) Lecture, seven and one half hours. Not open to freshmen. For students interested in pursuing careers in high technology management, specifically as management consultants in accounting firms. Fundamental strategies and frameworks for analyzing and evaluating various alternatives to creating, implementing, marketing, and managing new technologies. How to differentiate technology products, market them to tightly focused market segments, and develop effective competitive strategies. Frameworks include technology adoption curve, developing whole products, product platform and product line strategy, program management, managing disruptive technology adoption, target market scenarios, managing through strategic dissonance, and compelling value creation. Studies of high technology cases ranging from semiconductors and online platforms to green vehicles and biotechnology companies. Offered in summer only. Letter grading.

150. Elements of Industrial Relations. (4) Principles and methods of effectively utilizing human resources in organizations. Relationship between social, economic, and other environmental factors and current problems in industrial relations.

151. Business Leadership. (4) Lecture, seven and one half hours. Not open to freshmen. Designed to enhance student knowledge of and competency in leadership. Conceptual framework grounded in principles of individual, group, and organizational behavior. There is no extant model of leadership that has been sufficiently scientifically validated to point of becoming so dominant that it has driven out other models. Different perspectives offered on leadership, with emphasis on development of skills that support effective leadership. Combination of readings, lectures, cases, experiential exercises, and class discus-

sion to allow students to determine their own leadership strengths and limitations, and to develop plans for maintaining/enhancing their strengths and overcoming their limitations. Offered in summer only. Letter grading.

152. Business Strategy. (4) Lecture, seven and one half hours. Not open to freshmen. Fundamentals of business strategy and corporate strategy and designed to introduce wide variety of modern strategy frameworks and methods, including methods for assessing attractiveness of markets, defining and evaluating strategy of firms within those markets, and implementing organization that can deliver on that strategy. Seen from perspective of general managers who have overall responsibility for performance of firms or business units within firms. Development of general management perspective to understand fundamental concepts in leading through organizations and people. Offered in summer only. Letter grading.

153. Human Resources. (4) Lecture, seven and one half hours. Not open to freshmen. Systematic exposure to management of people—human resources (HR)—in organizations to enhance knowledge of HR management and ability to apply that knowledge to variety of decision situations. Management of human resources for competitive advantage. Topics include HR management strategy, HR and business performance, selecting and retaining human capital, employee engagement and branding, compensation and reward systems, motivating and managing performance, managing employment conflict, national culture impact on HR management, leadership development and succession planning, and organizational change. Offered in summer only. Letter grading.

154. Management of Organizations. (4) Lecture, seven and one half hours. Not open to freshmen. Introduction to strategic and operating issues and decisions involved in managing business and operational processes within enterprises. Operational process is one that uses organization's resources to transform inputs into goods, then utilizes them to provide services, or does both. Provides students with conceptual framework and set of analytical tools to enable them to better understand why processes behave as they do and to involve them in organization's defining strategic decisions—those related to key processes affecting organizational unit's performance. Offered in summer only. Letter grading.

155. Organizational Behavior. (4) Lecture, seven and one half hours. Not open to freshmen. Designed to provide practical guide to managing behavior in organizations, drawing on social sciences to identify key human tendencies that pose obstacles to organizational effectiveness. Topics include challenges of making decisions effectively, motivating others to implement one's vision, managing groups and teams, and influencing those who resist ideas. Exploration of these issues using readings, cases, lectures, discussions, guest speaker, and experiential exercises. Why smart people make bad decisions, use and abuse of authority, extrinsic and intrinsic motivation, performance management, group formation, group process, explicit and implicit prejudice, stereotypes and their consequences, principles of persuasion and negotiations. Offered in summer only. Letter grading.

160. Entrepreneurship and Venture Initiation. (4) Lecture, three hours; discussion, one hour. Introduction to key concepts of entrepreneurship, including new product development, finance, business plan development, and technology commercialization. Basic tools and personal characteristics required for entrepreneurship. Terminology used by lawyers, accountants, venture capitalists, and other investors when forming and financing new companies to be developed as startups, spinouts from existing company, or acquisitions of existing company (or its assets). Assessment of feasibility of business concept and communication of concept to potential investors, employees, and business partners. Discussion of technology feasibility, intellectual property, and licensing. Letter grading.

161. Business Plan Development. (4) Lecture, three hours. Enforced requisite: course 160. Fundamentals of developing effective business plans, both in pre-

sentation and written form. Basic principles of designing and articulating plans for sales, marketing, product or service, operations, financials, management, and staffing functions of new startup businesses. How to develop well-written investment-quality business plans and business plan presentations, understand various analytical processes required to produce such plans, improve student writing and oral presentation skills, and formally present their business plans to audience of angel and venture capital investors. Letter grading.

162. Entrepreneurship and Technology Commercialization. (4) Lecture, three hours. Designed for juniors/seniors. Introduction to transformation of new knowledge and inventions into viable commercial products and services, with particular emphasis on technology being developed at major research universities like UCLA. Initial emphasis on assessment and protection of intellectual property and early evaluation of technologies to determine potential for commercialization. How intellectual property in its various forms is protected and how rights to these assets are negotiated by parties involved. Examination of nature of contracts and negotiation between university technology transfer offices, researchers, technical experts, and early investors in commercialization space that might lead to patents, licenses, or new business development. Letter grading.

163. Entrepreneurship and New Product Development. (4) Lecture, three hours. Designed for juniors/seniors. Introduction to new product innovation and management. Students assume role of product managers in identifying, developing, and commercializing new products through cases, businesses currently in news, team project, and readings to develop critical thinking, decision-making skills, and creativity in launch of successful new product (team project). Letter grading.

164. Entrepreneurial Finance and Accounting. (4) Lecture, three hours. Designed for juniors/seniors. Introduction to fundamental concepts of financial management of early-stage companies, with particular emphasis on capital formation of new ventures. Relationship between entrepreneurs and investors and discussion of different goals of founders and investors, including nature of negotiation and relationship between parties over time. Letter grading.

167. Social Entrepreneurship. (4) Lecture, three hours. Designed for juniors/seniors. Examination of fundamental challenges and opportunities of developing and managing enterprises with social missions. Use of framework to develop strategic implementation plan that incorporates external analysis, organizational assessment, strategy development, and executable action steps and draws on expertise and experience of faculty members and alumni as well as experts in fields of social entrepreneurship, nonprofit management, and strategic philanthropy who present select topics of interest. Letter grading.

175. Elements of Real Estate and Urban Land Economics. (4) Examination of business decision making as related to logical forces shaping cities and influencing real estate market functions and land uses. Emphasis on decision making as it relates to appraising, building, financing, managing, marketing, and using urban property.

180. Special Topics in Management. (4) Lecture, four hours. Topics of special interest to undergraduate students. Specific subjects may vary each term depending on particular interest of instructors or students. May be repeated for credit. P/NP or letter grading.

182. Leadership Principles and Practice. (4) Knowledge and skills leading to effectiveness in interpersonal relations. Understanding oneself as a leader and others as individuals and as members of working groups. Understanding of group process, including group leadership. Lectures and "sensitivity training" laboratory.

195. Community or Corporate Internships in Management. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on

regular basis with instructor and provide periodic reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

199. Directed Research in Management. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation of selected research topic under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

201A. Business Forecasting: Turning Numbers into Knowledge. (4) Discussion, three hours. Preparation: familiarity with linear regression. Examination of one approach to analytical thinking—forcing numerical and textual data into carefully formulated alternative models. Data studied include macroeconomic variables (growth, inflation, unemployment, interest rates, and exchange rates), industry data, and firm data. Letter grading.

201B. Econometrics and Business Forecasting. (4) Lecture, three hours. Development of standard topics in applied econometric modeling. Emphasis on assumptions underlying classical normal linear regression model, special problems in application, and interpretation of results. Practical applications extensively developed in student projects.

202B. Economic Consulting and Applied Managerial Economics. (4) Lecture, three hours. Requisites: courses 402, 405. Use of economic methods to analyze issues of intellectual property, environmental damage, trademark infringement, brand value, and consumer demand. Focus on econometric thinking and problem solving using case studies as basis for lectures and homework. S/U or letter grading.

203A. Economics of Decision. (4) Discussion, three hours. Preparation: basic probability theory. Basics of single-person decision theory and introduction to noncooperative game theory. Examination in some detail of von Neumann/Morgenstern expected utility theory. Other topics in decision theory include subjective expected utility theory and departures from expected utility behavior. S/U or letter grading.

204A. Probability, Statistics, and Computational Methods for Econometrics. (4) Lecture, three hours. Designed for PhD students. Introduction to probabilistic, statistical, and computational tools needed for applied researchers in business fields. Probability theory, modes of convergence, hypothesis testing, Bayesian inference, R programming, linear algebra, numerical optimization, simulation methods, numerical integration. S/U or letter grading.

204B. Theory and Application of Regression Analysis. (4) Lecture, three hours. Recommended requisite: course 204A. Designed for PhD students. Introduction to general regression analysis. Linear model, maximum likelihood and asymptotic tests, endogeneity, instrumental variables, differences-in-differences, regression-discontinuity design, propensity score matching, limited dependent variable models, introduction to panel data. S/U or letter grading.

204C. Time-Series Analysis. (4) Lecture, three hours. Recommended requisite: course 204B. Designed for PhD students. Introduction to time-series methods in analysis of business data. Basics of time series, optimal prediction, multiple equation time-series models, generalized method-of-moments, volatility modeling and nonnormalities, dynamic factor models. S/U or letter grading.

205A. International Business Economics. (4) Requisite: course 405. International business environment, international economic institutions, national and regional trade policies and developments, trends in foreign markets, and international monetary problems, studied for their influence on organization and operation of the international corporation.

205B. Market Power, Mergers, and Antitrust. (4) Lecture, three hours. Requisite: course 405. Topics in applied industrial organization, including merger policy, differentiated product demand, market power,

and Department of Justice and Federal Trade Commission Merger Guidelines. Examination of issues in antitrust based on law and economics, with emphasis on practice and measurement. S/U or letter grading.

209. Managing Complex Business Deals. (4 or 6) (Formerly numbered M209.) Lecture, three hours. Preparation: familiarity with basic vocabulary and concepts, including basic principles of accounting and valuation. Advanced course in business organization. Examination of structure of business transactions and allocation of control, risk, and return. Topics include venture capital investments, debt and loan agreements, employment agreements, distribution and marketing agreements (including franchising), motion picture production/finance/distribution agreements, and joint ventures. Assigned reading and focus on documents that incorporate terms of business transactions of deals. Concurrently scheduled with Law 239. S/U or letter grading.

209A-209B. Managing Complex Business Deals. (209A: 3 or 4/209B: 1 or 2) (Formerly numbered M209A.) Lecture, three hours. Preparation: familiarity with basic vocabulary and concepts, including basic principles of accounting and valuation. Course 209A is enforced requisite to 209B. Advanced course in business organization. Examination of structure of business transactions and allocation of control, risk, and return. Topics include venture capital investments, debt and loan agreements, employment agreements, distribution and marketing agreements (including franchising), motion picture production/finance/distribution agreements, and joint ventures. Assigned reading and focus on documents that incorporate terms of business transactions of deals. Concurrently schedule with Law 239. In Progress (209A) and S/U or letter (209B) grading.

210A. Mathematical Programming. (4) Discussion, three hours. Preparation: linear algebra. Comprehensive development of theory and computational methods of linear programming, with applications to a variety of areas. S/U or letter grading.

210B. Applied Stochastic Processes. (4) Discussion, three hours. Preparation: probability theory at level of Electrical Engineering 131A or Mathematics 170A or Statistics 100A. Topics include Poisson processes, renewal theory, Markov chains, and Markov decision processes, with emphasis on problem formulation, decision making, and characterization of optimal policies. Specific applications include traditional operations research topics (inventory, queueing, maintenance, reliability), as well as several in microeconomics (search and research and development). S/U or letter grading.

210C. Network Flows and Integer Programming. (4) Discussion, three hours. Preparation: linear programming. Survey course to (1) lay foundations for more advanced study of graphs, network flow models, and integer programming models and their applications, (2) establish connections between these technical foundations and real problems drawn from many areas of management, and (3) build professional skills needed to apply these tools. S/U or letter grading.

211A. Nonlinear Mathematical Programming. (4) Discussion, three hours. Requisites: course 210A, Mathematics 32A. Theory, methods, and applications of optimization for situations where models must be nonlinear, with special emphasis on case of "convexity." Topics include classical approaches to optimization, theory of optimality and duality, main computational approaches, and survey of currently available computer software. S/U or letter grading.

211B. Large-Scale Mathematical Programming. (4) Discussion, three hours. Requisite: course 210A. Theory, methods, and applications of optimization for situations where models are large and have special structure, as is often the case in real applications. Focus on ways of exploiting special structures with combinatorial, multidimensional, and stochastic aspects in pursuit of computational tractability. S/U or letter grading.

212. Behavior under Uncertainty. (4) Lecture, three hours. Designed for PhD students. Exploration of foundational research and current controversies in behavioral literature on judgment and decision making under uncertainty. S/U or letter grading.

213C. Introduction to Multivariate Analysis. (4) Discussion, three hours. Preparation: working knowledge of differential and integral calculus of several variables, basic probability theory, and univariate mathematical statistics. Introduction to use of multivariate models in management research to organize and represent information; interpretation of coefficients from multivariate exploratory models (e.g., principal axes and factor analysis models); survey of multivariate statistical procedures (e.g., multiple discriminant analysis, multivariate analysis of variance, canonical correlation, and confirmatory factor models). S/U or letter grading.

214. Managerial Decision Making. (4) Lecture, three hours. Introduction to principles of rational judgment and choice, common behavioral biases of managers and consumers, and corrective tools and procedures, drawing heavily on disciplines of psychology and behavioral economics. Topics include decision structuring, chance processes, forecasting, confidence, likelihood judgment, risk perception and risk-taking, decision under uncertainty, multiattribute choice, framing and mental accounting, intertemporal choice, allocation decisions, organizational decision making, choice architecture, happiness, and well-being. S/U or letter grading.

215A. Negotiations Analysis. (4) Lecture, three hours. Series of negotiation exercises to foster development of students' negotiation skills and experience. Use of economic and game-theoretic concepts in debrief to gain insight and develop framework for finding broad negotiation principles applicable. S/U or letter grading.

215B. Market Entry Strategy. (4) Lecture, three hours. Requisite: course 420. Analysis of strategic issues encountered by entrepreneurial and established companies in entering new markets. Emphasis on idea generation, timing, industry evolution, entry modes, optimal growth, and competitive interaction. S/U or letter grading.

217A. Decision Analysis. (4) Lecture, three hours. Requisite: course 402. Managerial decision making occurs in presence of uncertainty which can be about events over which no individual has any control or it can be about what other individuals will do. Framework provided for structuring and analyzing such decisions, with application of framework to such scenarios as product development, litigation, business of treasure hunting, and bidding. S/U or letter grading.

220. Corporate Financial Reporting. (4) Lecture, three hours. Requisite: course 403. In-depth treatment of significant corporate financial reporting issues to enhance understanding of financial statements and student ability to interpret and use information contained in these disclosures. Emphasis on economic substance of transactions. S/U or letter grading.

222. Corporate Decision Making and Incentives. (4) Lecture, three hours. Requisite: course 403. Use of basic microeconomics to answer what information is needed to make managerial decisions, what incentives are needed to motivate managers, and how information should be recorded to facilitate both. Essential for careers in consulting, private equity, and general management. S/U or letter grading.

223. Behavioral Economics in Digital World. (4) Lecture, three hours. Consideration of how heuristics and biases influence consumer decision making and how businesses can help people make better personal finance decisions with innovative digital technologies. Letter grading.

224. Business Law for Managers and Entrepreneurs. (4) Lecture, three hours. Introductory course that uses practical approach to teach students to recognize, understand, and manage legal issues. Topics include contract law, litigation process and alternatives, intellectual property law, business formation, corporate law, employment law, collateralized

lending, and bankruptcy reorganizations. How to deal with potential legal issues before they become serious problems. S/U or letter grading.

M225. Law and Management of Nonprofit Organizations. (4) (Formerly numbered 225.) (Same as Public Policy M229.) Lecture, three hours. Introduction to important legal, financial, and management issues confronting nonprofit organizations. Topics include how to start nonprofit organizations, qualifying and maintaining tax-exempt status under IRC Code Section 501(c)(3), corporate governance, political and legislative activity restrictions, and strategic planning, fundraising, nonprofit accounting, and employment law. S/U or letter grading.

226. Special Advanced Topics in Accounting. (4) Lecture, three hours. Requisite: course 403. Examination of advanced topics in accounting that arise in business combinations and international accounting practices, including principles underlying consolidated financial statements, treatment of unconsolidated subsidiaries and affiliate investments, translation of foreign exchange, and valuation of derivatives for hedging exchange risk. S/U or letter grading.

227. Taxation and Management Decisions. (4) Lecture, three hours. Requisite: course 403. Examination of impact of taxes on decisions of businesses and investors. Effects of taxes on investment decisions, mergers and acquisitions, capital structure, dividend policies, and employee compensation. S/U or letter grading.

228. Financial Reporting and Equity Valuation. (4) Lecture and cases, three hours. Requisite: course 403. Focus principally on equity valuation from financial accounting data, with emphasis on construction of proforma financial statements and application of discounted cash flow and residual income valuation approaches. Consideration of complications posed by capital structure, recapitalizations, derivative securities, intercorporate investments, abandonment options, accounting restatements, and equity trading. Use of multiples in valuation and pricing anomalies. S/U or letter grading.

229A. Special Topics in Accounting. (4) Lecture, three hours. Designed for PhD students. Examination in depth of problems or issues of current concern in accounting, such as application of information economics and principal-agent model to accounting.

229B. Empirical Research in Accounting. (4) Lecture, three hours. Preparation: training in econometrics. Designed for PhD students. Introduction to empirical accounting literature, focusing on role that accounting information plays in formation of capital market prices.

229X-229Y-229Z. Accounting Workshops. (1-1-2) Discussion, two hours. Designed for PhD students. Intended to develop ability to critically evaluate research in fields relevant to study of accounting. Papers presented in colloquium format by leading scholars in accounting. Active participation and intellectual interchange encouraged through discussion of papers during colloquium. May be repeated for credit. S/U grading.

230. Theory of Finance. (4) Lecture, three hours. Requisite: course 408. Primary focus on valuation of corporate liabilities and other securities under uncertainty. Capital asset pricing model presented rigorously and compared with more recent theories of asset pricing such as arbitrage pricing theory and option pricing model, using empirical evidence. Secondary focus on analysis of problems in corporate finance such as optimal financing of the corporation and the market for corporate control. S/U or letter grading.

231A. Topics in Corporate Finance. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Identifying and solving financial problems through use of cases. Application of financial theory and financial techniques to business problems, using written reports and classroom discussion. S/U or letter grading.

231B. Nonprofit Sector Financial Policy. (4) Lecture, three hours. Requisites: courses 408, 430. Identifying and solving financial problems for all types of nonprofit organizations, with attention to funds ac-

counting, budgeting and control, investment decision making when market valuation cannot be used as criterion, and sources of funds for nonprofit organizations. Use of cases. S/U or letter grading.

231C. Corporate Valuation. (4) Lecture, three hours. Requisites: courses 408, 430. Lectures, discussions, and student presentations. Issues and analytical tools relevant for valuing projects, divisions, and corporations. Theories of discounted cash flow valuation (DCF) and relative valuation using market multiples. Theories of practice to value different projects, including IPO, mergers and acquisitions, divestitures, and private firms. Exploration of how real options affect investment decisions and how they can be identified and valued. Letter grading.

231D. Takeovers, Restructuring, and Corporate Governance. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Process by which corporate control transactions take place; role of market for corporate control in leading to economic restructuring and shifts in resource allocation by corporations. Empirical evidence on economic and capital market reactions to control transactions and to defensive measures by management. Focus on interaction of strategic planning, firm value maximization, and investment decisions in life cycle of growth of firm. S/U or letter grading.

231E. Managing Finance and Financing Emerging Enterprises. (4) Lecture, three hours. Requisites: courses 230 (or 430), 403, 408. Designed for second-year graduate students. Emphasis on financial, control, and investment issues confronting rapidly growing companies in entrepreneurial settings. Consideration and selection of financing vehicles that may be appropriate to securing organizations' money requirements. S/U or letter grading.

232A. Investment Management. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Topics include application of portfolio theory to investment decisions, performance evaluation, and basics of portfolio management strategies. S/U or letter grading.

232B. Fixed-Income Markets. (4) Lecture, three hours. Preparation: demonstrable training in statistics. Requisite: course 408. Introduction to fixed-income markets: institutional arrangements in primary and secondary markets; description and analysis of various types of fixed-income instruments; valuation; fixed-income portfolio management; use of derivative instruments and dynamic investment strategies; asset securitization. S/U or letter grading.

232D. Option Markets. (4) Lecture, three hours. Requisite: course 408. Organization and role of organized derivative markets, including listed and OTC options and futures: arbitrage and hedging relationships, valuation of derivative trading strategies, and innovations in derivative markets. Students learn fundamentals of hedging and spreading by playing option trading game and writing term paper analyzing their strategies. S/U or letter grading.

232E. Market and Credit Risk Management. (4) Lecture, three hours. Requisites: courses 408, 430. Discussion of regulatory environment for both market and credit risk management, data necessary to manage these risks, types of models used for risk management, types of securities and techniques for hedging market and credit risks, performance measurement of risk management systems, and other types of risks that affect risk management, such as operation risk, liquidity risk, commodity risk, weather risk, and model risk. Letter grading.

232F. Behavioral Finance. (4) Lecture, three hours. Requisite: course 408. Introduction to and explanation of evidence of anomalous return behavior found in U.S. equities markets. Presentation of some paradigms of stock price movements that are rooted in studies from psychology and explanation of trading activity in equity risk-return paradigm. Introduction to some psychological biases that researchers suspect are inherent to investors. Employment of some results from psychology literature to explain irrationalities encountered in finance literature. Presentation of latest

evidence on why individual investors trade and how individual and institutional investors form their portfolios. Letter grading.

233A. Money and Capital Markets. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Application of interest theory and flow funds analysis to price determination process in markets for bonds, mortgages, stocks, and other financial instruments. Study of funds flow from credit markets. Analysis of costs of capital in individual industries. S/U or letter grading.

233B. Financial Institutions. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Theory and practice of financial institutions and stock exchanges. Main topics include deposit insurance and regulation, international banking, market microstructure, and investment banking. S/U or letter grading.

234A. International Financial Markets. (4) Lecture, three hours. Enforced requisite: course 408. Conceptual understanding of foreign exchange market, Euro-currency market, international bond market, and equity markets in various countries. Emphasis on underlying economic principles, although where relevant, institutional features helpful in understanding structure and operations of markets to be dealt with in detail. S/U or letter grading.

234B. Financial Management of Multinational Corporations. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Financial management of multinational firms from perspective of financial vice president or other financial officer within company. Topics include measuring foreign exchange risk, managing that risk with both contractual and operating strategies, foreign investment decisions, capital budgeting and cost of capital in international perspective, political risk, working capital management, and performance evaluation and control. S/U or letter grading.

235. Venture Capital and Private Equity. (4) Lecture, three hours. Requisites: courses 408, 430. Use of cases to study entrepreneurial finance and venture capital. Analysis of issues faced by entrepreneurs who are setting up new firms, as well as decisions of private equity partnership managers and investors. How transactions are structured and why investors and entrepreneurs choose certain contractual arrangements. Development of understanding for institutional context of private equity finance. Time also devoted to leveraged buyouts. S/U or letter grading.

236A-236B. Research Topics in Finance. (2-2) Seminar, three hours. Course 236A is enforced requisite to 236B. Designed for PhD students in their second through fourth year. Intended to help students bridge gap between coursework and research. Students select academic financial economics papers that they present, replicate, and critique. In Progress (236A) and S/U or letter (236B) grading.

237A. Fundamentals of Corporate Finance and Risk Management. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Examination of broad range of issues faced by corporate financial managers, including analysis of investment and financing decisions of firms, impact on firms of agency costs and asymmetric information, mergers and acquisitions, private equity, and risk management strategies and tools. S/U or letter grading.

237B. Fundamentals of Investments. (2) Lecture, three hours. Limited to Master of Financial Engineering Program students. Essentials of asset pricing and portfolio choice, standard discounted cash flow approaches, and no-arbitrage framework for valuing financial securities. Basic paradigms of asset pricing, such as capital asset pricing model (CAPM), arbitrage pricing theory (APT), and Fama-French Three-Factor model. Development and illustration of dynamic portfolio selection and optimization approaches. Letter grading.

237C. Introduction to Stochastic Calculus and Derivatives. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Economic, statistical, and mathematical foundations of derivatives markets. Basic discrete- and continuous-

time paradigms used in derivatives finance, including introduction to stochastic processes, stochastic differential equations, Ito's lemma, and key elements of stochastic calculus. Economic foundations of Black/Scholes no-arbitrage paradigm, including introduction to Girsanov's theorem and changes of measure, representation of linear functionals, equivalent martingale measures, risk-neutral valuation, fundamental partial differential equation representations of derivatives prices, market prices of risk, and Feynman/Kac representations of solutions to derivatives prices. Role of market completeness and its implications for hedging and replication of derivatives. S/U or letter grading.

237D. Derivative Markets. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Introduction to derivative markets and basic concepts, models, analyses, and technical tools of quantitative finance used in these markets. Derivatives are both exchange traded and over-counter securities. Derivative markets are world's largest and most liquid. Organization and role of put and call option markets, futures and forward markets, and their interrelations, with emphasis on arbitrage relations, valuation, and hedging with derivatives. Implementation of derivatives trading strategies, perspective of corporate securities as derivatives, functions of derivatives in securities markets, and recent innovations in derivative markets. S/U or letter grading.

237E. Empirical Methods in Finance. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Econometric and statistical techniques commonly used in quantitative finance. Use of estimation application software in exercises to estimate volatility, correlations, stability, regressions, and statistical inference using financial time series. S/U or letter grading.

237F. Fixed-Income Markets. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Quantitative approach to fixed-income securities and bond portfolio management, with focus on fixed-income security markets. Pricing of bonds and fixed-income derivatives, measurement and hedging of interest rate risk, dynamic models of interest rates, and management of fixed-income portfolio risk. S/U or letter grading.

237G. Computational Methods in Finance. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Quantitative and computational tools used in finance, including numerical techniques such as implementation of binomial and trinomial option pricing, lattice algorithms for computing derivative prices and hedge ratios, simulation-based algorithms for pricing American options, and numerical solution of partial differential equations that appear in financial engineering. S/U or letter grading.

237H. Quantitative Asset Management. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Application of state-of-art quantitative techniques to asset management problems. Asset pricing models in depth, portfolio optimization and construction, and dynamic strategies such as pairs trading, long-term and short-term momentum trades, and strategies that address behavioral finance anomalies. Major forms of asset management structures such as mutual funds, hedge funds, exchange traded funds (ETFs), special investment vehicles, and some primary types of trading strategies used by these organizations. S/U or letter grading.

237I. Financial Risk Measurement and Management. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Examination of financial risk measurement and management, including market risk, credit risk, liquidity risk, settlement risk, model risk, volatility risk, and kurtosis risk. S/U or letter grading.

237J. Asset-Backed Security Markets. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Exploration of uses and valuation of asset-backed securities, including mortgage-related securities and securities backed by credit cards, leases, and bank debt. Particular attention to mortgage-related securities because of sheer size and importance of this market, as well as fact that pooling and tranching necessary for securitization can be most easily seen in mortgage collateral. Introduction to underlying mortgage instruments, as well as other securities derived from these mortgages. Coverage of term structure and prepayment models necessary to value and hedge these securities. Investigation of credit risk in mortgages and other instruments. S/U or letter grading.

237K. Introduction to Credit Markets. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Introduction to building and implementation of credit models for use by financial institutions and quantitative investors. Basics of corporate debt securities and in-depth introduction to credit derivatives markets. Discussion of structured credit products such as both cash and synthetic collateralized debt obligations (CDOs). S/U or letter grading.

237L. Fieldwork/Research on Financial Engineering. (4) Fieldwork, to be arranged. Preparation: completion of one term of MFE program. Limited to Master of Financial Engineering Program students. Supervised, nonpaid, or paid practical research experience or fieldwork in organization as intern or fellow. Execution of predetermined assignment(s) pursuant to defined program of study that may include formal coursework. May not be applied toward MFE degree requirements. S/U grading.

237M. Special Topics in Financial Engineering. (2 to 4) Lecture, three hours. Limited to Master of Financial Engineering Program students. In-depth examination of problems or issues in one area of current concern in financial engineering. May be repeated for credit. S/U or letter grading.

237N. Applied Finance Project. (4) Fieldwork, four hours. Limited to Master of Financial Engineering Program students. Applied quantitative finance project that explores one quantitative finance problem that might be met in practice and involves development or use of some tools developed in MFE Program. S/U or letter grading.

237O. Financial Accounting. (2) Lecture, three hours. Limited to Master of Financial Engineering Program students. Introduction to concepts of financial accounting and its underlying assumptions, including examination of uses and limitations of financial statements. Discussion of procedural aspects of accounting to enhance understanding of content of financial statements, with emphasis on using accounting information in evaluation of business performance and risk. Examination of use of accounting information in research studies. Letter grading.

237P. Macroeconomic Essentials. (2) Lecture, three hours. Limited to Master of Financial Engineering Program students. Examination of basic macroeconomic theory and trends. Topics include U.S. recessions, global financial crisis, fiscal and external sustainability analysis, currencies, and long-term economic growth in global economy. How to access and organize Web-based global macroeconomic data. Letter grading.

237Q. Econometrics. (4) Lecture, six hours. Limited to Master of Financial Engineering Program students. Theory and in-depth application of linear regression. Topics include simple linear regression, multiple regression, prediction in multiple regression model, residual diagnostics, detection of outliers, and violations of stochastic assumptions. Letter grading.

238. Special Topics in Finance. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Selected topics in finance theory, empirical studies, and financial policy. May be repeated for credit with instructor change. S/U or letter grading.

239A. Theory of Exchanges under Uncertainty. (4) Lecture, three hours. Primarily designed for PhD students, but well-prepared master's students may find course useful in their career preparation. Foundations of theory of exchange developed as introduction to theoretical literature on pricing of capital assets. S/U or letter grading.

239B. Theory of Investment under Uncertainty. (4) Lecture, three hours. Primarily designed for PhD students, but well-prepared master's students may find course useful in their career preparation. Foundations of theory of firm capitalization and investment decisions, with special attention to questions of exchange and allocative efficiency. S/U or letter grading.

239C. Empirical Research in Finance. (4) Lecture, three hours. Preparation: training in econometrics. Primarily designed for PhD students, but well-prepared master's students may find course useful in their career preparation. In-depth study of empirical research in field of finance, statistical methodologies applied to test market efficiency, and asset pricing theory. S/U or letter grading.

239D. PhD Seminar: Corporate Finance. (4) Seminar, three hours. Designed for PhD students. Advanced topics in corporate finance theory and empirical research. May be repeated for credit with instructor change. S/U or letter grading.

239X-239Y-239Z. Finance Workshops. (1-1-2) Discussion, 90 minutes. Designed for PhD students. Intended to develop ability to critically evaluate finance research. Papers presented in colloquium format by leading scholars in finance. Active participation and intellectual interchange encouraged through discussion of papers in sessions prior to workshop, as well as during colloquium. May be repeated for credit. S/U grading.

240A. Service Management. (4) Lecture, three hours. Requisite: course 410. Capacity, location, process choice, and service system design. Service industrialization, service platforms, and impact of information technologies. Globalization, outsourcing, and offshoring. Competitive strategy and new business models. Examples from financial services, healthcare, online services, entertainment/publishing, business-to-business (B2B) services. S/U or letter grading.

240E. Managing Entrepreneurial Operations. (4) Lecture, three hours. Requisite: course 410. Designed for second-year graduate students. Exploration of operating issues involved in managing entrepreneurial enterprises. Integrative course, building on methodologies, principles, and concepts provided in requisite functional and strategic core courses. Use of extensive readings and case studies to develop skills and philosophical basis for applying managerial concepts to entrepreneurial operations. S/U or letter grading.

240F. Global Supply Chain Management. (4) Lecture, three hours. Requisite: course 410. Business environment today is characterized by globalized operations, intense competition, rapid technological change, and short product life cycles. Consequently, firms can no longer afford to operate in isolation. In many industries competition has moved from firm level to supply chain level. Provides understanding of strategic, tactical, and operational issues in supply chain management, with generous attention to emerging digital economy. S/U or letter grading.

240G. Global Operations Strategy. (4) Lecture, three hours. Requisite: course 410. Study of challenges of operating globally in range of industries, including software, consulting, automotive, and textile. Several opportunities for hands-on quantitative methods, with strategic perspective throughout. S/U or letter grading.

241A. Technology Management. (4) Lecture, three hours. Requisites: courses 410, 411. Management of high-technology firm, including acquisition, creation, and utilization of technology and knowledge assets. Research and product development, product and process technologies, technology regimes, high-technology markets, competition, and technology strategies. Case examples from sectors such as computing, telecommunications, e-business, medical devices, nanotechnology, advanced transportation systems, and electronics. S/U or letter grading.

241B. Project Management. (4) Discussion, three hours. Requisite: course 407. Management of development projects. Decision-making environment, economic analysis, network analysis, scheduling, and control of development projects. Sequential and aggregate development decisions. S/U or letter grading.

242A. Models for Operations Planning, Scheduling, and Control. (4) Discussion, three hours. Designed for PhD students with some knowledge of mathematical programming and stochastic processes. Foundations of operations planning, scheduling, and control, with emphasis on formal models and their applications. Aggregate planning, work force scheduling, inventory management, and detailed operations scheduling and control. S/U or letter grading.

242B. Models for Operations Systems Design. (4) Discussion, three hours. Requisite: course 210C. Designed for PhD students. Survey of research literature on models for design of manufacturing and service systems, including long-range forecasting, operational economies, capacity, location, facilities, processes/technology, work, and work structures. S/U or letter grading.

243B. Inventory Theory. (4) Discussion, three hours. Requisite: course 210B. General discussion of inventory models, with emphasis on characterizing form of optimal policies and efficient computational methods. Deterministic, stochastic, discrete-time, and continuous-time models. S/U or letter grading.

243C. Scheduling Models for Intermittent Systems. (4) Discussion, three hours. Requisite: course 242A. Scheduling models and results for single machine, flow shop, job shop, and resource-constrained project networks. Approaches include classical models, recent heuristic approaches, current research in coordinated interaction of computer models, and man/machine interaction. S/U or letter grading.

243X-243Y-243Z. Seminars: Decisions, Operations, and Technology Management Systems. (1-1-2) Seminar, 90 minutes to three hours. Required of all PhD students in decisions, operations, and technology management. Student, faculty, and guest speaker presentations of ongoing research. May be repeated for credit. S/U or letter grading.

245. Special Topics in Decisions, Operations, and Technology Management. (4) Lecture, three hours. Designed for MBA and PhD students. Studies of advanced subjects of current interest in decisions, operations, and technology management. Emphasis on recent developments and application of specialized knowledge. Topics vary each term and have included strategy for information intensive industries, empirical research in operations management, analytical methods of operation research, introduction to management in information economy, and models for medical management. May be repeated for credit with topic change. S/U or letter grading.

246A. Business and Environment. (4) Lecture, three hours. Overview of many ways in which environmental issues interact with main functional areas of business: finance, marketing, strategy, operations, accounting. Basic introduction to background of environmental issues, with focus primarily on business aspects. Specific topics vary from year to year, but course details what every manager should know about environmental issues in business. S/U or letter grading.

250D. Patterns of Problem Solving. (4) Lecture, three hours. Acquisition of strategies that enhance adaptive planning and real-time judgment, based on findings from brain studies and cognitive research. Design of tools to respond to emergent uncertainties and to address situations where intense pressures of time and cost are present. Letter grading.

251. Managing Human Resources. (4) Management of people in organizations, designed for managers as well as personnel specialists. Organized at three related but distinct levels of analysis: (1) day-to-day utilization of people as organizational resources to achieve optimal productivity, satisfaction, retention, and development; (2) personnel management function or system that performs specialized human resource functions; and (3) issues facing top management which involve management of human resources, including strategic planning for human resources, union/management relations, and design of corporate culture.

252. Persuasion and Influence. (4) Lecture, three hours. Enforced requisite: course 409. Designed for individuals interested in improving their ability to persuade and influence others. Consideration of number of well-studied persuasion and influence strategies that result in greater buy-in for one's ideas, initiatives, proposals, products, and requests. Letter grading.

253. International Political Economy. (4) Lecture, three hours. Examination of political, legal, and social institutions to demonstrate varieties of modern capitalism and business/government relations around world. Analysis of major domestic policy options that nations are pursuing in response to economic globalization and introduction to international coalitions being formed as result of globalization, including NAFTA, and to nongovernmental organizations created to deal with special problems such as global environmental crisis. Letter grading.

254. Pay and Rewards in Organizations. (4) Lecture, three hours. Systematic treatment of pay (compensation) and rewards in organizations, with emphasis on design, implementation, and outcomes of organizational pay and reward systems and practices that are shaped by strategic, labor market, and motivational considerations. Specific topics include variable compensation (e.g., bonus, profit-sharing, stock ownership, and stock option plans) and noncompensation rewards; compensation and rewards for performance and in entrepreneurial and public organizations; fringe benefits; executive compensation; and international and comparative compensation/reward practices. S/U or letter grading.

M255. Comparative Industrial Relations. (4) (Same as Public Policy CM231.) Lecture, three hours; outside study, nine hours. Requisite: course 409 or elementary knowledge of labor economics. At national and international levels, historical and contemporary analytical comparison of political, social, and economic contexts influencing human resource systems of selected developed countries. In addition to discussing possible frameworks for analyzing human resource systems, examination of institutions and ideologies of labor, management, and government, and interaction of their power relationships; substance and manner of determination of "web of rules" governing rights and obligations of the parties; and resolution of conflicts. S/U or letter grading.

256. Leadership and Ethics. (4) Lecture, three hours. Series of real-life business situations that pose complex problems of leadership and ethics, so students develop better understanding of how they can successfully address business situations that define their leadership and ethical positions. Letter grading.

257. Human Resource Management in Creative and Nonprofit Sectors. (4) Designed for graduate students. Analysis of human resource management theory and practices in industries where primary product is creative or intellectual (e.g., arts, entertainment, education, high technology, and journalism). Consideration of incorporation of work design, employee influences, systems, and business strategies in human resource management. Interpersonal and group process for managing human behavior. S/U or letter grading.

258X-258Y-258Z. Research Seminars: Management and Organizational Behavior. (1 -1-2) (Formerly numbered 258.) Seminar, two hours. Designed for PhD students. Development of ability to critically evaluate research in fields relevant to study of problems or issues of current concern in management and organizational behavior. Papers presented in colloquium format by leading scholars in organizational behavior. Active participation and intellectual interchange encouraged through discussion of papers during colloquium. May be repeated for credit. S/U or letter grading.

M259A. Individuals and Groups in Organizations. (4) (Formerly numbered 259A.) (Same as Psychology M222E.) Lecture, three hours. Designed for graduate students. Doctoral-level survey of classic and emerging theories and research in field of organizational behavior, with focus on micro-level topics related to individual and interpersonal processes within

organizations. Exploration of how individual behaviors, cognitions, and perceptions are affected by organizational content, structure, and culture. S/U or letter grading.

259B. Advanced Studies in Human Resource Management. (4) Lecture, three hours. Designed for graduate students. Doctoral-level survey of research literature assessing how organizations utilize human resources to enhance individual, group, and organizational effectiveness. Current theory and research in psychology, anthropology, organization behavior, and economics, including topics such as careers, participation, negotiations, and technology/work systems. S/U or letter grading.

259C. Markets and Organizations. (4) Seminar, three hours. Designed for graduate students. Doctoral-level survey of major topics in organizational behavior, with focus on macro-level organizational topics related to study of organizational systems and organizational environments. Topics may include demography, organizational change, organizational structure, and networks. Letter grading.

260A. Customer Assessment and Analytics. (4) Lecture, three hours. Enforced requisite: course 411. Decision-oriented course concerned with marketing research and data-driven marketing analytics. Detailed hands-on understanding of market research methodologies used in strategic assessment of customer perceptions and preferences. Extensive use of case studies. Letter grading.

260B. Marketing Strategy and Planning. (4) Lecture, three hours. Requisite: course 411. Development of framework for strategic marketing planning based on customer behavior, market segmentation, product positioning, product life cycle, market responsiveness, and competitive reaction. Within this framework, development of key elements in annual marketing process. Letter grading.

261A. Sales and Channel Management. (4) Lecture, three hours. Requisite: course 411. Study of problems in management of sales and distribution channels. Issues of personal selling, account management, determining sales force size, organization, and compensation plans. Coverage of channel selection, conflict, power, and control. Extensive use of case studies. Letter grading.

261B. Global Marketing Management. (4) Lecture, three hours. Requisite: course 411. Analysis of opportunities, distinctive characteristics, and emerging trends in foreign markets, including exploration of alternative methods and strategies for entering foreign markets; organizational planning and control; impact of social, cultural, economic, and political differences; and problems of adapting American marketing concepts and methods. Letter grading.

262. Price Policies. (4) Lecture, three hours. Requisites: courses 405, 411. Consideration of environment of pricing decision—costs, customer, channels, competition, and regulation. Analysis of when and how to apply specific pricing strategies, including two-part tariffs, quantity discounts, product differentiation, bundling, and auctions. Letter grading.

263A. Consumer Behavior. (4) Lecture, three hours. Requisite: course 411. Study of nature and determinants of consumer behavior. Emphasis on influence of sociopsychological factors such as personality, small groups, demographic variables, social class, and culture on formation of consumers' attitudes, consumption, and purchasing behavior. S/U or letter grading.

264A. Market Research. (4) Lecture, three hours. Requisite: course 411. Designed for prospective users of research results rather than for specialists in research. Marketing research is aid to management decision making. Development of problem-analysis skills, providing knowledge of concepts and methods of marketing research, with increased sensitivity to limitations of marketing data. Letter grading.

264B. Data Analytics for Marketing and Finance. (4) Lecture, three hours. Enforced requisite: course 402. How to fit predictive models and visualize multivariate data using examples and topics from marketing and finance. Topics include conditional prediction and predictive models, advanced treatment of re-

gression, visualization and graphics, automating analysis for high dimensional data. Use of industry-leading R/Rstudio statistical environment. S/U or letter grading.

265. Brand Management. (4) Lecture, three hours. Requisite: course 411. Introduction to considerations in development, implementation, and management of brands. Discussion of challenges to creating and maintaining strong brands. Topics include building brand knowledge and identities, marketing mix and brands, brand architectures, and brand equity. Letter grading.

266A. New Product Development. (4) Lecture, three hours. Requisite: course 411. Examination of new product development (NPD) process with objective of learning key tools and methods and applying them to case studies, exercises, and course project. Products viewed through three lenses: quantifiable rational attributes, appeal due to emotional characteristics, and cost/technology/competitive tradeoffs. NPD process also investigated through five key phases: ideation, concept generation and selection, detailed design, prototyping and testing, and ramp-up and product launch. Coverage of mass customization, parallel prototyping, cost reduction, and creativity. Letter grading.

266B. Advertising and Marketing Communications. (4) Lecture, three hours. Requisite: course 411. Detailed study of decisions regarding media and forms of advertising and marketing communications to develop integrated strategies. Review of use and effectiveness of advertising and communication tools. Evaluation of advertising and promotional policies from development through implementation. Letter grading.

267. Digital One-to-One Marketing. (4) Lecture, three hours. Requisites: courses 402, 411. Use of notion of customer life cycle as organizing principle and application to digital one-to-one marketing context. Frameworks and analytical tools for interacting with customers and learning about their preferences as they evolve through four stages of customer life cycle: (1) customer acquisition, (2) initial post-promotion purchasing, (3) mid-maturity purchase and transaction behavior, and (4) customer attrition or switchero to other product lines. S/U or letter grading.

268. Selected Topics in Marketing. (4) Lecture, three hours. Requisite: course 411. Study of selected areas of marketing knowledge and thought. Specific subjects vary each term depending on particular interests of instructor and students. Individual projects and reports. May be repeated for credit. S/U or letter grading.

269A. Theory in Marketing. (4) Serves as mechanism to introduce students to development of marketing thought. Issues pertaining to general topic of theory development and testing. Prepares students for conducting theoretically grounded research in marketing.

269B. Research in Marketing Management. (4) Discussion, three hours. Designed for PhD students. Study of research issues associated with marketing management decisions. Recent research in areas of strategic marketing, market segmentation, new product development and introduction, pricing strategies, channel policy, promotion decisions, and sales force management examined critically. Review of both quantitative and behavioral approaches to studying these issues.

269C. Quantitative Research in Marketing. (4) Discussion, three hours. Designed for PhD students in management and related fields. Students are assumed to have good background in marketing principles and to be familiar with probability, statistics, mathematical programming, and econometrics. Review of a range of quantitative models as applied in marketing research. S/U or letter grading.

269D. Behavioral Research in Marketing. (4) Seminar, three hours. Designed for PhD students who are conducting research in consumer behavior or related areas. Empirical research in consumer behavior surveyed and critically evaluated from theoretical as well as practical perspectives. S/U or letter grading.

269E. Special Research Topics in Marketing. (4) Designed for PhD students. Advanced selected topics in marketing, with emphasis on thorough examination of one or two topics in current research and theory. May be repeated for credit.

269X-269Y-269Z. Workshops: Marketing. (1-1-2) Discussion, three hours. Designed for PhD students. Required of all students during first two years of their PhD work. Series consists of number of leading scholars in marketing and related disciplines who make presentations to marketing faculty and PhD students. Active participation and intellectual interchange that helps students gain richer perspective on field of marketing. In Progress (269X, 269Y) and S/U or letter (269Z) grading.

270C. Web Business. (4) Lecture, three hours. Doing business on Web. Web infrastructure and ecology. Web business models and strategies. Web business development, operation, and marketing. New frontiers, such as Web services, social networking, and semantic Web. S/U or letter grading.

M271A. Medtech Innovation I: Entrepreneurial Opportunities in Medical Technology. (4) (Same as Bioengineering M233A.) Lecture, three hours; discussion, three hours; outside study, six hours. Designed for graduate and professional students in engineering, dentistry, design, law, management, and medicine. Focus on understanding how to identify unmet clinical needs, properly filtering through these needs using various acceptance criteria, and selecting promising needs for which potential medtech solutions are explored. Students work in groups to expedite traditional research and development processes to invent and implement new medtech devices that increase quality of clinical care and result in improved patient outcomes in hospital system. Introduction to intellectual property basics and various medtech business models. Letter grading.

M271B. Medtech Innovation II: Prototyping and New Venture Development. (4) (Same as Bioengineering M233B.) Lecture, three hours; discussion, three hours; outside study, six hours. Enforced requisite: course M271A. Designed for graduate and professional students in engineering, dentistry, design, law, management, and medicine. Development of medtech solutions for unmet clinical needs previously identified in course M271A. Steps necessary to commercialize viable medtech solutions. Exploration of concept selection, business plan development, intellectual property filing, financing strategies, and device prototyping. Letter grading.

272A. Information Systems Project Management. (4) Lecture, three hours. Methods and tools for project management in information systems (IS) context. Initiating, planning, executing, controlling, reporting, and closing projects. Project integration, scope, time, cost, quality control, and risk management. Sourcing and external procurement. Contracting and managing partner relationships. Change management. S/U or letter grading.

273. Current Topics in Entertainment, Media, and Sports. (2) Seminar, two hours. Designed for graduate students. Examination in depth of current issues in entertainment, media, and sports. Topics vary. May be repeated for credit. S/U or letter grading.

274A. Special Topics in Information Systems. (4) Seminar, three hours. Designed primarily for PhD students. Examination in depth of problems or issues of current concern in information systems theory and practice. Topics vary. May be repeated for credit. S/U or letter grading.

274X-274Y-274Z. Current Research in Information Systems. (1-1-2) Seminar, two hours. Limited to PhD students. Year-long sequence associated with Information Systems Colloquium Series. Regularly scheduled presentations of current research and state-of-art developments in information systems field. Study and discussion of research presented. May be repeated for credit. S/U grading.

275. Current Topics in Emerging Technologies and Markets. (2) Seminar, two hours. Designed for graduate students. Examination in depth of current emerging technologies and related market developments. Topics vary. May be repeated for credit. S/U or letter grading.

M277. Real Estate Finance Law. (1 to 8) (Same as Law M209.) Lecture, three hours. Concentrated study of law governing financing of land transactions from both national and California perspectives. Topics include California deed of trust, installment land contracts and other mortgaging substitutes, assignments of rents, receiverships, prepayment, foreclosure, priorities, California antideficiency legislation, impact of borrower bankruptcy on mortgage lenders, construction lending, future advances lending, and secondary market. S/U or letter grading.

277A-277B. Real Estate Finance Law. (277A: 3 or 4/277B: 1 or 2) (Formerly numbered M277A.) Lecture, three hours. Course 277A is enforced requisite to 277B. Concentrated study of law governing financing of land transactions from both national and California perspectives. Topics include California deed of trust, installment land contracts and other mortgaging substitutes, assignments of rents, receiverships, prepayment, foreclosure, priorities, California antideficiency legislation, impact of borrower bankruptcy on mortgage lenders, construction lending, future advances lending, and secondary market. Concurrently scheduled with Law 209. In Progress (277A) and S/U or letter (277B) grading.

278A. Urban Real Estate Financing and Investing. (4) Lecture, three hours. Requisites: courses 408, 430. Investor-oriented course in which real estate and business trends are evaluated to determine alternative real estate investment opportunities. Use of current financial, economic, and investment theories and techniques to real estate investment opportunities in case studies and short case problems to illustrate development of investment strategies. S/U or letter grading.

279A. Cases in Real Estate Investments. (4) Lecture, three hours. Requisites: courses 408, 430. Development of understanding of principal issues involved with real estate investment and finance. Topics include real estate financial analysis and valuation in variety of contexts (single and multifamily residential, commercial/industrial, shopping center, and hotel properties), real estate taxation, real estate law, development process, securitization, REITs, and leasing and workout of troubled properties. S/U or letter grading.

279B. Entrepreneurial Real Estate Development. (4) Lecture, three hours. Requisites: courses 278A (or 279A), 408, 430. Introduction to various aspects of real estate development from perspectives of entrepreneur and investor. Coverage of all types of developments, including single family, multifamily, hotel, office, retail, and industrial. Industry guest speakers to help reinforce principles taught. Real estate development simulation and group presentations to panel of investors included. S/U or letter grading.

279C. Real Estate Economics, Capital Markets, and Securitization. (4) Lecture, three hours. Exploration of linkages between real estate, macroeconomy, and capital markets. New insights as to structure and practice of macroeconomic regulation, crisis policy formulation, and related capital markets and real estate outcomes. Letter grading.

280B. Personal and Professional Development. (4) Discussion, three hours. Designed for PhD students. Provides setting where students may explore their own professional values and approaches in process of testing and learning values and standards in applied behavioral sciences and human systems development. S/U or letter grading.

281B. People in Organizations. (4) Designed for graduate students. Introduction to different philosophical perspectives for understanding human behavior. Theories and concepts important for understanding human behavior in organizations, as well as managerial implications of individual, group, and so-

cial behavior. Special attention to knowledge about satisfaction, motivation, and productivity in organizations.

282. Optimizing Team Performance. (4) Lecture, three hours. Enforced requisites: courses 409, 414A. Optimization of team performance by diagnosing complex team dynamics and taking appropriate action to improve team functioning to help students strengthen their teamwork skills in ways that are proven to increase effectiveness and performance of teams. Letter grading.

284B. Organization Development. (4) Discussion, three hours. Designed for graduate students. Analysis of effects of organizational and managerial practices on individual self-fulfillment and systems effectiveness. Theories of organization change and action/research methods in organization development. Theory merged with practice through seminar discussions of field observations. S/U or letter grading.

284C. Managing Entrepreneurial Organizations. (4) Lecture, three hours. Issues involved in developing and managing entrepreneurial organizations. Topics include organizational growth, managerial tools, strategic planning, organizational design, management development, control systems, leadership, and cultural management. Examination of transitions that individuals must make as organizations grow. S/U or letter grading.

285A. Leadership, Motivation, and Power. (4) Discussion, three hours. Designed for graduate students. Theoretical and practical approaches to influencing and motivating people. Relative effectiveness of various leadership styles, different motivation theories, and power tactics from managerial point of view. Use of experience-based learning methods to aid diagnosis and understanding of one's own influence styles. S/U or letter grading.

285B. Managerial Interpersonal Communication. (4) Discussion, three hours. Designed for graduate students. Interpersonal and personality factors affecting managerial communications. Styles and modes of communication in one-to-one, group, and large-systems settings. Opportunities offered to deepen understanding of one's own communication styles and skills, considering verbal, nonverbal perceptual, and cross-cultural aspects. S/U or letter grading.

286. Negotiations Behavior. (4) Discussion, three hours. Presentation of theoretical principles and concepts from psychology, sociology, and economics through lectures and readings, with focus primarily on improving practical negotiating skills through experiential learning (i.e., negotiations simulations). Participants learn not only to enhance their individual abilities in dyadic and group situations, but also to analyze contexts for most effective application of these skills. S/U or letter grading.

287. Groups and Their Facilitation. (4) Discussion, three hours. Development of cognitive and experiential understanding of dynamics of small group training and its facilitation, including "sensitivity"/basic groups, group counseling, self-help groups, small groups, and committees in managerial decision making. Analysis of relevant theory, research findings, and case studies. S/U or letter grading.

288A. Selected Topics in Behavioral Science. (4) Discussion, three hours. Designed for graduate students. Theories of human behavior fundamental to study of individual, group, organizational, and cultural behavior. Exploration in depth of selected theoretic positions, extending and consolidating behavioral science knowledge and application. May be repeated for credit. S/U or letter grading.

289X-289Y-289Z. Global Economics and Management Workshops. (1-1-2) Seminar, two hours. Designed for PhD students. Development of ability to critically evaluate research in fields relevant to study of economics. Papers presented in colloquium format by leading scholars in economics. Active participation and intellectual interchange encouraged through discussion of papers during colloquium. May be repeated for credit. S/U grading.

290. Organization Theory. (4) Lecture, three hours. Analysis of theory and practice of managerial function of planning and control. Implementation of objectives through policy formulation, decision making, and control. Individual projects and reports. S/U or letter grading.

291. Strategies for Technology-Based Corporate Development. (4) Lecture, three hours. Enforced requisite: course 420. Focus on key aspects of corporate business development transactions, including strategic deal selection, mergers and acquisitions deal integration, deal structure (including accounting and tax issues), and economic analysis of transactions. Examination of technology and digital media markets. Letter grading.

M292A. Research and Development Policy. (4) (Same as Public Policy M280A.) Lecture, three hours. Examination of research and development as process and as element of goal-oriented organization. Factors affecting invention and innovation; transfer of technology; organizational and behavioral considerations; coupling of science, technology, and organizational goals; assessing of and forecasting technological futures. S/U or letter grading.

M292B. Growth, Science, and Technology. (4) (Same as Public Policy M280B.) Lecture, three hours. Economic growth and change. Role of advances in science and technology, and actions of maximizing innovators and factors impinging on their behavior. How technological breakthroughs (or discontinuities) can form new industries or transform nature of and population of firms in existing industries. S/U or letter grading.

M293A. Political Environment of American Business. (4) (Same as Public Policy M281.) Lecture, three hours. Evaluation of certain criticisms made by business of American political system. Designed to provide clearer understanding of principal features of American politics, especially as they influence business enterprise. S/U or letter grading.

293C. Ethical Considerations in Business. (4) Lecture, three hours. Examination of a range of ethical considerations in business decisions involving the individual, corporation, society, and international business. Analysis of cases for classroom presentation and discussion.

294. Law and Economics Workshop. (2 or 3) Seminar, two hours. Requisite: course 405 or Economics 201A. Knowledge of empirical methods and basic calculus required. Interdisciplinary speaker series bringing together outside speakers with scholars and students from UCLA Law School and academic departments. Topics include contracts, torts, intellectual property, and business law. Students write graded reaction papers. May be repeated for credit. Concurrently scheduled with Economics 206 and Law 648. S/U or letter grading.

295A. Entrepreneurship and Venture Initiation. (4) Exploration in entrepreneurship particularly concerned with formation and operation of new business ventures. Significant and crucial aspects of exploring new business opportunities and starting a business.

295B. Small Business Management. (4) Exploration of crucial aspects in managing small business enterprises. Emphasis on identification and analysis of characteristic operating problems of small firms and application of appropriate methods or techniques for their solution.

295C. Corporate Entrepreneurship. (4) Inquiry into nature of entrepreneurship and effective implementation of entrepreneurial strategies in large industrial enterprises. Emphasis primarily on managerial effects aimed at identification, development, and exploitation of technical and organizational innovations, management of new product or process developments, and effective new venture management in a corporate context.

295D. Business Plan Development. (4) Lecture, three hours. Enforced requisite: course 295A. Fundamentals of developing effective written business plans. Basic principles of developing plans for sales,

marketing, product or service, operations, financials, and management and staffing functions of new startup businesses. S/U or letter grading.

296A. International Business Management. (4) Discussion, three hours. Identification, analysis, and resolution of managerial issues of policy and action within context of a multinational corporation, with emphasis on problems of adaptation to different socio-cultural, legal, political, and economic environmental characteristics on planning, structuring of organizational relationships, and coordination and control in multinational firms. S/U or letter grading.

297B. International Business Strategy. (4) Discussion, three hours. Analysis of key strategic problems encountered by multinational corporations entering foreign markets. Application of concepts and theories acquired in other courses to series of complex cases on international business or by use of a complex simulation of competition in global markets. Letter grading.

297C. International Business Law. (4) Requisites: courses 205A, 296A. Legal environments in which international business operates; overseas business relationships and organizations; antitrust, taxation, transfer of capital, and technology regulations; patent, trademark, and copyright safeguards; arbitration of international business disputes; expropriation of foreign investments; international business and government relations.

297D. International Business Negotiations. (4) Requisite: course 296A. Exploration of international business negotiations of multinational enterprises with governmental agencies and foreign-based firms on a wide range of issues, such as establishment/disolution of joint ventures, extent of foreign ownership/management control, terms/conditions for technology transfer, investment incentives.

297E. Business and Economics in Emerging Markets. (4) Lecture, three hours. Requisite: course 205A or 405. Analysis of changing economic, political, demographic, and sociocultural conditions in developing countries as they affect the business environment. Process of economic growth, market-oriented reforms, and creation of domestic capital markets. Inflation and stabilization programs, identification of business risks and opportunities, as well as tools needed to manage firms under these conditions. S/U or letter grading.

298A. Special Topics in Management Theory. (4) Designed for PhD students. Examination in depth of problems or issues of current concern in management theory. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced PhD candidates, academic staff, or distinguished visiting faculty. May be repeated for credit.

298D. Special Topics in Management. (4) Lecture, three hours. Designed for graduate students. In-depth examination of problems or issues of current concern in management, with numerous topics offered each year. May be repeated for credit. Letter grading.

298E. Special Topics in Management. (2) Lecture, 90 minutes. Designed for graduate students. In-depth examination of problems or issues of current concern in management, with numerous topics offered each year. May be repeated for credit. Letter grading.

298F. Special Topics in Management. (1) Lecture, one hour. Designed for graduate students. In-depth examination of problems or issues of current concern in management, with numerous topics offered each year. May be repeated for credit. Letter grading.

298G. Special Topics in Management. (4) Lecture, three hours. Designed for graduate students. In-depth examination of problems or issues of current concern in management, with numerous topics offered each year. May be repeated for credit. S/U grading.

298H. Special Topics in Management. (2) Lecture, 90 minutes. Designed for graduate students. In-depth examination of problems or issues of current concern in management, with numerous topics offered each year. May be repeated for credit. S/U grading.

298I. Special Topics in Management. (1) Lecture, one hour. Designed for graduate students. In-depth examination of problems or issues of current concern in management, with numerous topics offered each year. May be repeated for credit. S/U grading.

298X-298Y-298Z. Management Strategy and Policy Workshops. (1-1-2) Discussion, three hours. Designed for PhD students. Intended to develop ability to critically evaluate research in fields relevant to study of management strategy and policy. Papers presented in colloquium format by leading scholars in management strategy and policy. Active participation and intellectual interchange encouraged through discussion of papers in sessions prior to workshop, as well as during colloquium. May be repeated for credit. S/U grading.

299M. Theory and Research Methods in Organizations and Management. (4) Seminar, three hours. Designed for PhD students. Methodological issues in management research. Emphasis on identification of research opportunities and formulation and evaluation of research proposals. Alternative goals, settings, and designs. Hypothesis development and testing. Measurement. Implementation considerations. May be repeated for credit. S/U or letter grading.

299R. Research Methods in Management. (4) Discussion, three hours. Designed for PhD students. Provides feedback and evaluation of papers prepared for research requirement. Quarterly meetings to discuss expectations of research committee and Doctoral Office. Students must enroll the term in which they are submitting their research paper. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Mathematics for Management. (4) Lecture, three hours. Limited to graduate students. General mathematics review for MBA students. Fundamental mathematics, including topics from algebra, differential calculus in single and multiple variables, logarithmic and exponential functions, probability, and statistics; applications, including economic theory, finance, time value of money, inventory management, linear programming, and mathematical models. S/U grading.

401A-401B. Managerial Problem Solving. (3-3) Discussion, three hours. Use of international business simulation and series of complex multifaceted cases to learn to apply MBA core disciplines in real-world globally focused business problems. In Progress (401A) and letter (401B) grading.

402. Data and Decisions. (4) Lecture, three hours. Topics include probabilities, random variables (expectation, variance, covariance, normal random variables), decision trees, estimation, hypothesis testing, and multiple regression models. Emphasis on actual business problems and data. Letter grading.

403. Financial Accounting. (4) Lecture, three hours. Designed for graduate students. Introduction to fundamental financial accounting methods and procedures, with emphasis on financial statements. Provides basis for firm understanding of "language of business"—accounting. Letter grading.

405. Managerial Economics. (4) Lecture, three hours. Designed for graduate students. Analysis of consumer, producer, and market behavior. Market structure, pricing, and resource allocation. Applications to managerial strategy and public policy, with emphasis on competition, market power, and externalities. Letter grading.

406. Global Macroeconomy. (4) Lecture, three hours. Requisites: courses 402, 403, 405. Provides analytical framework required for understanding way changing macroeconomic conditions in world economy affect economic growth, inflation, interest rates behavior, exchange rate determination, global competitiveness, unemployment, and trade account. Provides skills to

enable students to assess critically how developments in world economy affect particular industry environments. Letter grading.

407. Business Analytics with Spreadsheets. (4) Lecture, three hours. Requisite: course 402. Introduction to uses of analytical methods for making strategic, tactical, and operational decisions arising from accounting, finance, marketing, and production, with focus on three key areas in problem solving: formal problem definition, spreadsheet model formulation, alternatives evaluation. Letter grading.

408. Foundations of Finance. (4) Lecture, three hours. Introduction to managerial finance. Topics include time value of money, discounting and present values, valuation of bonds and stocks, risk and return, construction of optimal portfolios, capital budgeting, and weighted average cost of capital. Letter grading.

409. Organizational Behavior. (4) Lecture, three hours. Introduction to human resource management function and management of human behavior in organizations. Emphasis on relationships among individuals, groups, and organizational units as they influence managerial process and development of prospective general managers. Letter grading.

410. Operations Technology Management. (4) Lecture, three hours. Requisites: courses 402, 403. Principles and decision analysis related to effective utilization of factors of production in manufacturing and nonmanufacturing activities for both intermittent and continuous systems. Production organizations, analytical models and methods, facilities design, and design of control systems for production operations. Letter grading.

411. Marketing Management. (4) Lecture, three hours. Principles of market-driven managerial decision making: consumer, competitor, and company analysis, market segmentation, definition of target markets, and product positioning. Management of marketing function: product and pricing decisions, channels of distribution, marketing communications. Letter grading.

412. Management of Organizations. (4) Lecture, three hours. Preparation: completion of first-year core program. Integrative approach to theory and practice of management in complex organizations, emphasizing managerial roles in designing organizational structures, creating/maintaining planning, control, information, incentive systems, different patterns of human interaction such structures and systems tend to produce.

413A. Managerial Computing. (4) Lecture, three hours. Individual computing in support of strategic analysis, decision making, and management communication. Use of personal productivity tools, such as Excel and VBA, and network resources for data access. Emphasis on hands-on exercises. S/U or letter grading.

414A. Leadership Foundations. (2) Three-day residential format. Managing and working with people, with emphasis on motivation and development of individuals, leadership and interpersonal relationships, and group dynamics in complex organizational settings. S/U or letter grading.

414B. Introduction to Business Field Studies. (2) Three-day residential format. Enforced requisite: course 414A. Continuation of course 414A, with emphasis on motivation and development of individuals and groups and on social processes in complex organizations. S/U or letter grading.

420. Business Strategy. (4) Lecture, three hours. Evaluation and formulation of organization's overall policies and strategies. Economic, heuristic, and social process approaches to policy formulation, environmental analysis, and organizational appraisal. Senior management's role in managing policy process. Letter grading.

421. Communication Development for Leaders. (4) (Formerly numbered 421A.) Lecture, three hours. Key attributes, knowledge, skills, and strategies necessary to succeed communicatively in workplace. Examination of business presentation skills, visual and verbal persuasion skills, and interpersonal communica-

cation skills. Lectures, experiential activities, video analyses, and student activities supplemented by extensive individualized coaching by professor. S/U or letter grading.

422. Analysis and Communications. (4) Discussion, three hours. Designed for graduate students. Study and practice of oral and written management communications, including audience analysis, persuasion, revising and editing, presentation of technical information, and uses of computer technology. Organized around writing and speaking exercises. Personal attention to students' written communications and oral presentations.

424. Strategic Business Presenting. (2) Lecture, 90 minutes. Improvement of strategic business presenting skills such as presentation delivery techniques, visual and verbal persuasion principles, building arguments with supporting evidence, art of business storytelling, and other related topics, with focus on individual student presentations. Letter grading.

425. Advanced Management Communication. (4) Lecture, three hours. Advanced course on business presenting and management communication. Presentation of differing types of materials. Individual and team presentations to varied audiences. Examination of special topics in communication. S/U or letter grading.

427. Global Access Program. (8) Fieldwork, 60 hours. Requisites: courses 402, 403, 405, 408, 409, 410, 411, 414A, 420. Limited to Fully Employed MBA Program students. Must be taken in summer and fall quarters of third year. Faculty-guided consulting project with international company or U.S. company with international project focus. Establishment of client relationships, identification of problems or strategic questions, design of study, collection and analysis of secondary and primary research data, development of comprehensive business plan, and formal presentation of findings and recommendations. Letter grading.

430. Corporate Finance. (4) Lecture, three hours. Requisite: course 408. Consideration of broad range of issues faced by corporate financial managers. Analysis of firm's investment and financing decisions. Impact on firm of agency costs and asymmetric information. Study of mergers and acquisitions through use of empirical studies. Security design also covered. Letter grading.

440. International Preorientation. (1) Lecture, six hours. Limited to international students in MBA program. Intensive communication workshop that meets six times (Saturdays included) per week for three weeks. Basic listening, speaking, writing, and working/leading teams for case analysis, cold call participation, presentations, and job search. Introduction to research and career resources. May not be applied toward MBA degree. Offered in summer only. S/U grading.

444A. Introduction to Applied Management Research. (2) Lecture, two hours. Limited to full-time MBA program students. Must be taken after completion of first year in program. Methods of organizational and strategic analysis to determine relationship of organization with its environment. In Progress grading (credit to be given only on completion of courses 444B and 444C).

444B-444C. Applied Management Research: Two-Quarter Plan. (4-4) Fieldwork, four hours. Limited to full-time MBA program students. Must be taken after completion of first year in program. Projects include: (1) faculty-guided consulting project with private companies, nonprofit organizations, or government agencies; establishment of client relationships, identification of problems or strategic questions, design of study, collection and analysis of secondary and primary research data, development of comprehensive business plan, and formal presentation of findings and recommendations or (2) faculty-guided implementation of one new business or (3) pursuit of one faculty-led special research project worthy of publication in recognized academic research journal. In Progress (444B) and S/U or letter (444C) grading.

445. Applied Management Research. (8) Fieldwork, eight hours. Must be taken in second year (or its equivalent for part-time students). Supervised study of an organization, including establishment of client/consultant relationships, identification of problems or strategic questions, design of study, collection and analysis of data, development and reporting of implementable recommendations. Letter grading.

451. Fieldwork in Organizational Development. (2 to 12) Fieldwork, to be arranged. Requisite: course 284B. Supervised practical fieldwork in organizational development consultation in interpersonal, group, intergroup, total organization, and interorganizational settings. S/U or letter grading.

454. Fieldwork in Organizations. (4) Fieldwork, to be arranged. Preparation: completion of at least two terms of MBA program. Required of all full-time MBA students. Under direction of MBA program senior associate dean or other supervising faculty adviser, students perform supervised practical experience or fieldwork in organization as intern or fellow. Execution of predetermined assignment(s) pursuant to defined program of study that includes reporting and assessment of fieldwork experience through combination of written or oral presentations and may include preparation of evaluations or consulting report correlating to defined program of study. S/U grading.

455E. International Exchange Program. (2 to 16) Lecture, 30 hours; discussion, 10 hours. Students attend up to four MBA-level courses at institutions with exchange agreements with Anderson School. Some courses may be taught in local language. In addition to learning subject matter of courses, provides opportunity for students to enhance their knowledge of region while exchanging ideas and views with their peers at that institution. S/U grading.

457. Fieldwork in Investment Management. (4) Discussion, three hours. Use of academic theories learned in a practical experience by managing a portfolio started with donated funds. Mirrors situations experienced by typical money management firms and includes investment strategy, asset allocation, security analysis, and organizational issues. S/U or letter grading.

458A-458B. International Studies: Two-Quarter Plan. (2-2) For course 458A: lecture, three hours; presentations, site visits, and discussion, 20 hours; for course 458B: fieldwork, three hours; presentations, site visits, and discussion, 20 hours. Course 458A is enforced requisite to 458B. Taught in English. Designed for MBA, EMBA, FEMBA, and GEMBA students. Four on-campus academic sessions and one intensive week in another country for blend of lectures, guest speakers, panel discussions, and company site visits, with focus on doing business in other countries. Exposure to economy, legal and political environment, major industries and businesses, local culture, key historical events, and many aspects of conducting business outside U.S. Taught by school faculty members in conjunction with lectures by faculty members from top institutional partners, as well as local and regional government officials and ministers, local business executives, and influential leaders from country of focus. May be repeated for credit based on program requirements. In Progress (458A) and letter (458B) grading.

458I. International Studies. (4) Lecture, three hours; presentations, site visits, and discussion, 20 hours. Preparation: completion of first-year core courses in Fully Employed MBA Program. Taught in English. Intensive one-week program in one foreign country with five lectures at UCLA before and/or after trip. Courses taught by school faculty members in conjunction with faculty members from partner institutions in that country. Attendance at presentations by government officials and business executives in destination country. Exposure to business practices and operations in destination country through site visits, study of economy and political environment by comparing and contrasting it with U.S., and important historical and cultural aspects of destination country. May be repeated once for credit. Letter grading.

459E. International Exchange. (2 to 4) Lecture, three hours; discussion and site visits, 20 hours. Preparation: completion of first-year core courses in Fully Employed MBA Program. Taught in English. Intensive one-week program in one foreign country. Courses taught by faculty members from partner institutions in destination country. Topics vary but are tailored to MBA curriculum. Exposure to local business practices, visiting companies, and exploration of local cultural and historical sites. S/U or letter grading.

460A-460B. Managing Finance and Financing Emerging Enterprises. (2-2) Lecture, three hours. Course 460A is enforced requisite to 460B. Designed for second-year graduate students. Emphasis on financial, control, and investment issues confronting rapidly growing companies in entrepreneurial settings. Consideration and selection of financing vehicles that may be appropriate to securing money requirements of organizations. In Progress (460A) and letter (460B) grading.

461A. Leadership Foundations I. (2) Lecture, two hours. Limited to Executive MBA Program students. Focus on individual problem-solving and decision-making skills. Alternative conceptual frameworks presented for augmenting diagnostic and decision-making skills of individuals. Use of readings, cases, decision simulations, and discussions to explore areas of charting job and career progress, working with others, and shaping work culture. S/U or letter grading.

461B. Leadership Foundations II. (1) Lecture, one hour. Limited to Executive MBA Program students. Continuation of course 461A, with focus on development of self-assessment and self-reflection skills. Facilitation of self-evaluation of leadership strengths and weaknesses, with emphasis on individual problem solving and decision making and team design and development. Readings, cases, decision simulations, peer coaching, and discussions. In Progress grading (credit to be given only on completion of course 461C).

461C. Leadership Foundations II. (1) Lecture, one hour. Limited to Executive MBA Program students. Continuation of course 461B. Further exploration of leadership strengths and weaknesses, with emphasis on individual peer coaching, conflict management, individual goal setting, and goal achievement. Readings, cases, decision simulations, peer coaching, and discussions. S/U grading.

461D. Leadership Foundations III. (1) Lecture, one hour. Limited to Executive MBA Program students. Continuation of course 461C. Facilitation of self-evaluation of leadership strengths and weaknesses, with emphasis on career development, social networks, and organizational design. Readings, cases, decision simulations, peer coaching, and discussions. In Progress grading (credit to be given only on completion of course 461E).

461E. Leadership Foundations III. (1) Lecture, one hour. Limited to Executive MBA Program students. Continuation of course 461D. Further exploration of leadership strengths and weaknesses, with emphasis on individual leadership and organizational change. Readings, cases, decision simulations, peer coaching, and discussions. S/U grading.

462. Economic Analysis for Managers. (4) Limited to Executive MBA Program students. Policy-oriented problems in antitrust, tax securities, and environmental regulation. Concepts of microeconomic theory illustrated. Topics include traditional antitrust regulations, new trends in antitrust, private versus government antitrust, securities regulation, environmental regulations, and a business firm's optimal response to regulation.

463. Data Analysis and Management Decisions under Uncertainty. (4) Lecture, four hours. Limited to Executive MBA Program students. Survey of statistical model building, with emphasis on managerial interpretation of statistical summary of data. Classical statistics covered through multiple regression to support courses in finance and marketing that follow. Fundamental approaches to decision making under uncertainty. S/U or letter grading.

464. Managerial Accounting. (4) Limited to Executive MBA Program students. Familiarizes the manager with functions of accounting by focusing on use of external financial reports for evaluating corporate performance and use of accounting information for internal planning and control.

465A. Quantitative Methods for Managers. (2) Lecture, two hours. Limited to Executive MBA Program students. Survey of modeling approaches to managerial planning and decisions. Emphasis on ability to recognize situations where models can be used advantageously, to work effectively with model building specialists, and to make good use of models once they have been developed. S/U or letter grading.

465B. Game Theory. (2) Lecture, two hours. Limited to Executive MBA Program students. Conceptual framework for thinking strategically about business decisions. Examination of interactions between firm and parties external to it through lens of game theory. Framework based on ideas underlying game theory, such as recognizing interdependencies among players, getting away from win-lose mindset, importance of added value of players, anticipating other players' reactions to one's own actions. S/U or letter grading.

466A. Financial Policy for Managers. (4) Lecture, four hours. Limited to Executive MBA Program students. Modern financial management deals with decision making under uncertainty for corporate financial management, portfolio investment decisions, financial institutions, and international financial management. Focus on learning sound theoretical tools and applying them in casework. S/U or letter grading.

466B. Advanced Financial Policy for Managers. (4) Lecture, four hours. Limited to Executive MBA Program students. Modern financial management deals with decision making under uncertainty for corporate financial management, portfolio investment decisions, financial institutions, and international financial management. Focus on learning sound theoretical tools and applying them in casework. S/U or letter grading.

468. Macroeconomics and Economic Forecasting. (4) Lecture, four hours. Limited to Executive MBA Program students. Macroeconomic theory and its application to business forecasting. Major economic indicators and their historical description of the U.S. economy; theoretical tools that business economists use to analyze impacts of monetary and fiscal policy; macroeconomic techniques applicable to business decisions. S/U or letter grading.

469A-469B. Organizational Behavior. (2-2) (Formerly numbered 469.) Lecture, two hours. Course 469A is enforced requisite to 469B. Limited to Executive MBA Program students. Introduction to organizational behavior for executives, including but not limited to optimal decision making, fostering motivation, and other topics on psychology of leadership. Lecture, discussion, and experiential applications of course concepts. In Progress (469A) and S/U or letter (469B) grading.

470A. Introduction to Strategic Management Research. (2) Fieldwork, two hours. Limited to Executive MBA Program students. Methods of organizational and strategic analysis to determine relationship of organization with its environment. In Progress grading (credit to be given only on completion of courses 470B and 470C).

470B. Strategic Management Research. (4) Fieldwork, four hours. Limited to Executive MBA Program students. Preparation of strategic overview of selected company entailing collection and analysis of primary and secondary data, including (but not limited to) interviews of corporate executives, corporate financial and marketing data, industry reports, and customer and competitor interviews and/or surveys. In Progress grading (credit to be given only on completion of course 470C).

470C. Strategic Management Research. (4) Fieldwork, four hours. Limited to Executive MBA Program students. Further research and analysis of one strategic issue facing selected company and identified in

course 470B. Presentation of final reports and evaluation of student efforts by corporate personnel. S/U or letter grading.

470D. Seminar: Policy Analysis. (2) Seminar, two hours. Limited to Executive MBA Program students. Site visit to selected company, presentation of final reports, and evaluation of student efforts by corporate personnel. S/U or letter grading.

471A-471B. Management Practicum. (2-2) Lecture, three hours. Two-term individual or group (three to five students) project on global strategic issues designed to allow students to employ and enhance concepts learned in classroom. In Progress (471A) and letter (471B) grading.

471C-471D. Management Practicum I, II. (4-2) Fieldwork, three hours. Course 471C is enforced requisite to 471D. Limited to Global Executive MBA for the Americas Program students. Two-term individual or group (three to five students) project on global strategic issues designed to allow students to employ and enhance concepts learned in classroom. In Progress (471C) and letter (471D) grading.

472A. Marketing Strategy and Policy. (4) Lecture, four hours. Limited to Executive MBA Program students. Strategic marketing decisions, including development of marketing objectives and strategies and implementation of these strategies through pricing, channel, promotion, and new product decisions. S/U or letter grading.

472B. Customer Information Strategy. (4) Lecture, four hours. Limited to Executive MBA Program students. Exploration of innovation and marketing of products and services to customers. Use of creativity tools, customer research, and marketing science to create value and allocate resources so as to maximize revenues and profits that result. S/U or letter grading.

473A. Managerial and Organizational Processes. (2) Lecture, four hours every other week for 13 weeks. Limited to Executive MBA Program students. Macro-analytic issues, including intergroup relations, design and functioning of organizations, and relationships of organizations to their environment. S/U or letter grading.

474. Operations and Technology Management: Systems, Strategies, and Policies. (4) Lecture, three hours. Limited to Executive MBA Program students. Analysis of strategic and operating policies and decisions for systems that produce goods and services. Examination of role of comprehensive planning, inventories, scheduling of resources, distribution systems, and system location. Comprehensive operating problems.

475. International Managerial Policies and Strategies. (4) Limited to Executive MBA Program students. Study of economic and business decisions in an international context, with emphasis on formulation and implementation of management strategies in multinational enterprises. Application of concepts of international economic analysis and exploration of international corporate strategies.

476. Competitive Strategy and Business Policy. (4) Limited to Executive MBA Program students. Study of general management task of forging a corporate competitive strategy. Emphasis on economics of business rivalry within a variety of industrial settings and implications of changing environments on business strategy.

477. The Manager and Business/Society Relationships. (4) Limited to Executive MBA Program students. While organizations may, to some extent, choose their immediate environments, there are broad environmental factors and trends that affect most, if not all, organizations. Examination of emerging trends in key areas of government regulation, labor relations, international trade, basic economic structure, and social responsibility.

478. Selected Topics in Management. (2 to 4) Seminar, 90 minutes to three hours. Limited to Executive MBA Program students. Examination of selected problems and issues in an area of current concern in management. S/U or letter grading.

479E. International Exchange: Executive MBA Program. (2 to 4) Lecture, three hours; discussion and site visits, 20 hours. Preparation: completion of first-year core courses in Executive MBA Program. Intensive one-week program in one foreign country, with courses taught by faculty members from partner institutions in destination country. Topics vary but are tailored to MBA curriculum, including but not limited to finance, marketing, global economics, strategy, human resources, operations, and technology management. Exposure to local business practices, company site visits, and exploration of local cultural and historical sites. S/U or letter grading.

480. Corporate Governance. (4) Lecture, three hours. Foundations for members of corporate boards of directors to understand their responsibilities, hone their skills, and learn to improve their practices. Topics include legal and moral duties as directors, risk management, managing top management team of corporation. Letter grading.

482. Negotiations Behavior. (4) Lecture, three hours. Presentation of theoretical principles and concepts from psychology, sociology, and economics through lectures and readings, with focus primarily on improving practical negotiating skills through experiential learning (i.e., negotiations simulations). Participants learn not only to enhance their individual abilities in dyadic and group situations but also to analyze contexts for most effective application of these skills. Letter grading.

483. Management of Technology and Innovation. (4) Lecture, three hours. Problems of managing technological innovation in Asia. Topics include incorporation of technological consideration into strategy, adoption of technological innovation, promoting innovation through organizational design and leadership, e-business, and m-business. Letter grading.

485. Corporate Entrepreneurship. (4) Lecture, three hours. Managerial efforts aimed at identification, development, and exploitation of technical and organizational innovations, management of new product or process developments, and effective new venture management in context of large corporations in manufacturing and service industries. Development of awareness and understanding of range, scope, and complexity of issues related to creation of organizational environment that is supportive of entrepreneurial endeavors, and insight concerning effective implementation of technological and organizational innovations in corporate setting. Letter grading.

486. Strategic Leadership and Strategic Implementation. (4) Lecture, three hours. Designed to address several fundamental aspects of leading complex organizations, with emphasis on important tasks of developing well-aligned, high-performance organizations and on challenges of leading change in organizations. Enables students to develop organized point of view on strategic leadership and to increase their awareness of themselves as leaders. Letter grading.

487A-487B. Entrepreneurship and Venture Initiation I, II. (2-2) Lecture, 90 minutes. Course 487A is enforced requisite to 487B. Limited to Executive MBA Program students. Introduction to basic tools and jargon required for entrepreneurship that requires financing or management of intellectual property. Terminology used by lawyers, accountants, venture capitalists, and other investors when forming and financing new companies. Assessment of feasibility of business concept and communication of concept to potential investors, employees, and business partners. In Progress (487A) and letter (487B) grading.

488. Business Plan Development. (2) Lecture, 90 minutes. Enforced requisites: courses 487A, 487B. Limited to Executive MBA Program students. How to develop business plans, understanding of analytical processes required to produce plans, improvement of student writing and oral presentation skills, and review of business plans of other entities. Writing of one complete business plan and presentation of it to experienced investors. Letter grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA AGSM graduate adviser and assistant dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Research in Management. (1 to 8) Directed individual study or research. May be repeated. S/U or letter grading.

597. Preparation for Qualifying Examinations. (4 or 12) Preparation for master's comprehensive examination or PhD qualifying examinations. S/U grading.

598. Thesis Research in Management. (4 or 12) Research for and preparation of master's thesis. May be repeated. S/U grading.

599. PhD Dissertation Research in Management. (4 or 12) Research for and preparation of PhD dissertation. S/U grading.

MATERIALS SCIENCE AND ENGINEERING

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Scope and Objectives

At the heart of materials science and engineering is the understanding and control of the microstructure of solids. Microstructure is used broadly in reference to electronic and atomic structure of solids—and defects within them—at size scales ranging from atomic bond lengths to airplane wings. The structure of solids over this wide range dictates their structural, electrical, biological, and chemical properties. The phenomenological and mechanistic relationships between microstructure and the macroscopic properties of solids are, in essence, what materials science is all about.

Materials engineering builds on the foundation of materials science and is concerned with the design, fabrication, and optimal selection of engineering materials that must simultaneously fulfill dimensional, property, quality control, and economic requirements.

The undergraduate program in the Department of Materials Science and Engineering leads to the BS degree in Materials Engineering. Students are introduced to the basic principles of metallurgy and ceramic and polymer science as part of the department's Materials Engineering major. A joint major field, Chemistry/Materials Science, is offered to students enrolled in the Department of Chemistry and Biochemistry (College of Letters and Science).

The department also has a program in electronic materials that provides a broad-based background in materials science, with opportunity to specialize in the study of those materials used for electronic and optoelectronic applications. The program incorporates several courses in electrical engineering in addition to those in the materials science curriculum.

The graduate program allows for specialization in one of the following fields: ceramics and ceramic processing, electronic and optical materials, and structural materials.

Undergraduate Study

The materials engineering program is accredited by the Engineering Accreditation Commission of ABET. See <http://www.abet.org>.

The Materials Engineering major is a designated capstone major. Students undertake two individual projects involving materials selection, treatment, and serviceability. Successful completion requires working knowledge of physical properties of materials and strategies and methodologies of using materials properties in the materials selection process. Students learn and work independently and practice leadership and teamwork in and across disciplines. They are also expected to communicate effectively in oral, graphic, and written forms.

Materials Engineering BS**Capstone Major**

The materials engineering program is designed for students who wish to pursue a professional career in the materials field and desire a broad understanding of the relationship between microstructure and properties of materials. Metals, ceramics, and polymers, as well as the design, fabrication, and testing of metallic and other materials such as oxides, glasses, and fiber-reinforced composites, are included in the course contents.

Materials Engineering Option**Preparation for the Major**

Required: Chemistry and Biochemistry 20A, 20B, 20L; Civil and Environmental Engineering M20 or Computer Science 31 or Mechanical and Aerospace Engineering M20; Materials Science and Engineering 10, 90L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C.

The Major

Required: Civil and Environmental Engineering 101 (or Mechanical and Aerospace Engineering 101), 108, Electrical Engineering 100, Materials Science and Engineering 104, 110, 110L, 120, 130, 131, 131L, 132, 143A, 150, 160, Mechanical and Aerospace Engineering 82, 181A; two laboratory courses (4 units) from Materials Science and Engineering 121L, 141L, 143L, 161L, or up to 2 units of 199; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; one capstone design course (Materials Science and Engineering 140); and two major field elective courses (12 units) from Chemical Engineering C114, Civil and Environmental Engineering 130, 135A, Electrical Engineering 2, 123A, 123B, Materials Science and Engineering 111, 121, 122, 151, 161, 162, Mechanical and Aerospace Engineering 156A, 166C, plus at least one elective course (4 units) from Chemistry and Biochemistry 30A, 30AL, Electrical Engineering 131A, Materials Science and Engineering 170, 171, Mathematics 170A, or Statistics 100A.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Electronic Materials Option**Preparation for the Major**

Required: Chemistry and Biochemistry 20A, 20B, 20L; Civil and Environmental Engineering M20 or Computer Science 31 or Mechanical and Aerospace Engineering M20; Materials Science and Engineering 10, 90L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C.

The Major

Required: Electrical Engineering 100, 101A, 121B, Materials Science and Engineering 104, 110, 110L, 120 (or Electrical Engineering 2), 121, 121L, 122, 130, 131, 131L, 132, Mechanical and Aerospace Engineering 82, 101, 181A; 4 laboratory units from Materials Science and Engineering 141L, 161L, or up to 2 units of 199; three technical breadth courses (12 units)

selected from an approved list available in the Office of Academic and Student Affairs; one capstone design course (Materials Science and Engineering 140); and one major field elective course (4 units) from Electrical Engineering 110, 131A, Materials Science and Engineering 111, 143A, 162.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Materials Science and Engineering offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Materials Science and Engineering.

Materials Science and Engineering**Lower Division Courses**

10. Freshman Seminar: New Materials. (1) Seminar, one hour; outside study, two hours. Preparation: high school chemistry and physics. Not open to students with credit for course 104. Introduction to basic concepts of materials science and new materials vital to advanced technology. Microstructural analysis and various material properties discussed in conjunction with such applications as biomedical sensors, pollution control, and microelectronics. Letter grading.

90L. Physical Measurement in Materials Engineering. (2) Laboratory, four hours; outside study, two hours. Various physical measurement methods used in materials science and engineering. Mechanical, thermal, electrical, magnetic, and optical techniques. Letter grading.

Upper Division Courses

104. Science of Engineering Materials. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: Chemistry 20A, 20B, 20L, Physics 1A, 1B. General introduction to different types of materials used in engineering designs: metals, ceramics, plastics, and composites, relationship between structure (crystals and microstructure) and properties of technological materials. Illustration of their fundamental differences and their applications in engineering. Letter grading.

M105. Principles of Nanoscience and Nanotechnology. (4) (Same as Engineering M101.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Chemistry 20A, 20B, Physics 1C. Introduction to underlying science encompassing structure, properties, and fabrication of technologically important nanoscale systems. New phenomena that emerge in very small systems (typically with feature sizes below few hundred nanometers) explained using basic concepts from physics and chemistry. Chemical, optical, and electronic properties, electron transport, structural stability, self-assembly, templated assembly and applications of various nanostructures such as quantum dots, nanoparticles, quantum wires, quantum wells and multilayers, carbon nanotubes. Letter grading.

110. Introduction to Materials Characterization A (Crystal Structure, Nanostructures, and X-Ray Scattering). (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 104. Modern methods of materials characterization; fundamentals of crystallography, properties of X rays, X-ray scattering; powder method, Laue method; determination of crystal structures; phase diagram determination; high-resolution X-ray diffraction methods; X-ray spectroscopy; design of materials characterization procedures. Letter grading.

110L. Introduction to Materials Characterization A Laboratory. (2) Laboratory, four hours; outside study, two hours. Requisite: course 104. Experimental techniques and analysis of materials through X-ray scattering techniques; powder method, crystal structure determination, high-resolution X-ray diffraction methods, and special projects. Letter grading.

111. Introduction to Materials Characterization B (Electron Microscopy). (4) (Formerly numbered C111.) Lecture, three hours; laboratory, two hours; outside study, seven hours. Requisites: courses 104, 110. Characterization of microstructure and microchemistry of materials; transmission electron microscopy; reciprocal lattice, electron diffraction, stereographic projection, direct observation of defects in crystals, replicas; scanning electron microscopy: emissive and reflective modes; chemical analysis; electron optics of both instruments. Letter grading.

C112. Cultural Materials Science II: Characterization Methods in Conservation of Materials. (4) Lecture, four hours. Preparation: general chemistry, inorganic and organic chemistry, materials science. Principles and methods of materials characterization in conservation: optical and electron microscopy, X-ray and electron spectroscopy, X-ray diffraction, infrared spectroscopy, reflectance spectroscopy and multispectral imaging spectroscopy, chromatography, design of archaeological and ethnographic materials characterization procedures. Concurrently scheduled with course CM212. Letter grading.

120. Physics of Materials. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 104, 110 (or Chemistry 113A). Introduction to electrical, optical, and magnetic properties of solids. Free electron model, introduction to band theory and Schrödinger wave equation. Crystal bonding and lattice vibrations. Mechanisms and characterization of electrical conductivity, optical absorption, magnetic behavior, dielectrical properties, and p-n junctions. Letter grading.

121. Materials Science of Semiconductors. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 120. Structure and properties of elemental and compound semiconductors. Electrical and optical properties, defect chemistry, and doping. Electronic materials analysis and characterization, including electrical, optical, and ion-beam techniques. Heterostructures, band-gap engineering, development of new materials for optoelectronic applications. Letter grading.

121L. Materials Science of Semiconductors Laboratory. (2) Lecture, 30 minutes; discussion, 30 minutes; laboratory, two hours; outside study, three hours. Corequisite: course 121. Experiments conducted on materials characterization, including measurements of contact resistance, dielectric constant, and thin film biaxial modulus and CTE. Letter grading.

122. Principles of Electronic Materials Processing. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 104. Description of basic semiconductor materials for device processing; preparation and characterization of silicon, III-V compounds, and films. Discussion of principles of CVD, MOCVD, LPE, and MBE; metals and dielectrics. Letter grading.

130. Phase Relations in Solids. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 104, and Chemical Engineering 102A or Mechanical and Aerospace Engineering 105A. Summary of thermodynamic laws,

equilibrium criteria, solution thermodynamics, mass-action law, binary and ternary phase diagrams, glass transitions. Letter grading.

131. Diffusion and Diffusion-Controlled Reactions. (4) Lecture, four hours; outside study, eight hours. Requisite: course 130. Diffusion in metals and ionic solids, nucleation and growth theory; precipitation from solid solution, eutectoid decomposition, design of heat treatment processes of alloys, growth of intermediate phases, gas-solid reactions, design of oxidation-resistant alloys, recrystallization, and grain growth. Letter grading.

131L. Diffusion and Diffusion-Controlled Reactions Laboratory. (2) Laboratory, two hours; outside study, four hours. Enforced corequisite: course 131. Design of heat-treating cycles and performing experiments to study interdiffusion, growth of intermediate phases, recrystallization, and grain growth in metals. Analysis of data. Comparison of results with theory. Letter grading.

132. Structure and Properties of Metallic Alloys. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 131. Physical metallurgy of steels, lightweight alloys (Al and Ti), and superalloys. Strengthening mechanisms, microstructural control methods for strength and toughness improvement. Grain boundary segregation. Letter grading.

140. Materials Selection and Engineering Design. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: at least two courses from 132, 150, 160. Explicit guidance among myriad materials available for design in engineering. Properties and applications of steels, nonferrous alloys, polymeric, ceramic, and composite materials, coatings. Materials selection, treatment, and serviceability emphasized as part of successful design. Design projects. Letter grading.

141L. Computer Methods and Instrumentation in Materials Science. (2) Laboratory, four hours. Preparation: knowledge of BASIC or C or assembly language. Limited to junior/senior Materials Science and Engineering majors. Interface and control techniques, real-time data acquisition and processing, computer-aided testing. Letter grading.

143A. Mechanical Behavior of Materials. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 104, Mechanical and Aerospace Engineering 101. Plastic flow of metals under simple and combined loading, strain rate and temperature effects, dislocations, fracture, microstructural effects, mechanical and thermal treatment of steel for engineering applications. Letter grading.

143L. Mechanical Behavior Laboratory. (2) Laboratory, four hours. Requisites: courses 90L, 143A (may be taken concurrently). Methods of characterizing mechanical behavior of various materials; elastic and plastic deformation, fracture toughness, fatigue, and creep. Letter grading.

150. Introduction to Polymers. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Polymerization mechanisms, molecular weight and distribution, chemical structure and bonding, structure crystallinity, and morphology and their effects on physical properties. Glassy polymers, springy polymers, elastomers, adhesives. Fiber forming polymers, polymer processing technology, plasticization. Letter grading.

151. Structure and Properties of Composite Materials. (4) Lecture, four hours; outside study, eight hours. Preparation: at least two courses from 132, 143A, 150, 160. Requisite: course 104. Relationship between structure and mechanical properties of composite materials with fiber and particulate reinforcement. Properties of fiber, matrix, and interfaces. Selection of macrostructures and material systems. Letter grading.

160. Introduction to Ceramics and Glasses. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 104, 130. Introduction to ceramics and glasses being used as important materials of engineering, processing tech-

niques, and unique properties. Examples of design and control of properties for certain specific applications in engineering. Letter grading.

161. Processing of Ceramics and Glasses. (4) Lecture, four hours; discussion, one hour. Requisite: course 160. Study of processes used in fabrication of ceramics and glasses for structural applications, optics, and electronics. Processing operations, including modern techniques of powder synthesis, greenware forming, sintering, glass melting. Microstructure properties relations in ceramics. Fracture analysis and design with ceramics. Letter grading.

161L. Laboratory in Ceramics. (2) Laboratory, four hours. Requisite: course 160. Recommended corequisite: course 161. Processing of common ceramics and glasses. Attainment of specific properties through process control for engineering applications. Quantitative characterization and selection of raw materials. Slip casting and extrusion of clay bodies. Sintering of powders. Glass melting and fabrication. Determination of chemical and physical properties. Letter grading.

162. Electronic Ceramics. (4) Lecture, four hours; outside study, eight hours. Requisites: course 104, Physics 1C. Utilization of ceramics in microelectronics; thick film and thin film resistors, capacitors, and substrates; design and processing of electronic ceramics and packaging; magnetic ceramics; ferroelectric ceramics and electro-optic devices; optical wave guide applications and designs. Letter grading.

170. Engaging Elements of Communication: Oral Communication. (2) Lecture, one hour; discussion, one hour; outside study, four hours. Comprehensive oral presentation and communication skills provided by building on strengths of individual personal styles in creation of positive interpersonal relations. Skill set prepares students for different types of academic and professional presentations for wide range of audiences. Learning environment is highly supportive and interactive as it helps students creatively develop and greatly expand effectiveness of their communication and presentation skills. Letter grading.

171. Engaging Elements of Communication: Writing for Technical Community. (2) Lecture, one hour; discussion, one hour; outside study, four hours. Comprehensive technical writing skills on subjects specific to field of materials science and engineering. Students write review term paper in selected subject field of materials science and engineering from given set of journal publications. Instruction leads students through several crucial steps, including brainstorming, choosing title, coming up with outline, concise writing of abstract, conclusion, and final polishing. Other subjects include writing style, word choices, and grammar. Letter grading.

CM180. Introduction to Biomaterials. (4) (Same as Bioengineering CM178.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: course 104, or Chemistry 20A, 20B, and 20L. Engineering materials used in medicine and dentistry for repair and/or restoration of damaged natural tissues. Topics include relationships between material properties, suitability to task, surface chemistry, processing and treatment methods, and biocompatibility. Concurrently scheduled with course CM280. Letter grading.

188. Special Courses in Materials Science and Engineering. (4) Seminar, four hours; outside study, eight hours. Special topics in materials science and engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. Letter grading.

194. Research Group Seminars: Materials Science and Engineering. (4) Seminar, four hours; outside study, eight hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. Letter grading.

199. Directed Research in Materials Science and Engineering. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. Occasional field trips may be arranged. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

Graduate Courses

200. Principles of Materials Science I. (4) Lecture, four hours; outside study, eight hours. Requisite: course 120. Lattice dynamics and thermal properties of solids, classical and quantized free electron theory, electrons in a periodic potential, transport in semiconductors, dielectric and magnetic properties of solids. Letter grading.

201. Principles of Materials Science II. (4) Lecture, three hours; outside study, nine hours. Requisite: course 131. Kinetics of diffusional transformations in solids. Precipitation in solids. Nucleation theory. Theory of precipitate growth. Ostwald ripening. Spinodal decomposition. Cellular reactions. Letter grading.

202. Thermodynamics of Materials. (4) Lecture, four hours; outside study, eight hours. Principles of thermodynamics and statistical mechanics and their application to physical and chemical phenomena in materials. Finite-temperature properties of single-component and multicomponent systems, equations of state, thermodynamic potentials and their derivatives, phase diagrams, and other equilibrium properties. First-order and second-order phase transitions in liquids and solids. Introduction to classical and modern theories of critical phenomena. Thermodynamic description of irreversible processes and entropy generation. Letter grading.

210. Diffraction Methods in Science of Materials. (4) Lecture, four hours; recitation, one hour; outside study, seven hours. Requisite: course 110. Theory of diffraction of waves (X rays, electrons, and neutrons) in crystalline and noncrystalline materials. Long- and short-range order in crystals, structural effects of plastic deformation, solid-state transformations, arrangements of atoms in liquids and amorphous solids. Letter grading.

211. Introduction to Materials Characterization B (Electron Microscopy). (4) (Formerly numbered C211.) Lecture, three hours; laboratory, two hours; outside study, seven hours. Requisites: courses 104, 110. Characterization of microstructure and microchemistry of materials; transmission electron microscopy; reciprocal lattice, electron diffraction, stereographic projection, direct observation of defects in crystals, replicas; scanning electron microscopy: emissive and reflective modes; chemical analysis; electron optics of both instruments. Letter grading.

CM212. Cultural Materials Science II: Characterization Methods in Conservation of Materials. (4) (Same as Conservation M210.) Lecture, four hours. Preparation: general chemistry, inorganic and organic chemistry, materials science. Principles and methods of materials characterization in conservation: optical and electron microscopy, X-ray and electron spectroscopy, X-ray diffraction, infrared spectroscopy, reflectance spectroscopy and multispectral imaging spectroscopy, chromatography, design of archaeological and ethnographic materials characterization procedures. Concurrently scheduled with course C112. Letter grading.

M213L. Cultural Materials Science Laboratory: Technical Study. (4) (Same as Conservation M210L.) Laboratory, four hours. Enforced requisites: Conservation 215 (or M216) and one course from 260 through 264. Enforced corequisite: course CM212 or C112 or Conservation M210. Research-based laboratory through object-based problem-solving approach in conservation materials science. Experimental techniques, characterization, and analysis of archaeological and ethnographic materials (using materials science principles and reverse engineering processes) to determine technological features, defects, and products of alteration. Hands-on experience with noninvasive imaging and spectroscopic techniques, sampling and sample preparation methods, analysis of microsamples. Letter grading.

M214. Structure, Properties, and Deterioration of Materials: Rock Art, Wall Paintings, Mosaics. (2) (Same as Conservation M264.) Lecture, three hours. Recommended preparation: basic knowledge of general chemistry and materials science. Introduction to materials and techniques of rock art, wall paintings (including painted surfaces on cement and composite decorative architectural surfaces), and mosaics. Archaeological and ethnographic context, techniques, and materials. Pigments, colorants, and binding media. Chemical, optical, and structural properties. Relationship between composition (chemistry), structure (crystals, molecular arrangement, and microstructure), and properties explained using basic concepts from physics and chemistry. Intrinsic attributes and resistance to weathering. Causes, sources, and mechanisms of deterioration (physical, chemical, and biochemical). Letter grading.

M215. Conservation Laboratory: Rock Art, Wall Paintings, and Mosaics. (4) (Same as Conservation M250.) Laboratory, four hours. Enforced requisites: course M216 (or C112 or Conservation M210), Conservation 210L, 264. Recommended: Conservation 215. Research-based laboratory on conservation of rock art, wall paintings (archaeological and modern composites on cements), mosaics, and decorated architectural surfaces. Experimental techniques and analysis of materials (using materials science and reverse engineering processes) for characterization of technology, constituent materials, and alteration products; development of conservation treatment proposals, testing of conservation products, and methods and conservation treatment. Letter grading.

M216. Science of Conservation Materials and Methods I. (4) (Same as Conservation M216.) Lecture, two hours; laboratory, two hours. Recommended requisite: laboratory safety fundamental concepts course by Office of Environment, Health, and Safety. Introduction to physical, chemical, and mechanical properties of conservation materials (employed for preservation of archaeological and cultural materials) and their aging characteristics. Science and application methods of traditional organic and inorganic systems and introduction of novel technology based on biomaterialization processes and nanostructured materials. Letter grading.

221. Science of Electronic Materials. (4) Lecture, four hours; outside study, eight hours. Requisite: course 120. Study of major physical and chemical principles affecting properties and performance of semiconductor materials. Topics include bonding, carrier statistics, band-gap engineering, optical and transport properties, novel materials systems, and characterization. Letter grading.

222. Growth and Processing of Electronic Materials. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 120, 130, 131. Thermodynamics and kinetics that affect semiconductor growth and device processing. Particular emphasis on fundamentals of growth (bulk and epitaxial), heteroepitaxy, implantation, oxidation. Letter grading.

223. Materials Science of Thin Films. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 120, 131. Fabrication, structure, and property correlations of thin films used in microelectronics for data and information processing. Topics include film deposition, interfacial properties, stress and strain, electromigration, phase changes and kinetics, reliability. Letter grading.

224. Deposition Technologies and Their Applications. (4) Lecture, four hours; outside study, eight hours. Examination of physics behind majority of modern thin film deposition technologies based on vapor phase transport. Basic vacuum technology and gas kinetics. Deposition methods used in high-technology applications. Theory and experimental details of physical vapor deposition (PVD), chemical vapor deposition (CVD), plasma-enhanced chemical vapor deposition processes. Letter grading.

225. Materials Science of Surfaces. (4) Lecture, four hours; outside study, eight hours. Requisites: course 120, Chemistry 113A. Introduction to atomic and electronic structure of surfaces. Survey of methods for determining composition and structure of surfaces and near-surface layers of solid-state materials. Emphasis on scanning probe microscopy, Auger electron spectroscopy, X-ray photoelectron spectroscopy, ultraviolet photoelectron spectroscopy, secondary ion mass spectrometry, ion scattering spectroscopy, and Rutherford backscattering spectrometry. Applications in microelectronics, optoelectronics, metallurgy, polymers, biological and biocompatible materials, and catalysis. Letter grading.

226. Si-CMOS Technology: Selected Topics in Materials Science. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Recommended preparation: Electrical Engineering 221B. Requisites: courses 130, 131, 200, 221, 222. Selected topics in materials science from modern Si-CMOS technology, including technological challenges in high k/metal gate stacks, strained Si FETs, SOI and three-dimensional FETs, source/drain engineering including transient-enhanced diffusion, nonvolatile memory, and metallization for ohmic contacts. Letter grading.

243A. Fracture of Structural Materials. (4) Lecture, four hours; laboratory, two hours; outside study, four hours. Requisite: course 143A. Engineering and scientific aspects of crack nucleation, slow crack growth, and unstable fracture. Fracture mechanics, dislocation models, fatigue, fracture in reactive environments, alloy development, fracture-safe design. Letter grading.

243C. Dislocations and Strengthening Mechanisms in Solids. (4) Lecture, four hours; outside study, eight hours. Requisite: course 143A. Elastic and plastic behavior of crystals, geometry, mechanics, and interaction of dislocations, mechanisms of yielding, work hardening, and other strengthening. Letter grading.

246A. Mechanical Properties of Nonmetallic Crystalline Solids. (4) Lecture, four hours; outside study, eight hours. Requisite: course 160. Materials and environmental factors affecting mechanical properties of nonmetallic crystalline solids, including atomic bonding and structure, atomic-scale defects, microstructural features, residual stresses, temperature, stress state, strain rate, size and surface conditions. Letter grading.

246B. Structure and Properties of Glass. (4) Lecture, four hours; outside study, eight hours. Requisite: course 160. Structure of amorphous solids and glasses. Conditions of glass formation and theories of glass structure. Mechanical, electrical, and optical properties of glass and relationship to structure. Letter grading.

246D. Electronic and Optical Properties of Ceramics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 160. Principles governing electronic properties of ceramic single crystals and glasses and effects of processing and microstructure on these properties. Electronic conduction, ferroelectricity, and photochromism. Magnetic ceramics. Infrared, visible, and ultraviolet transmission. Unique application of ceramics. Letter grading.

247. Nanoscale Materials: Challenges and Opportunities. (4) Lecture, four hours; discussion, eight hours. Limited to graduate students. Literature studies of up-to-date subjects in novel materials and their potential applications, including nanoscale materials and biomaterials. Letter grading.

248. Materials and Physics of Solar Cells. (4) Lecture, four hours. Comprehensive introduction to materials and physics of photovoltaic cell, covering basic physics of semiconductors in photovoltaic devices, physical models of cell operation, characteristics and design of common types of solar cells, and approaches to increasing solar cell efficiency. Recent progress in solar cells, such as organic solar cell, thin-film solar cells, and multiple junction solar cells provided to increase student knowledge. Tour of research laboratory included. Letter grading.

250B. Advanced Composite Materials. (4) Lecture, four hours; outside study, eight hours. Preparation: BS in Materials Science and Engineering. Requisite: course 151. Fabrication methods, structure and properties of advanced composite materials. Fibers; resin-, metal-, and ceramic-matrix composites. Physical, mechanical, and nondestructive characterization techniques. Letter grading.

251. Chemistry of Soft Materials. (4) Lecture, four hours. Introduction to organic soft materials, including essential basic organic chemistry and polymer chemistry. Topics include three main categories of soft materials: organic molecules, synthetic polymers, and biomolecules and biomaterials. Extensive description and discussion of structure-property relationship, spectroscopic and experimental techniques, and preparation methods for various soft materials. Letter grading.

252. Organic Polymer Electronic Materials. (4) Lecture, four hours; outside study, eight hours. Preparation: knowledge of introductory organic chemistry and polymer science. Introduction to organic electronic materials with emphasis on materials chemistry and processing. Topics include conjugated polymers; heavily doped, highly conducting polymers; applications as processable metals and in various electrical, optical, and electrochemical devices. Synthesis of semiconductor polymers for organic light-emitting diodes, solar cells, thin-film transistors. Introduction to emerging field of organic electronics. Letter grading.

270. Computer Simulations of Materials. (4) Lecture, four hours; outside study, eight hours. Introduction to modern methods of computational modeling in materials science. Topics include basic statistical mechanics, classical molecular dynamics, and Monte Carlo methods, with emphasis on understanding basic physical ideas and learning to design, run, and analyze computer simulations of materials. Use of examples from current literature to show how these methods can be used to study interesting phenomena in materials science. Hands-on computer experiments. Letter grading.

271. Electronic Structure of Materials. (4) Lecture, four hours; outside study, eight hours. Preparation: basic knowledge of quantum mechanics. Recommended requisite: course 200. Introduction to modern first-principles electronic structure calculations for various types of modern materials. Properties of electrons and interatomic bonding in molecules, crystals, and liquids, with emphasis on practical methods for solving Schrödinger equation and using it to calculate physical properties such as elastic constants, equilibrium structures, binding energies, vibrational frequencies, electronic band gaps and band structures, properties of defects, surfaces, interfaces, and magnetism. Extensive hands-on experience with modern density-functional theory code. Letter grading.

272. Theory of Nanomaterials. (4) Lecture, four hours; outside study, eight hours. Strongly recommended requisite: course 200. Introduction to properties and applications of nanoscale materials, with emphasis on understanding of basic principles that distinguish nanostructures (with feature size below 100 nm) from more common microstructured materials. Explanation of new phenomena that emerge only in very small systems, using simple concepts from quantum mechanics and thermodynamics. Topics include structure and electronic properties of quantum dots, wires, nanotubes, and multilayers, self-assembly on surfaces and in liquid solutions, mechanical properties of nanostructured metamaterials, molecular electronics, spin-based electronics, and proposed realizations of quantum computing. Discussion of current and future directions of this rapidly growing field using examples from modern scientific literature. Letter grading.

CM280. Introduction to Biomaterials. (4) (Same as Bioengineering CM278.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: course 104, or Chemistry 20A, 20B, and 20L. Engineering materials used in medicine and dentistry for repair and/or restoration of damaged natural tissues. Topics include relationships between material properties, suitability to task, surface chemistry, pro-

cessing and treatment methods, and biocompatibility. Concurrently scheduled with course CM180. Letter grading.

282. Exploration of Advanced Topics in Materials Science and Engineering. (2) Lecture, one hour; discussion, one hour; outside study, four hours. Researchers from leading research institutions around world deliver lectures on advanced research topics in materials science and engineering. Student groups present summary previews of topics prior to lecture. Class discussions follow each presentation. May be repeated for credit. S/U grading.

296. Seminar: Advanced Topics in Materials Science and Engineering. (2) Seminar, two hours; outside study, four hours. Advanced study and analysis of current topics in materials science and engineering. Discussion of current research and literature in research specialty of faculty members teaching course. May be repeated for credit. S/U grading.

M297B. Material Processing in Manufacturing. (4) (Same as Mechanical and Aerospace Engineering M297B.) Lecture, four hours; outside study, eight hours. Enforced requisite: Mechanical and Aerospace Engineering 183A. Thermodynamics, principles of material processing: phase equilibria and transitions, transport mechanisms of heat and mass, nucleation and growth of microstructure. Applications in casting/solidification, welding, consolidation, chemical vapor deposition, infiltration, composites. Letter grading.

M297C. Composites Manufacturing. (4) (Same as Mechanical and Aerospace Engineering M297C.) Lecture, four hours; outside study, eight hours. Requisites: course 151, Mechanical and Aerospace Engineering 166C. Matrix materials, fibers, fiber preforms, elements of processing, autoclave/compression molding, filament winding, pultrusion, resin transfer molding, automation, material removal and assembly, metal and ceramic matrix composites, quality assurance. Letter grading.

298. Seminar: Engineering. (2 to 4) Seminar, to be arranged. Limited to graduate materials science and engineering students. Seminars may be organized in advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual or Tutorial Studies. (2 to 8) Tutorial, to be arranged. Limited to graduate materials science and engineering students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

597A. Preparation for MS Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate materials science and engineering students. Reading and preparation for MS comprehensive examination. S/U grading.

597B. Preparation for PhD Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate materials science and engineering students. S/U grading.

597C. Preparation for PhD Oral Qualifying Examination. (2 to 16) Tutorial, to be arranged. Limited to graduate materials science and engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

598. Research for and Preparation of MS Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate materials science and engineering students. Supervised independent research for MS candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of PhD Dissertation. (2 to 16) Tutorial, to be arranged. Limited to graduate materials science and engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

MATHEMATICS

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UCLA

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Professors Emeriti

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 Robert J. Blattner, PhD
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 Roberto H. Schonmann, PhD
 Masamichi Takesaki, PhD
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 Marcus L. Roper, PhD
 Sucharit Sarkar, PhD

Assistant Professors

Artem Chernikov, PhD
 Alyson K. Fletcher, PhD
 Andrew S. Marks, PhD
 Georg Menz, PhD

Adjunct Associate Professor

Christian Ratsch, PhD

Adjunct Assistant Professors

William J. Conley, PhD
 Mary P. Greene, MS
 Loong F. Kong, MS

Scope and Objectives

Gauss has called mathematics the “Queen of the Sciences.” It has provided powerful intellectual tools that have made possible tremendous advances in modern science and technology. The Department of Mathematics provides courses of study that introduce students to the fundamentals of mathematics and allow them to master the most important parts of the subject, both pure and applied. It leads doctoral students to the frontiers of mathematical research, where they can begin to push back those frontiers.

Undergraduate Study
Preliminary Examination in Mathematics

If students wish to enroll in Mathematics 1, 3A, or 31A, they must pass the Mathematics Diagnostic Test.

For specific information about the online test, refer to the Schedule of Classes or the departmental website at <http://www.math.ucla.edu/>

ugrad/diagnostic, or contact the Mathematics Student Services Office, 6356 Math Sciences.

Advanced Placement in Calculus

Students who have taken the Advanced Placement (AP) Calculus AB Test and obtained a score of 5 receive 4 units of credit and Mathematics 31A equivalency; those with a score of 4 receive 4 units of calculus and analytic geometry credit. They may petition for 31A equivalency, or they may take course 31A at UCLA, although they must still satisfy the course requisites (Mathematics Diagnostic Test). Students who take the BC Test and obtain a score of 5 receive 8 units of credit and Mathematics 31A, 31B equivalency; those with a score of 4 receive 4 units of credit and Mathematics 31A equivalency. They may petition for 31A, 31B equivalency, or they may take courses 31A, 31B at UCLA, although they must still satisfy the course requisites (Mathematics Diagnostic Test). Students receiving a score of 4 or lower on the AB or 3 or lower on the BC examination should consult the undergraduate mathematics counselor prior to enrolling in a calculus course at UCLA.

Credit Limitations

Credit is given for at most one course in each of the following groups: (1) 3A, 31A; (2) 3B, 31B, 31E; (3) 110A, 117; (4) 174A, 174E.

Courses from only one of the following statistics sequences may be applied toward any mathematics major: (1) Statistics 100A (or Mathematics 170A), 100B, 100C or (2) former Statistics 110A, 110B.

Mathematics 2 is not open for credit to students with credit for any course from Mathematics 110A through 199.

Mathematics 132 is not open for credit to students with credit for Physics 132.

Mathematics 151A is not open for credit to students with credit for Electrical Engineering 103.

Mathematics 170A and Statistics 100A are not open for credit to students with credit for Electrical Engineering 131A.

Mathematics 174A and 174E are not open for credit to students with credit for Economics 141.

For lower division mathematics courses, students may not take or repeat a course for credit if it is a requisite for a more advanced lower division course for which they already have credit. This applies in particular to the repetition of courses (e.g., if students wish to repeat Mathematics 31B, they must do so before completing course 32B; if students wish to repeat Mathematics 3B or 31B or 32A, they must do so before completing course 33A).

For upper division mathematics courses, students may not take or repeat a lower sequence course for credit if it is part of a sequence for which they already have credit. This applies in particular to the repetition of courses (e.g., if students wish to repeat Mathematics 131A, they must do so before completing course 131B or 131BH).

Students may not receive credit for both a course and the honors version of that course

(e.g., they may not receive credit for both Mathematics 131A and 131AH).

Mathematics Upper Division Courses

Mathematics 115A, 131A, 132, 142, 151A, and 164 are offered each term. The remaining upper division courses are usually offered once or twice each year. The tentative class schedule for the forthcoming academic year is posted in the Student Services Office in February.

Program in Computing Courses

Program in Computing 1 is designed for students who wish a broad, general introduction to the topic of computers and computation, but who have no prior experience in computing.

Courses 10A, 10B, and 10C provide an extensive introduction to programming, using the C++ language. Courses 15, 16, 20A, 20B, 20C, 30, 40A, 40B, and 60 are of interest to Letters and Science majors who are completing a specialization in Computing or who are planning to take upper division coursework in computer science. These students should seek the advice of their major department.

Undergraduate Majors

The department offers six majors: Mathematics, Applied Mathematics, Financial Actuarial Mathematics, Mathematics of Computation, Mathematics/Applied Science, and Mathematics for Teaching. The department also participates in the Mathematics/Economics Interdepartmental Program, which offers a Mathematics/Economics major, and in the Mathematics/Atmospheric and Oceanic Sciences Interdepartmental Program, which offers a Mathematics/Atmospheric and Oceanic Sciences major.

The Mathematics major is designed for students whose basic interest is mathematics; the Applied Mathematics major for those interested in the classical relationship between mathematics, the physical sciences, and engineering; the Financial Actuarial Mathematics major for students interested in working in the actuarial field or the application of mathematics, finance, and statistics; the Mathematics of Computation major for individuals interested in the mathematical theory and the applications of computing; the Mathematics/Applied Science major for those with substantial interest in the applications of mathematics to a particular outside field of interest; and the Mathematics for Teaching major for students planning to teach mathematics at the high school level. As part of the Mathematics/Applied Science major, the department offers programs for students interested in the fields of mathematics/history of science and medical and life sciences.

Each course taken to fulfill any of the requirements for any of the mathematics majors must be taken for a letter grade.

The Mathematics for Teaching major is a designated capstone major. In their senior year students complete a year-long course sequence that culminates in a model lesson presentation, paper, and portfolio. Through their capstone work, students demonstrate their familiarity with research and current issues in

mathematics education, as well as their capacities to problem solve; reason quantitatively, geometrically, and algebraically; construct viable arguments; critique others' reasoning; and use tools strategically.

Mathematics BS

Mathematics Premajor

Students entering UCLA directly from high school or first-term transfer students who want to declare the Mathematics premajor at the time they apply for admission are automatically admitted to the premajor.

Current UCLA students need to file a petition with the Undergraduate Advising Office in 6356 Math Sciences. All students are identified as Mathematics premajors until they satisfy the following minimum requirements for the major: (1) achieve grades of C or better in all premajor mathematics sequenced courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B), (2) achieve a minimum 2.5 grade-point average in the calculus sequence with no more than two repeats, and (3) file a petition to declare the major before completing 160 quarter units.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Physics 1A, Program in Computing 10A, and two courses from Chemistry and Biochemistry 20A, 20B, Economics 11, Life Sciences 1, Philosophy 31, 32, Physics 1B, 1C, 6B, 6C. Each course must be taken for a letter grade. The mathematics sequenced courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B) are calculated separately from the other preparation for the major courses and must be completed with a minimum overall 2.5 grade-point average and a grade of C or better in each course. The other preparation courses must be completed with a minimum overall 2.0 grade-point average and a grade of C- or better in each course.

Repetition of more than two mathematics sequenced courses or of any mathematics sequenced course more than once results in automatic dismissal from the major.

Freshman Students

Students must petition to declare the Mathematics major and can do so once they complete all of the mathematics sequenced courses and submit an application to enter the major before completing 160 quarter units. Admission into the major is based on student academic performance on the minimum requirements.

Transfer Students

Transfer applicants to the Mathematics major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of calculus for majors, one calculus-based physics (mechanics) course, one C++ programming course, and two courses from general chemistry for majors, economics, symbolic logic, and calculus-based physics.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

After satisfying the preparation for the major requirements, students need to petition to enter the major at the Undergraduate Advising Office.

The Major

Required: Mathematics 110A, 110B, 115A, 120A, 131A, 131B, 132, and at least five elective courses from 106 through 199 and Statistics 100A through 102C. Each course must be taken for a letter grade. The 12 courses must be completed with a minimum overall grade-point average of 2.0, with grades of C- or better in Mathematics 115A and 131A.

It is strongly recommended that students take Mathematics 115A as one of their first upper division courses for the major.

Applied Mathematics BS

Applied Mathematics Premajor

Students entering UCLA directly from high school or first-term transfer students who want to declare the Applied Mathematics premajor at the time they apply for admission are automatically admitted to the premajor.

Current UCLA students need to file a petition with the Undergraduate Advising Office in 6356 Math Sciences. All students are identified as Applied Mathematics premajors until they satisfy the following minimum requirements for the major: (1) achieve grades of C or better in all premajor mathematics sequenced courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B), (2) achieve a minimum 2.5 grade-point average in the calculus sequence with no more than two repeats, and (3) file a petition to declare the major before completing 160 quarter units.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Physics 1A, 1B, Program in Computing 10A, and one course from Chemistry and Biochemistry 20A, 20B, Physics 1C. Each course must be taken for a letter grade. The mathematics sequenced courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B) are calculated separately from the other preparation for the major courses and must be completed with a minimum overall 2.5 grade-point average and a grade of C or better in each course. The other preparation courses must be completed with a minimum overall 2.0 grade-point average and a grade of C- or better in each course.

Repetition of more than two mathematics sequenced courses or of any mathematics sequenced course more than once results in automatic dismissal from the major.

Freshman Students

Students must petition to declare the Applied Mathematics major and can do so once they complete all of the mathematics sequenced courses and submit an application to enter the major before completing 160 quarter units. Admission into the major is based on student academic performance on the minimum requirements.

Transfer Students

Transfer applicants to the Applied Mathematics major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of calculus for majors, two calculus-based physics courses, one C++ programming course, and one course from general chemistry for majors or calculus-based physics.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

After satisfying the preparation for the major requirements, students need to petition to enter the major at the Undergraduate Advising Office.

The Major

Required: Mathematics 115A, 131A, either 131B or 132, 142; two two-term sequences from two of the following categories: *numerical analysis*—courses 151A and 151B, *probability and statistics*—courses 170A and 170B, or Statistics 100A and 100B, *differential equations*—courses 134 and 135; four courses from 106 through 199 and Statistics 100A through 102C (appropriate courses from other departments may be substituted for some of the additional courses provided departmental consent is given before such courses are taken). Each course must be taken for a letter grade. The 12 courses must be completed with a minimum overall grade-point average of 2.0, with grades of C- or better in Mathematics 115A and 131A.

It is strongly recommended that students take Mathematics 115A as one of their first upper division courses for the major.

Financial Actuarial Mathematics BS

Financial Actuarial Mathematics Premajor

Students entering UCLA directly from high school or first-term transfer students who want to declare the Financial Actuarial Mathematics premajor at the time they apply for admission are automatically admitted to the premajor.

Current UCLA students need to file a petition with the Undergraduate Advising Office in 6356 Math Sciences. All students are identified as Financial Actuarial Mathematics premajors until they satisfy the following minimum requirements for the major: (1) achieve grades of C or better in all premajor mathematics sequenced courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A) with a minimum 2.5 grade-point average and no more than two repeats, (2) achieve grades of C or better in all premajor economics courses (Economics 1, 2, 11, Management 1A, 1B) with a minimum 2.5 grade-point average and no more than one repeat, and (3) file a petition to declare the major before completing 160 quarter units.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Economics 1, 2, 11, Management 1A, 1B, Program in Computing 10A. Each course must be taken for a letter grade. The economics preparation for the major courses (Economics 1, 2, 11, Management 1A, 1B) are calculated separately from the mathematics preparation for the major courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A). The economics preparation courses must be completed with a minimum overall 2.5 grade-point average and a grade of C or better in each course, as must the mathematics preparation courses.

Repetition of more than one economics preparation course, more than two mathematics preparation courses, or of any economics or mathematics preparation course more than once results in automatic dismissal from the major.

Freshman Students

Students must petition to declare the Financial Actuarial Mathematics major and can do so once they complete all of the mathematics sequenced courses, all of the economics preparation courses, and submit an application to enter the major before completing 160 quarter units. Admission into the major is based on student academic performance on the minimum requirements.

Transfer Students

Transfer applicants to the Financial Actuarial Mathematics major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of calculus for majors, one C++ programming course, one microeconomic theory course, one macroeconomics course, and two terms of accounting principle.

Transfer credit for any of the above is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eight mathematics/statistics courses, including Mathematics 115A, 131A, 170A, 170B, 174A (or 174E or Economics 141 or Statistics C183), 175; one two-term sequence from the following categories: *life contingency actuarial models*—courses 172B and 172C, or *casualty loss models*—courses 173A and 173B; and three courses from 172B through 173B, Economics 101 through 199B, Statistics 100C. Each course must be taken for a letter grade. Transfer credit is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

To graduate, the eight Mathematics Department courses must be completed with an overall grade-point average of 2.0, with grades of C- or better in Mathematics 115A and 131A,

as must the three courses from the Economics Department.

It is strongly recommended that students take Mathematics 115A as one of their first upper division courses for the major.

Mathematics of Computation BS

Mathematics of Computation Premajor

Students entering UCLA directly from high school or first-term transfer students who want to declare the Mathematics of Computation premajor at the time they apply for admission are automatically admitted to the premajor.

Current UCLA students need to file a petition with the Undergraduate Advising Office in 6356 Math Sciences. All students are identified as Mathematics of Computation premajors until they satisfy the following minimum requirements for the major: (1) achieve grades of C or better in all premajor mathematics sequenced courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B), (2) achieve a minimum 2.5 grade-point average in the calculus sequence with no more than two repeats, and (3) file a petition to declare the major before completing 160 quarter units.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61, Physics 1A, 1B, Program in Computing 10A, 10B, 10C, and one course from Chemistry and Biochemistry 20A, 20B, Physics 1C. Each course must be taken for a letter grade. The mathematics sequenced courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B) are calculated separately from the other preparation for the major courses and must be completed with a minimum overall 2.5 grade-point average and a grade of C or better in each course. The other preparation courses must be completed with a minimum overall 2.0 grade-point average and a grade of C- or better in each course.

Repetition of more than two mathematics sequenced courses or of any mathematics sequenced course more than once results in automatic dismissal from the major.

Freshman Students

Students must petition to declare the Mathematics of Computation major and can do so once they complete all of the mathematics sequenced courses and submit an application to enter the major before completing 160 quarter units. Admission into the major is based on student academic performance on the minimum requirements.

Transfer Students

Transfer applicants to the Mathematics of Computation major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of calculus for majors, one discrete structures course, two calculus-based physics courses, three programming courses, and one course from general chemistry for majors or calculus-based physics.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

After satisfying the preparation for the major requirements, students need to petition to enter the major at the Undergraduate Advising Office.

The Major

Required: Eleven Mathematics Department courses, including Mathematics 115A, 131A, 131B or 132, 151A, 151B, and six courses from 106 through 199 and Statistics 100A through 101C; three upper division computer science courses (12 units). Each course must be taken for a letter grade. The 14 courses must be completed with a minimum overall grade-point average of 2.0, with grades of C- or better in Mathematics 115A and 131A.

It is strongly recommended that students take Mathematics 115A as one of their first upper division courses for the major.

Mathematics/Applied Science BS

The Mathematics/Applied Science major is designed for students with a substantial interest in mathematics and its applications to a particular field. It is an individual major in that students, in consultation with a faculty adviser, design their own program. They may also select one of the established programs: mathematics/history of science plan or medical and life sciences plan. In the past, Mathematics/Applied Science majors have combined the study of mathematics with fields such as atmospheric and oceanic sciences, biochemistry, biology, chemistry, economics, geography, physics, psychology, and statistics.

Students interested in designing an individual program should meet with the undergraduate adviser, 6356 Math Sciences, during their sophomore year. A proposed program is drawn up, then forwarded to the mathematics/applied science curriculum committee for approval. All programs must include the following preparation for the major and major courses.

Mathematics/Applied Science Premajor

Students entering UCLA directly from high school or first-term transfer students who want to declare the Mathematics/Applied Science premajor at the time they apply for admission are automatically admitted to the premajor.

Current UCLA students need to file a petition with the Undergraduate Advising Office in 6356 Math Sciences. All students are identified as Mathematics/Applied Science premajors until they satisfy the following minimum requirements for the major: (1) achieve grades of C or better in all premajor mathematics sequenced courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B), (2) achieve a minimum 2.5 grade-point average in the calculus sequence with no more than two repeats, and (3) file a petition to declare the major before completing 160 quarter units.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A. Additional preparation, varying with the individual program, may be required. Each course must be taken for a letter grade. The mathematics sequenced courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B) are calculated separately from the other preparation for the major courses and must be completed with a minimum overall 2.5 grade-point average and a grade of C or better in each course. The other preparation courses must be completed with a minimum overall 2.0 grade-point average and a grade of C- or better in each course.

Repetition of more than two mathematics sequenced courses or of any mathematics sequenced course more than once results in automatic dismissal from the major.

Freshman Students

Students must petition to declare the Mathematics/Applied Science major and can do so once they complete all of the mathematics sequenced courses, all of the economics lower division courses if they are required for the major, and submit an application to enter the major before completing 160 quarter units. Admission into the major is based on student academic performance on the minimum requirements.

Transfer Students

Transfer applicants to the Mathematics/Applied Science major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of calculus for majors and one C++ programming course. Additional courses are required for each concentration plan.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tradms.htm for up-to-date information regarding transfer selection for admission.

After satisfying the preparation for the major requirements, students need to petition to enter the major at the Undergraduate Advising Office.

The Major

Required: Fourteen courses, seven in the Mathematics Department selected from Mathematics 106 through 199 and seven upper division courses in a related field selected from one or two other departments. Each course must be taken for a letter grade. The seven Mathematics Department courses must be completed with a minimum overall grade-point average of 2.0, with grades of C- or better in Mathematics 115A and 131A, as must the seven courses outside mathematics.

It is strongly recommended that students take Mathematics 115A as one of their first upper division courses for the major.

At least five of the courses from the related discipline must be taken after the program has been approved. Students are not admitted to the major if they have 135 or more units by the end of the term in which they plan to enter the program.

Actuarial Plan

The Undergraduate Council of the UCLA Academic Senate approved the disestablishment of the Actuarial Plan of the Mathematics/Applied Science BS effective fall quarter 2013. No new students can be admitted. Students already in the plan are allowed to complete the requirements for the BS degree.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Economics 1, 2, 11, Program in Computing 10A. Each course must be taken for a letter grade. The economics preparation for the major courses (Economics 1, 2, 11) are calculated separately from the mathematics preparation for the major courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A). The economics preparation courses must be completed with a minimum overall 2.5 grade-point average and a grade of C or better in each course, as must the mathematics preparation courses.

Repetition of more than one economics preparation course, more than two mathematics preparation courses, or of any economics or mathematics preparation course more than once results in automatic dismissal from the major.

The Major

Required: Seven mathematics courses, including Mathematics 115A, 131A, 170A, 170B, 172B, 172C, 175; four outside courses, including Mathematics 174A (or 174E or Economics 141 or Statistics C183), Statistics 100B, 100C, and one course from Economics 101 through 199B. Each course must be taken for a letter grade. Transfer credit is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

The seven Mathematics Department courses must be completed with a minimum overall grade-point average of 2.0, with grades of C- or better in Mathematics 115A and 131A, as must the four courses from the Economics and Statistics Departments.

It is strongly recommended that students take Mathematics 115A as one of their first upper division courses for the major.

Mathematics/History of Science Plan

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A, and three courses from History 2B, 2D, 3A through 3D. Each course must be taken for a letter grade. The mathematics sequenced courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B) are calculated separately from the other preparation for the major courses and must be completed with a minimum overall 2.5 grade-point average and a grade of C or better in each course. The other preparation courses must be completed with a minimum overall 2.0 grade-point average and a grade of C- or better in each course.

Repetition of more than two mathematics sequenced courses or of any mathematics

sequenced course more than once results in automatic dismissal from the major.

The Major

Required: Eight mathematics courses, including Mathematics 106, 115A, 131A, 134, 170A, and three courses from 110A through 199; six outside courses to be selected from History 179A through 180C, Philosophy 124, Physiological Science M168, and any upper division Honors Collegium course with history of science/medicine content. Each course must be taken for a letter grade. The eight Mathematics Department courses must be completed with a minimum overall grade-point average of 2.0, with grades of C- or better in Mathematics 115A and 131A, as must the six outside courses from history, philosophy, or physiological science.

It is strongly recommended that students take Mathematics 115A as one of their first upper division courses for the major.

Medical and Life Sciences Plan

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, Life Sciences 1, 2, 3, 4, Physics 1A, 1B, Program in Computing 10A. Each course must be taken for a letter grade. The mathematics sequenced courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B) are calculated separately from the other preparation for the major courses and must be completed with a minimum overall 2.5 grade-point average and a grade of C or better in each course. The other preparation courses must be completed with a minimum overall 2.0 grade-point average and a grade of C- or better in each course.

Repetition of more than two mathematics sequenced courses or of any mathematics sequenced course more than once results in automatic dismissal from the major.

The Major

Required: Seven mathematics courses, including Mathematics 115A, 131A, 134, 151A, 170A, 170B, and one course from 110A through 199 and Statistics 100B through 101C; six outside courses, including Neuroscience M101A, M101B, and M101C, and three courses from Biomathematics 110, 160, Biostatistics 100A, Chemistry and Biochemistry CM160A, Computer Science CM186, Ecology and Evolutionary Biology C119A, 133, 135, Physiological Science 100, 135, and any additional upper division course from these fields with consent of the administering department and the Mathematics Department. Each course must be taken for a letter grade. The seven Mathematics Department courses must be completed with a minimum overall grade-point average of 2.0, with grades of C- or better in Mathematics 115A and 131A, as must the six outside courses.

It is strongly recommended that students take Mathematics 115A as one of their first upper division courses for the major.

Mathematics for Teaching BS

Capstone Major

The Mathematics for Teaching major is designed primarily for students planning to teach mathematics at the high school level. It provides exposure to a broad range of mathematical topics, especially those appropriate for the prospective teacher. Students planning to pursue graduate studies in mathematics or related fields are encouraged to enter the Mathematics, Applied Mathematics, or Mathematics of Computation major.

Mathematics for Teaching Premajor

Students entering UCLA directly from high school or first-term transfer students who want to declare the Mathematics for Teaching premajor at the time they apply for admission are automatically admitted to the premajor.

Current UCLA students need to file a petition with the Undergraduate Advising Office in 6356 Math Sciences. All students are identified as Mathematics for Teaching premajors until they satisfy the following minimum requirements for the major: (1) achieve grades of C or better in all premajor mathematics sequenced courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B), (2) achieve a minimum 2.5 grade-point average in the calculus sequence with no more than two repeats, and (3) file a petition to declare the major before completing 160 quarter units.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61, Physics 1A or 6A, Program in Computing 10A, and two courses from Chemistry and Biochemistry 20A, 20B, Physics 1B, 1C, 6B, 6C, Program in Computing 10B through 97. Each course must be taken for a letter grade. The mathematics sequenced courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B) are calculated separately from the other preparation for the major courses and must be completed with a minimum overall 2.5 grade-point average and a grade of C or better in each course. The other preparation courses must be completed with a minimum overall 2.0 grade-point average and a grade of C- or better in each course.

Repetition of more than two mathematics sequenced courses or of any mathematics sequenced course more than once results in automatic dismissal from the major.

Freshman Students

Students must petition to declare the Mathematics for Teaching major and can do so once they complete all of the mathematics sequenced courses and submit an application to enter the major before completing 160 quarter units. Admission into the major is based on student academic performance on the minimum requirements.

Transfer Students

Transfer applicants to the Mathematics for Teaching major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of calculus for majors, one

discrete structures course, one C++ programming course, and three courses from calculus-based physics, general chemistry for majors, and computing.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

After satisfying the preparation for the major requirements, students need to petition to enter the major at the Undergraduate Advising Office.

The Major

Required: Mathematics 106, 110A or 117, 115A, 120A or 123, 131A, 170A or Statistics 100A, Statistics 100B, one course from Mathematics 110B through 191H or Statistics 100C, one course from Mathematics 131B through 136, one course from 142 through 167, and a capstone series in the senior year (courses 105A, 105B, 105C). Each course must be taken for a letter grade. The 13 courses must be completed with a minimum overall grade-point average of 2.0, with grades of C- or better in Mathematics 115A and 131A.

It is strongly recommended that students take Mathematics 115A as one of their first upper division courses for the major.

Honors

Honors Courses

The department offers a lower division honors sequence in calculus and upper division honors sequences in algebra and analysis. The sequences are intended for students (not necessarily mathematics majors) who desire a broad, comprehensive introduction to these topics.

Honors Program

Students majoring in Mathematics, Applied Mathematics, and Mathematics of Computation who wish to graduate with departmental honors should apply for admission to the honors program in the Student Services Office. They may apply any time after completing four courses from the calculus sequence or from upper division mathematics courses with an overall grade-point average of 3.6 or better. The program entails taking a specified sequence of courses as part of the major requirements, completing an approved seminar offered by the Mathematics Department or submitting an original research project, and earning an overall GPA of at least 3.6 in approved upper division and graduate mathematics courses.

Students completing the program are awarded honors at graduation; if they demonstrate exceptional achievement (i.e., at least a 3.8 GPA in upper division mathematics courses taken for the major), they are awarded highest honors. Consult the department for further information.

Computing Specialization

Majors in Mathematics, Applied Mathematics, Financial Actuarial Mathematics, Mathematics/Applied Science, or Mathematics for Teaching may select a specialization in Computing by (1)

satisfying all the requirements for a bachelor's degree in the specified major and (2) completing Mathematics 61 or 180, Program in Computing 10A, 10B, two courses from 10C, 15, 16, 20A, 20B, 30, 40A, 60, and at least two courses from Mathematics 149 through 159, with a minimum grade of C- in each course and a combined grade-point average of at least 2.0. Students must petition for admission to this program and are advised to do so after they complete Program in Computing 10B (petitions should be filed in the Student Services Office). Students graduate with a bachelor's degree in their major and a specialization in Computing.

Subject Matter Preparation Program for Single Subject Credential in Mathematics

Students interested in obtaining a single subject secondary school credential in mathematics should consult with a departmental counselor regarding the requirements for a waiver from the Mathematics California Subject Examination for Teachers (CSET), which is required by the California Commission on Teacher Credentialing. Students should meet with a departmental counselor as early in their undergraduate careers as possible because the program does require additional courses beyond the major requirements. For additional information on teaching credential requirements, consult the Department of Education at 310-825-8328.

Mathematics Minor

The Mathematics minor is designed to provide students with the opportunity to widen their background and general comprehension of the role of mathematics in various disciplines.

To enter the minor, students must have completed all of the lower division minor courses with grades of C or better (an overall grade-point average of 2.0 or better) and at least one upper division mathematics course.

Required Lower Division Courses (12 units): Mathematics 32A, 33A, 33B.

Required Upper Division Courses (20 units): At least five courses (20 units) selected from Mathematics 106 through 199.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade. Students must complete all lower division courses with grades of C or better. Upper division courses must have an overall grade-point average of 2.0 or better that is calculated separately from the lower division courses. Successful completion of the minor is indicated on the transcript and diploma.

Teaching Secondary Mathematics Minor

The Teaching Secondary Mathematics minor is designed for students majoring in fields other

than mathematics who plan to teach secondary mathematics after graduation. The minor provides recognition for completion of requisite coursework for the Joint Mathematics Education Program and also prepares students for the contents on the California Subject Examination for Teachers (CSET). Post-bachelor credentialing programs will see that students with this minor have taken coursework on secondary mathematics from an advanced standpoint that is recommended by the Conference Board of Mathematical Sciences and the California State Commission on Teacher Credentialing. This minor is not open to students in any Mathematics Department major.

To enter the minor, students must have completed Mathematics 115A with a grade of C or better. If Mathematics 115A was not completed at UCLA, students must show proof that they completed an equivalent course with a grade of C or better.

Required Upper Division Courses (29 units): Mathematics 105A, 105B, 105C, 110A or 117, 115A, 120A or 123, 131A.

It is strongly recommended that students take Mathematics 115A as their first upper division course for the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade with a grade of C- or better in each, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Mathematics offers the Masters of Arts in Teaching (MAT) degree and Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Mathematics.

Mathematics

Lower Division Courses

1. Precalculus. (4) Lecture, three hours; discussion, one hour. Preparation: three years of high school mathematics. Requisite: successful completion of Mathematics Diagnostic Test. Function concept. Linear and polynomial functions and their graphs, applications to optimization. Inverse, exponential, and logarithmic functions. Trigonometric functions. P/NP or letter grading.

2. Finite Mathematics. (4) Lecture, three hours; discussion, one hour. Preparation: three years of high school mathematics. Finite mathematics consisting of

matrices, Gauss/Jordan method, combinatorics, probability, Bayes theorem, and Markov chains. P/NP or letter grading.

3A. Calculus for Life Sciences Students. (4) Lecture, three hours; discussion, one hour. Preparation: three and one half years of high school mathematics (including trigonometry). Enforced requisite: successful completion of Mathematics Diagnostic Test (score of 35 or better) or course 1 with grade of C- or better. Not open for credit to students with credit in another calculus sequence. Modeling with functions, limits, and derivatives, decisions and optimization in biology, derivative rules and tools. P/NP or letter grading.

3B. Calculus for Life Sciences Students. (4) Lecture, three hours; discussion, one hour. Requisite: course 3A with grade of C- or better. Not open for credit to students with credit for course 31B. Applications of differentiation, integration, differential equations, linear models in biology, phase lines and classifying equilibrium values, bifurcations. P/NP or letter grading.

3C. Ordinary Differential Equations with Linear Algebra for Life Sciences Students. (4) Lecture, three hours; discussion, one hour. Requisite: course 3B with grade of C- or better. Multivariable modeling, matrices and vectors, eigenvalues and eigenvectors, linear and nonlinear systems of differential equations, probabilistic applications of integration. P/NP or letter grading.

31A. Differential and Integral Calculus. (4) Lecture, three hours; discussion, one hour. Preparation: at least three and one half years of high school mathematics (including some coordinate geometry and trigonometry). Requisite: successful completion of Mathematics Diagnostic Test or course 1 with grade of C- or better. Differential calculus and applications; introduction to integration. P/NP or letter grading.

31AX. Workshop in Differential Calculus. (1) Discussion, one hour. Corequisite: course 31A. Supplementary techniques and applications for solving problems in differential calculus. Limits of investigation set by individual instructor. P/NP grading.

31B. Integration and Infinite Series (Honors). (4) Lecture, three hours; discussion, one hour. Requisite: course 31A with grade of C- or better. Not open for credit to students with credit for course 3B. Transcendental functions; methods and applications of integration; sequences and series. P/NP or letter grading.

31BH. Integration and Infinite Series (Honors). (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 31A with grade of B or better. Honors course parallel to course 31B. P/NP or letter grading.

31BX. Workshop in Integral Calculus. (1) Discussion, one hour. Corequisite: course 31B. Supplementary techniques and applications for solving problems in integral calculus. Limits of investigation set by individual instructor. P/NP grading.

31E. Calculus for Economics Students. (4) Lecture, three hours; discussion, one hour. Requisite: course 31A with grade of C- or better. Not open for credit to students with credit for course 3B, 3C, or 31B. Calculus for applications to economics. Partial differentiation, implicit functions, exponential and logarithmic functions, extrema, optimization, constrained optimization. P/NP or letter grading.

32A. Calculus of Several Variables. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 31A with grade of C- or better. Introduction to differential calculus of several variables, vector field theory. P/NP or letter grading.

32AH-32BH. Calculus of Several Variables (Honors). (4-4) Lecture, three hours; discussion, one hour. Enforced requisite for course 32AH: course 31A with grade of B or better; for 32BH: courses 31B and 32A, with grades of B or better. Honors sequence parallel to courses 32A, 32B. P/NP or letter grading.

32B. Calculus of Several Variables. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 31B and 32A, with grades of C- or

better. Introduction to integral calculus of several variables, line and surface integrals. P/NP or letter grading.

33A. Linear Algebra and Applications. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 3B or 31B or 32A with grade of C- or better. Introduction to linear algebra: systems of linear equations, matrix algebra, linear independence, subspaces, bases and dimension, orthogonality, least-squares methods, determinants, eigenvalues and eigenvectors, matrix diagonalization, and symmetric matrices. P/NP or letter grading.

33AH. Linear Algebra and Applications (Honors). (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 3B or 31B or 32A with grade of B or better. Honors course parallel to course 33A. P/NP or letter grading.

33B. Differential Equations. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 31B with grade of C- or better. Highly recommended: course 33A. First-order, linear differential equations; second-order, linear differential equations with constant coefficients; power series solutions; linear systems. P/NP or letter grading.

33BX. Workshop in Infinite Series and Differential Equations. (1) Discussion, one hour. Corequisite: course 33B. Supplementary techniques and applications for solving problems in infinite series and differential equations. Limits of investigation set by individual instructor. P/NP grading.

61. Introduction to Discrete Structures. (4) Lecture, three hours; discussion, one hour. Requisites: courses 31A, 31B. Not open for credit to students with credit for course 180 or 184. Discrete structures commonly used in computer science and mathematics, including sets and relations, permutations and combinations, graphs and trees, induction. P/NP or letter grading.

71SL. Classroom Practices in Elementary School Mathematics. (2) Seminar, three hours; fieldwork, three hours. Introduction for prospective mathematics teachers to field of elementary education and teaching and learning of mathematics in elementary school classrooms. Pairs of students are placed in local elementary school classrooms to observe, participate, and assist mentor teachers in instruction. Introduction to inquiry-based learning practices, national and California standards, reading and learning differences in children, and cognitive ability of elementary-age children as it relates to introduction of concepts, curricular planning, classroom management, and learning assessment. P/NP grading.

72SL. Classroom Practices in Middle School Mathematics. (2) Seminar, 90 minutes; fieldwork, two and one half hours. Requisites: courses 31A and 31B, with grades of C- or better. Introduction for prospective mathematics teachers to field of secondary education and teaching and learning of mathematics in middle school classrooms. Pairs of students are placed in local middle school classrooms to observe, participate, and assist mentor teachers in instruction. Discussion of learning in middle school culture, cognitive development of students at this level, and best means to teach appropriate mathematics concepts at this level. P/NP grading.

95. Transition to Upper Division Mathematics. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 32A, 32B. Not open for credit to students with credit for course 131A or 132. Introduction to rigorous methods of proof-based upper division mathematics courses. Basic logic; structure of mathematical proofs; sets, functions, and cardinality; natural numbers and induction; construction of real numbers; topology of real numbers; sequences and convergence; continuity. May not be applied toward major requirements. P/NP or letter grading.

97. Variable Topics in Mathematics. (4) Lecture, three hours; discussion, one hour. Study of selected topics in mathematics at introductory level. P/NP or letter grading.

98XA. PEERS Collaborative Learning Workshops for Life Sciences Majors. (1) Laboratory, three hours. Corequisite: associated undergraduate lecture course in mathematics for life sciences majors. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated four times, but only 1 unit may be applied toward graduation. P/NP grading.

98XB. PEERS Collaborative Learning Workshops for Physical Sciences and Engineering Majors. (1) Laboratory, three hours. Corequisite: associated undergraduate lecture course in mathematics for physical sciences and engineering majors. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated four times, but only 1 unit may be applied toward graduation. P/NP grading.

Upper Division Courses

General and Teacher Training

100. Problem Solving. (4) Lecture, three hours. Requisite: course 31B with grade of C- or better. Problem-solving techniques and mathematical topics useful as preparation for Putnam Examination and similar competitions. Continued fractions, inequalities, modular arithmetic, closed form evaluation of sums and products, problems in geometry, rational functions and polynomials, other nonroutine problems. Participants expected to take Putnam Examination. P/NP grading.

101. Advanced Problem Solving. (4) Lecture, three hours. Requisite: course 100 or significant experience with mathematical competitions. Enrollment based on one selection test or past Putnam results. Advanced problem solving techniques and mathematical topics useful as preparation for Putnam competition. Problems in abstract algebra, linear algebra, number theory, combinatorics, probability, real and complex analysis, differential, equations, Fourier analysis. Regular practice tests given, similar in difficulty to Putnam competition. May be repeated for maximum of 12 units. P/NP or letter grading.

103A-103B-103C. Observation and Participation: Mathematics Instruction. (2-2-2) Seminar, one hour; fieldwork (classroom observation and participation), two hours. Requisites: courses 31A, 31B, 32A, 33A, 33B. Course 103A is enforced requisite to 103B, which is enforced requisite to 103C. Observation, participation, or tutoring in mathematics classes at middle school and secondary levels. May be repeated for credit. P/NP (undergraduates) or S/U (graduates) grading.

105A. Mathematics and Pedagogy for Teaching Secondary School Mathematics. (4) Lecture, four hours; fieldwork, 30 minutes. Requisites: courses 110A (or 117), 120A (or 123), and 131A, with grades of C- or better. Course 105A is requisite to 105B, which is requisite to 105C. Mathematical knowledge and research-based pedagogy needed for teaching key geometry topics in secondary school, including axiomatic systems, measure, and geometric transformations. Introduction to professional standards and current research for teaching secondary school mathematics. Letter grading.

105B. Mathematics and Pedagogy for Teaching Secondary School Mathematics. (4) Lecture, four hours; fieldwork, 30 minutes. Requisites: courses 105A, 110A (or 117), 120A (or 123), and 131A, with grades of C- or better. Mathematical knowledge and research-based pedagogy needed for teaching key polynomial, rational, and transcendental functions and related equations in secondary school; professional standards and current research for teaching secondary school mathematics. Letter grading.

105C. Mathematics and Pedagogy for Teaching Secondary School Mathematics. (4) Lecture, four hours; fieldwork, 30 minutes. Requisites: courses 105A, 105B, 110A (or 117), 120A (or 123), and 131A, with grades of C- or better. Mathematical knowledge and research-based pedagogy needed for teaching key analysis, probability, and statistics topics in sec-

ondary school; professional standards and current research for teaching secondary school mathematics. Letter grading.

106. History of Mathematics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 31A, 31B, 32A. Roots of modern mathematics in ancient Babylonia and Greece, including place value number systems and proof. Development of algebra through Middle Ages to Fermat and Abel, invention of analytic geometry and calculus. Selected topics. P/NP or letter grading.

Algebra, Number Theory, and Logic

110A-110B. Algebra. (4-4) Lecture, three hours; discussion, one hour. P/NP or letter grading. **110A.** Requisite: course 115A. Not open for credit to students with credit for course 117. Ring of integers, integral domains, fields, polynomial domains, unique factorization. **110B.** Requisite: course 110A or 117. Groups, structure of finite groups.

110AH-110BH. Algebra (Honors). (4-4) Lecture, three hours; discussion, one hour. Honors sequence parallel to courses 110A, 110B.

110C. Algebra. (4) Lecture, three hours; discussion, one hour. Requisites: courses 110A, 110B. Field extensions, Galois theory, applications to geometric constructions, and solvability by radicals.

111. Theory of Numbers. (4) Lecture, three hours; discussion, one hour. Requisites: courses 110A or 117, 115A. Divisibility, congruences, Diophantine analysis, selected topics in theory of primes, algebraic number theory, Diophantine equations.

114C. Computability Theory. (4) Lecture, three hours; discussion, one hour. Requisite: course 110A or 131A or Philosophy 135. Effectively calculable, Turing computable, and recursive functions; Church/Turing thesis. Normal form theorem; universal functions; unsolvability and undecidability results. Recursive and recursively enumerable sets; relative recursiveness, polynomial-time computability. Arithmetical hierarchy. P/NP or letter grading.

114L. Mathematical Logic. (4) Lecture, three hours; discussion, one hour. Requisite: course 110A or 131A or Philosophy 135. Introduction to mathematical logic, aiming primarily at completeness and incompleteness theorems of Gödel. Propositional and predicate logic; syntax and semantics; formal deduction; completeness, compactness, and Löwenheim/Skolem theorems. Formal number theory: nonstandard models; Gödel incompleteness theorem. P/NP or letter grading.

M114S. Introduction to Set Theory. (4) (Same as Philosophy M134.) Lecture, three hours; discussion, one hour. Requisite: course 110A or 131A or Philosophy 135. Axiomatic set theory as framework for mathematical concepts; relations and functions, numbers, cardinality, axiom of choice, transfinite numbers. P/NP or letter grading.

115A-115B. Linear Algebra. (5-4) P/NP or letter grading. **115A.** Lecture, three hours; discussion, two hours. Requisite: course 33A. Techniques of proof, abstract vector spaces, linear transformations, and matrices; determinants; inner product spaces; eigenvector theory. **115B.** Lecture, three hours; discussion, one hour. Requisite: course 115A. Linear transformations, conjugate spaces, duality; theory of a single linear transformation, Jordan normal form; bilinear forms, quadratic forms; Euclidean and unitary spaces, symmetric skew and orthogonal linear transformations, polar decomposition.

115AH. Linear Algebra (Honors). (5) Lecture, three hours; discussion, two hours. Requisite: course 33A with grade of B or better. Honors course parallel to course 115A. P/NP or letter grading.

115AX-115BX. Workshops in Linear Algebra. (1-1) Discussion, one hour. Corequisite for course 115AX: course 115A; for 115BX: course 115B. Supplementary techniques and applications for solving problems in linear algebra. Limits of investigation set by individual instructor. P/NP grading.

115HX. Workshop in Linear Algebra (Honors). (1) Discussion, one hour. Corequisite: course 115AH. Honors course parallel to course 115AX. P/NP grading.

116. Mathematical Cryptology. (4) Lecture, three hours; discussion, one hour. Requisite: course 115A. Not open for credit to students with credit for Program in Computing 130. Introduction to mathematical cryptology using methods of number theory, algebra, probability. Topics include symmetric and public-key cryptosystems, one-way functions, signatures, key exchange, groups, primes, pseudoprimes, primality tests, quadratic reciprocity, factoring, rho method, RSA, discrete logs. P/NP or letter grading.

117. Algebra for Applications. (4) Lecture, three hours; discussion, one hour. Requisite: course 115A. Not open for credit to students with credit for course 110A. Integers, congruences; fields, applications of finite fields; polynomials; permutations, introduction to groups.

Geometry and Topology

120A-120B. Differential Geometry. (4-4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B, 115A, 131A. Course 120A is requisite to 120B. Curves in 3-space, Frenet formulas, surfaces in 3-space, normal curvature, Gaussian curvature, congruence of curves and surfaces, intrinsic geometry of surfaces, isometries, geodesics, Gauss/Bonnet theorem. P/NP or letter grading.

121. Introduction to Topology. (4) Requisite: course 131A. Metric and topological spaces, completeness, compactness, connectedness, functions, continuity, homeomorphisms, topological properties.

123. Foundations of Geometry. (4) Lecture, three hours; discussion, one hour. Requisite: course 115A. Axioms and models, Euclidean geometry, Hilbert axioms, neutral (absolute) geometry, hyperbolic geometry, Poincaré model, independence of parallel postulate.

Analysis

131A-131B. Analysis. (4-4) Lecture, three hours; discussion, one hour. P/NP or letter grading. **131A.** Requisites: courses 32B, 33B. Recommended: course 115A. Rigorous introduction to foundations of real analysis; real numbers, point set topology in Euclidean space, functions, continuity. **131B.** Requisites: courses 33B, 115A, 131A. Derivatives, Riemann integral, sequences and series of functions, power series, Fourier series.

131AH-131BH. Analysis (Honors). (4-4) Lecture, three hours; discussion, one hour. Requisites for course 131AH: courses 32B and 33B, with grades of B or better. Recommended: course 115A. Honors sequence parallel to courses 131A, 131B. P/NP or letter grading.

131AX. Analysis Techniques. (1) Lecture, one hour. Requisite: course 33B. Corequisite: course 131A. Review of elementary techniques of mathematics and their applications to topics in analysis, such as geometric and algebraic constructions, least upper bound axiom, etc. P/NP grading.

131C. Topics in Analysis. (4) Lecture, three hours; discussion, one hour. Requisites: courses 131A, 131B. Advanced topics in analysis, such as Lebesgue integral, integration on manifolds, harmonic analysis. Content varies from year to year. May be repeated for credit by petition.

132. Complex Analysis for Applications. (4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. Introduction to basic formulas and calculation procedures of complex analysis of one variable relevant to applications. Topics include Cauchy/Riemann equations, Cauchy integral formula, power series expansion, contour integrals, residue calculus.

132H. Complex Analysis (Honors). (4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B, and 131A, with grades of B or better. Specifically designed for students who have strong commitment to pursue graduate studies in mathematics. Introduc-

tion to complex analysis, with more emphasis on proofs. Honors course parallel to course 132. P/NP or letter grading.

133. Introduction to Fourier Analysis. (4) Lecture, three hours; discussion, one hour. Requisites: courses 33A, 33B, 131A. Fourier series, Fourier transform in one and several variables, finite Fourier transform. Applications, in particular, to solving differential equations. Fourier inversion formula, Plancherel theorem, convergence of Fourier series, convolution. P/NP or letter grading.

134. Linear and Nonlinear Systems of Differential Equations. (4) Lecture, three hours; discussion, one hour. Requisite: course 33B. Dynamical systems analysis of nonlinear systems of differential equations. One- and two- dimensional flows. Fixed points, limit cycles, and stability analysis. Bifurcations and normal forms. Elementary geometrical and topological results. Applications to problems in biology, chemistry, physics, and other fields. P/NP or letter grading.

135. Ordinary Differential Equations. (4) Lecture, three hours; discussion, one hour. Requisites: courses 33A, 33B. Selected topics in differential equations. Laplace transforms, existence and uniqueness theorems, Fourier series, separation of variable solutions to partial differential equations, Sturm/Liouville theory, calculus of variations, two-point boundary value problems, Green's functions. P/NP or letter grading.

136. Partial Differential Equations. (4) Lecture, three hours; discussion, one hour. Requisites: courses 33A, 33B. Linear partial differential equations, boundary and initial value problems; wave equation, heat equation, and Laplace equation; separation of variables, eigenfunction expansions; selected topics, as method of characteristics for nonlinear equations.

Applied Mathematics

142. Mathematical Modeling. (4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. Introduction to fundamental principles and spirit of applied mathematics. Emphasis on manner in which mathematical models are constructed for physical problems. Illustrations from many fields of endeavor, such as physical sciences, biology, economics, and traffic dynamics.

143. Analytic Mechanics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. Foundations of Newtonian mechanics, kinematics and dynamics of a rigid body, variational principles and Lagrange equations; calculus of variations, variable mass; related topics in applied mathematics.

146. Methods of Applied Mathematics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. Integral equations, Green's function, and calculus of variations. Selected applications from control theory, optics, dynamical systems, and other engineering problems.

149. Mathematics of Computer Graphics. (4) Lecture, three hours; discussion, one hour. Requisites: course 115A, and Program in Computing 10A or equivalent knowledge of programming in either Pascal or C language. Study of homogeneous coordinates, projective transformations, interpolating and approximating curves, representation of surfaces, and other mathematical topics useful for computer graphics.

151A-151B. Applied Numerical Methods. (4-4) Lecture, three hours; discussion, one hour. Introduction to numerical methods with emphasis on algorithms, analysis of algorithms, and computer implementation issues. Letter grading. **151A.** Requisites: courses 32B, 33B, 115A, Program in Computing 10A. Solution of nonlinear equations. Numerical differentiation, integration, and interpolation. Direct methods for solving linear systems. **151B.** Requisite: course 151A. Numerical solution of differential equations. Approximation theory, iterative solutions of linear equations, solution of nonlinear systems, two-point boundary value problems, optimization.

153. Numerical Methods for Partial Differential Equations. (4) Lecture, three hours; discussion, one hour. Requisites: courses 151A, 151B. Introduction to first- and second-order linear partial differential equa-

tions. Finite difference and finite element solution of elliptic, hyperbolic, and parabolic equations. Method of lines and Rayleigh/Ritz procedures. Concepts of stability and accuracy. Letter grading.

155. Mathematical Imaging. (4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B, 115A (enforced), Program in Computing 10A. Imaging geometry. Image transforms. Enhancement, restoration, and segmentation. Descriptors. Morphology. P/NP or letter grading.

156. Machine Learning. (5) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 115A, 164, 170A, Program in Computing 10A. Introductory course on mathematical models for pattern recognition and machine learning. Topics include parametric and nonparametric probability distributions, curse of dimensionality, correlation analysis and dimensionality reduction, and concepts of decision theory. Advanced machine learning and pattern recognition problems, including data classification and clustering, regression, kernel methods, artificial neural networks, hidden Markov models, and Markov random fields. Projects in MATLAB to be part of final project presented in class. P/NP or letter grading.

157. Software Techniques for Scientific Computation. (4) Lecture, three hours; discussion, one hour. Requisites: course 151A, Program in Computing 10C. Software structures, concepts, and conventions that support object-oriented programming. Identification of class structure, problem partitioning, and abstraction. Design and implementation of computer applications requiring scientific computation, visualization, and GUI components. Interlanguage interfacing. P/NP or letter grading.

157X. Workshop in Software Techniques for Scientific Computation. (1) Discussion, one hour. Corequisite: course 157. Supplementary techniques and applications for solving problems in scientific computing. Limits of investigation set by individual instructor. P/NP grading.

164. Optimization. (4) Lecture, three hours; discussion, one hour. Requisite: course 115A. Not open for credit to students with credit for Electrical Engineering 136. Fundamentals of optimization. Linear programming: basic solutions, simplex method, duality theory. Unconstrained optimization, Newton method for minimization. Nonlinear programming, optimality conditions for constrained problems. Additional topics from linear and nonlinear programming. P/NP or letter grading.

167. Mathematical Game Theory. (4) Lecture, three hours; discussion, one hour. Requisite: course 115A. Quantitative modeling of strategic interaction. Topics include extensive and normal form games, background probability, lotteries, mixed strategies, pure and mixed Nash equilibria and refinements, bargaining; emphasis on economic examples. Optional topics include repeated games and evolutionary game theory. P/NP or letter grading.

Probability

170A. Probability Theory. (4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33A. Not open to students with credit for Electrical Engineering 131A or Statistics 100A. Probability distributions, random variables and vectors, expectation. P/NP or letter grading.

170B. Probability Theory. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 170A. Convergence in distribution, normal approximation, laws of large numbers, Poisson processes, random walks. P/NP or letter grading.

171. Stochastic Processes. (4) Lecture, three hours; discussion, one hour. Requisites: courses 33A, 170A (or Statistics 100A). Discrete Markov chains, continuous-time Markov chains, renewal theory. P/NP or letter grading.

172B. Actuarial Models I. (4) Lecture, four hours. Requisites: courses 170A and 170B (or Statistics 100A and 100B), 172A. Designed to prepare students for Society of Actuaries Models for Life Contingencies examination. Provides understanding of theoretical

basis of certain actuarial models and application of those models to insurance, pensions, and other financial risks. Letter grading.

172C. Actuarial Models II. (4) Lecture, four hours. Enforced requisite: course 172B. Designed to prepare students for Society of Actuaries Models for Life Contingencies examination. Theoretical basis of certain actuarial models and application to insurance, pensions, and other financial risks. Letter grading.

173A. Casualty Loss Models I. (4) Lecture, four hours. Enforced requisites: courses 170A and 170B (or Statistics 100A and 100B), 172A. Designed to prepare students for Society of Actuaries Construction and Evaluation of Actuarial Models examination. Provides understanding of various casualty loss models. Coverage of steps involved in modeling process and how to carry out these steps in solving business problems. Letter grading.

173B. Casualty Loss Models II. (4) Lecture, four hours. Enforced requisite: course 173A. Designed to prepare students for Society of Actuaries Construction and Evaluation of Actuarial Models examination. Construction of parametric loss models and introduction to credibility theory that provides tools to utilize collected information, such as past loss information, to predict future outcomes. Use of simulation to model future events. Letter grading.

174A. Financial Economics for Actuarial Students. (4) Lecture, four hours. Enforced requisites: courses 170A and 170B (or Statistics 100A and 100B), 172A. Not open for credit to students with credit for course 174E, Economics 141, or Statistics C183/C283. Specifically designed to prepare students for Society of Actuaries Models for Financial Economics examination. Introduction to basic concepts of financial economics, including interest rate models, rational valuation of derivative securities, and risk management. Letter grading.

174E. Mathematics of Finance for Mathematics/Economics Students. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 33A, 170A (or Statistics 100A), Economics 11. Not open for credit to students with credit for course 174A, Economics 141, or Statistics C183/C283. Modeling, mathematics, and computation for financial securities. Price of risk. Random walk models for stocks and interest rates. No-arbitrage theory for pricing derivative securities; Black/Scholes theory. European and American options. Monte Carlo, trees, finite difference methods. P/NP or letter grading.

175. Introduction to Financial Mathematics. (4) (Formerly numbered 172A.) Lecture, four hours. Requisites: courses 32B, 33B. Designed to prepare students for Society of Actuaries Financial Mathematics examination. Provides understanding of fundamental concepts of financial mathematics and how those concepts are applied in calculating present and accumulated values from various streams of cash flows as basis for future use in reserving, valuation, pricing asset/liability management, investment income, capital budgeting, and valuing contingent cash flows. Letter grading.

Discrete Mathematics

180. Graph Theory. (4) Lecture, three hours; discussion, one hour. Requisites: courses 31A, 31B, 61. Strongly recommended preparation: course 115A. Designed for computer science and engineering students. Graphs and trees. Planarity, graph colorings. Set systems. Ramsey theory. Random graphs. Linear algebra methods. P/NP or letter grading.

182. Algorithms. (4) Lecture, three hours; discussion, one hour. Requisite: course 3C or 32A. Not open for credit to students with credit for Computer Science 180. Graphs, greedy algorithms, divide and conquer algorithms, dynamic programming, network flow. Emphasis on designing efficient algorithms useful in diverse areas such as bioinformatics and allocation of resources. P/NP or letter grading.

184. Enumerative Combinatorics. (4) (Formerly numbered 180.) Lecture, three hours; discussion, one hour. Enforced requisites: courses 31A, 31B, 61, 115A. Designed for mathematics and physics stu-

dents. Permutations and combinations, counting principles, recurrence relations, and generating functions. Application to asymptotic and probabilistic enumeration. P/NP or letter grading.

Special Studies

190A-190O. Seminars: Current Literature. (1 each)

Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading:

190A. History and Development of Mathematics.

190B. Number Theory.

190C. Algebra.

190D. Logic.

190E. Geometry.

190F. Topology.

190G. Analysis.

190H. Differential Equations.

190I. Functional Analysis.

190J. Applied Mathematics.

190K. Probability.

190L. Dynamical Systems.

190M. Mathematics.

190N. Combinatorics.

190O. Cryptography.

191. Variable Topics Research Seminars: Mathematics. (4) Seminar, three hours. Variable topics research course in mathematics that covers material not covered in regular mathematics upper division curriculum. Reading, discussion, and development of culminating project. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

191H. Honors Research Seminars: Mathematics. (4) Seminar, three hours. Participating seminar on advanced topics in mathematics. Content varies from year to year. May be repeated for credit by petition. P/NP or letter grading.

195. Community Internships in Mathematics Education. (4) Tutorial, to be arranged. Limited to juniors/seniors. Internship to be supervised by Center for Community Learning and Mathematics Department. Students meet on regular basis with instructor, provide periodic reports of their experience, have assigned readings on mathematics education, and complete final paper. May not be repeated and may not be applied toward major requirements. Individual contract with supervising faculty member required. P/NP grading.

197. Individual Studies in Mathematics. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors. At discretion of chair and subject to availability of staff, individual intensive study of topics suitable for undergraduate course credit but not specifically offered as separate courses. Scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for maximum of 12 units, but no more than one 197 or 199 course may be applied toward upper division courses required for majors offered by Mathematics Department. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Mathematics. (2 or 4) Tutorial, three hours per week per unit. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Scheduled meetings to be arranged between faculty member and student. Culminating report required. May be repeated for maximum of 12 units, but no more than one 197 or 199 course may be applied toward upper division courses required for majors offered by Mathematics Department. Individual contract required. P/NP or letter grading.

Graduate Courses

Teacher Preparation

201A-201B-201C. Topics in Algebra and Analysis.

(4-4-4) Preparation: bachelor's degree in mathematics. Designed for mathematics/education program students. Important ideas of algebra, geometry, and calculus leading effectively from elementary to modern mathematics. Approaches to number system, point sets, geometric interpretations of algebra and analysis, integration, differentiation, series and analytic functions. May not be applied toward MA degree requirements.

202A-202B. Mathematical Models and Applications.

(4-4) Preparation: bachelor's degree in mathematics. Designed for mathematics/education program students. Development of mathematical theories describing various empirical situations. Basic characterizing postulates; development of a logical structure of theorems. Modern topics such as operations research, linear programming, game theory, learning models, models in social and life sciences. May not be applied toward MA degree requirements.

203. Master's Linear Algebra. (4)

Lecture, four hours; discussion, one hour. Rigorous treatment of fundamental results of pure and applied linear algebra over fields. Applications to contemporary research. Preparation for linear algebra portion of UCLA Mathematics Basic Examination that is required of MA and PhD students. S/U or letter grading.

204. Master's Analysis. (4)

Lecture, four hours; discussion, one hour. Rigorous treatment of fundamental results of analysis. Applications to contemporary research. Preparation for analysis portion of UCLA Mathematics Basic Examination that is required of MA and PhD students. S/U or letter grading.

Number Theory

205A-205B-205C. Number Theory. (4-4-4)

Lecture, three hours. Requisites: courses 210A, 246A. Algebraic number theory, including ideal theory, valuations, local fields, cyclotomic fields. Introduction to class-field theory, analytic number theory, L-functions and class number formulas, and modular forms. S/U or letter grading.

206A-206B. Combinatorial Theory. (4-4)

Generating functions. Probabilistic methods. Polya theorem. Enumerative graph theory. Partition theory. Number theoretical applications. Structure of graphs, matching theory, duality theorems. Packings, pavings, coverings, statistical designs, difference sets, triple systems, finite planes. Configurations, polyhedra. Ramsey theory, finite and transfinite, and applications.

207A-207B-207C. Topics in Number Theory. (4-4-4)

Lecture, three hours. Adelic analysis on $GL(1)$ and $GL(2)$, especially Tate thesis and Hecke theory, automorphic representations. Special values of L-functions and p-adic L-functions, arithmetic theory of modular forms, advanced topics in analytic number theory. Arithmetic geometry, especially of modular curves. S/U or letter grading.

M208A-M208B. Topics in Applied Number Theory.

(4-4) (Same as Computer Science M283A-M283B.) Lecture, three hours. Basic number theory, including congruences and prime numbers. Cryptography: public-key and discrete log cryptosystems. Attacks on cryptosystems. Primality testing and factorization methods. Elliptic curve methods. Topics from coding theory: Hamming codes, cyclic codes, Gilbert/Varnamov bounds, Shannon theorem. S/U or letter grading.

M209A. Cryptography. (4)

(Same as Computer Science M282A.) Lecture, four hours; outside study, eight hours. Introduction to theory of cryptography, stressing rigorous definitions and proofs of security. Topics include notions of hardness, one-way functions, hard-core bits, pseudorandom generators, pseudorandom functions and pseudorandom permutations, semantic security, public-key and private-key encryption, secret-sharing, message authentication, digital signatures, interactive proofs, zero-knowledge

proofs, collision-resistant hash functions, commitment protocols, key-agreement, contract signing, and two-party secure computation with static security. Letter grading.

M209B. Cryptographic Protocols. (4)

(Same as Computer Science M282B.) Lecture, four hours. Requisite: course M209A. Consideration of advanced cryptographic protocol design and analysis. Topics include noninteractive zero-knowledge proofs; zero-knowledge arguments; concurrent and non-black-box zero-knowledge; IP=PSPACE proof, stronger notions of security for public-key encryption, including chosen-ciphertext security; secure multiparty computation; dealing with dynamic adversary; nonmalicious and composable of secure protocols; software protection; threshold cryptography; identity-based cryptography; private information retrieval; protection against man-in-middle attacks; voting protocols; identification protocols; digital cash schemes; lower bounds on use of cryptographic primitives, software obfuscation. May be repeated for credit with topic change. Letter grading.

Algebra

210A-210B-210C. Algebra. (4-4-4)

Requisites: courses 110A, 110B, 110C. Students with credit for courses 110B and/or 110C cannot receive MA degree credit for courses 210B and/or 210C. Group theory, including theorems of Sylow and Jordan/Holder/Schreier; rings and ideals, factorization theory in integral domains, modules over principal ideal rings, Galois theory of fields, multilinear algebra, structure of algebras.

211. Structure of Rings. (4) Requisite: course 210A. Radical, irreducible modules and primitive rings, rings and algebras with minimum condition.

212A. Homological Algebra. (4) (Formerly numbered 212.) Lecture, three hours. Enforced requisite: course 210A. Modules over rings, homomorphisms and tensor products of modules, functors and derived functors, homological dimension of rings and modules. S/U or letter grading.

212B. Homological Algebra. (4) Lecture, three hours. Requisites: courses 210A, 210B, 210C, 212A. Advanced topics in modern homological algebra, such as triangulated categories, differential graded algebras as dg-categories, tilting theory and applications of group cohomology to representation theory, stable categories and modular representation theory, and other current topics. S/U or letter grading.

213A-213B. Theory of Groups. (4-4) Requisite: course 210A. Topics include representation theory, transfer theory, infinite Abelian groups, free products and presentations of groups, solvable and nilpotent groups, classical groups, algebraic groups.

214A-214B. Introduction to Algebraic Geometry. (4-4) Requisite: course 210A. Basic definitions and first properties of algebraic varieties in affine and projective space: irreducibility, dimension, singular and smooth points. More advanced topics, such as sheaves and their cohomology, or introduction to theory of Riemann surfaces, as time permits.

215A-215B. Commutative Algebra. (4-4) Requisite: course 210A. Topics from commutative ring theory, including techniques of localization, prime ideal structure in commutative Noetherian rings, principal ideal theorem, Dedekind rings, modules, projective modules, Serre conjecture, regular local rings.

216A-216B-216C. Further Topics in Algebra. (4-4-4) (Formerly numbered 216.) Lecture, three hours. Requisites: courses 210A, 210B, 210C. Closer examination of areas of current research in algebra, including algebraic geometry and K-theory. Variable content may include Abelian varieties, invariant theory, Hodge theory, geometry over finite fields, K-theory, homotopical algebra, and derived algebraic geometry. May be repeated for credit by petition. S/U or letter grading.

217. Geometry and Physics. (4) (Same as Physics M236.) Lecture, three hours. Interdisciplinary course on topics at interface between physics quantum fields and superstrings and mathematics of differential and algebraic geometry. Topics include supersymmetry,

Seiberg/Witten theory, conformal field theory, Calabi/Yau manifolds, mirror symmetry and duality, integrable systems. S/U grading.

218A. Discrete Mathematics: Probabilistic Methods. (4) Lecture, three hours. Linearity of expectation, second moment method, local lemma, correlation inequalities, martingales, large deviation inequalities, Janson and Talagrand inequalities, and pseudo-randomness. S/U or letter grading.

218B. Discrete Mathematics: Algebraic Methods. (4) Lecture, three hours. Basic dimension arguments, spaces of polynomials and tensor product methods, eigenvalues of graphs and their application, combinatorial Nullstellensatz and Chevalley/Warning theorem. Counterexample to Borsuk conjecture, chromatic number of unit distance graph of Euclidean space, explicit constructions of Ramsey graphs, other topics. S/U or letter grading.

218C. Topics in Discrete Mathematics. (4) Lecture, three hours. Examination of variety of methods, approaches, and techniques that were developed in last 30 years in discrete mathematics. Topics may include extremal problems for graphs and set systems, Ramsey theory, additive number theory combinatorial geometry, topological methods in combinatorics, entropy and other tools from information theory, discrete harmonic analysis and its applications to combinatorics and theoretical computer science. Topics vary from year to year. May be repeated for credit with consent of instructor. S/U or letter grading.

Logic and Foundations

220A-220B-220C. Mathematical Logic. (4-4-4) Lecture, three hours. Requisite: course M114S. Fundamental methods and results in mathematical logic, using mathematical methods to reason about existence or nonexistence of proofs and computations in many different settings. Topics include compactness theorem, saturation of models, completeness and incompleteness theorems of Gödel, Turing computability and degrees of unsolvability, recursion in Baire space, Zermelo/Fraenkel axioms, universe of constructible sets, and related equiconsistency results in set theory. S/U or letter grading.

222A-222B. Lattice Theory and Algebraic Systems. (4-4) Lecture, three hours. Requisite: course 210A. Partially ordered sets, lattices, distributivity, modularity; completeness, interaction with combinatorics, topology, and logic; algebraic systems, congruence lattices, subdirect decomposition, congruence laws, equational bases, applications to lattices.

223C. Topics in Computability Theory. (4) Lecture, three hours. Requisites: courses 220A, 220B. Degrees of unsolvability, recursively enumerable sets, undecidable theories; inductive definitions, admissible sets and ordinals; recursion in higher types; recursion and complexity. Topics vary from year to year. May be repeated for credit with consent of instructor. S/U or letter grading.

223D. Topics in Descriptive Set Theory. (4) Lecture, three hours. Requisites: courses 220A, 220B. Classical and effective results on Borel and projective sets; infinite games of perfect information and principle of determinacy; consequences of determinacy, including periodicity, structure theory of pointclasses, and partition properties. Topics vary from year to year. May be repeated for credit with consent of instructor. S/U or letter grading.

223M. Topics in Model Theory. (4) Lecture, three hours. Requisites: courses 220A, 220B. Ultraproducts, preservation theorems, interpolation theorems, saturated models, omitting types, categoricity, two cardinal theorems, enriched languages, soft model theory, and applied model theory. Topics vary from year to year. May be repeated for credit with consent of instructor. S/U or letter grading.

223S. Topics in Set Theory. (4) Lecture, three hours. Requisites: courses 220A, 220B, 220C. Forcing and independence results, including independence of continuum hypothesis and independence of axiom of choice; inner model theory; large cardinals; proofs of

determinacy; combinatorial set theory. Topics vary from year to year. May be repeated for credit with consent of instructor. S/U or letter grading.

Geometry and Topology

225A. Differential Topology. (4) Lecture, three hours; discussion, one hour. Manifolds, tangent vectors, smooth maps, tangent bundles and vector bundles in general, vector fields and integral curves, Sard theorem on measure of critical values, embedding theorem, transversality, degree theory, Lefschetz fixed-point theorem, Euler characteristic, Ehresmann theorem that proper submersions are locally trivial fibrations. S/U or letter grading.

225B. Differential Geometry. (4) Lecture, three hours; discussion, one hour. Lie derivatives, integrable distributions and Frobenius theorem, differential forms, integration and Stokes theorem, de Rham cohomology, including Mayer/Vietoris sequence, Poincaré duality, Thom classes, degree theory and Euler characteristic revisited from viewpoint of de Rham cohomology, Riemannian metrics, gradients, volume forms, and interpretation of classical integral theorems as aspects of Stokes theorem for differential forms. S/U or letter grading.

225C. Algebraic Topology. (4) Lecture, three hours; discussion, one hour. Basic concepts of homotopy theory, fundamental group and covering spaces, singular homology and cohomology theory, axioms of homology theory, Mayer/Vietoris sequence, calculation of homology and cohomology of standard spaces, cell complexes and cellular homology, de Rham theorem on isomorphism of de Rham differential-form cohomology and singular cohomology with real coefficients. S/U or letter grading.

226A-226B-226C. Differential Geometry. (4-4-4) Lecture, three hours. Requisite: course 225A. Manifold theory; connections, curvature, torsion, and parallelism. Riemannian manifolds; completeness, submanifolds, constant curvature. Geodesics; conjugate points, variational methods, Myers theorem, nonpositive curvature. Further topics such as pinched manifolds, integral geometry, Kahler manifolds, symmetric spaces.

227A-227B. Algebraic Topology. (4-4) Lecture, three hours. Requisite: course 225B. CW complexes, fiber bundles, homotopy theory, cohomology theory, spectral sequences.

229A-229B-229C. Lie Groups and Lie Algebras. (4-4-4) Preparation: knowledge of basic theory of topological groups and differentiable manifolds. Lie groups, Lie algebras, subgroups, subalgebras. Exponential map. Universal enveloping algebra. Campbell/Hausdorff formula. Nilpotent and solvable Lie algebras. Cohomology of Lie algebras. Theorems of Weyl, Levi-Mal'cev. Semi-simple Lie algebras. Classification of simple Lie algebras. Representations. Compact groups. Weyl character formula.

233. Partial Differential Equations on Manifolds. (4) Lecture, three hours. Requisites: courses 226A, 251A. Topics may include Laplacian operator on a Riemannian manifold, eigenvalues, Atiyah/Singer index theorem, isoperimetric inequalities, elliptic estimates, harmonic functions, function theory on manifolds, Green's function, heat equation, minimal hypersurfaces, prescribed curvature equations, harmonic maps, Yang/Mills equation, Monge/Ampere equations.

234. Topics in Differential Geometry. (4) Lecture, three hours. Requisites: courses 226A, 226B. Complex and Kahler geometry, Hodge theory, homogeneous manifolds and symmetric spaces, finiteness and convergence theorems for Riemannian manifolds, almost flat manifolds, closed geodesics, manifolds of positive scalar curvature, manifolds of constant curvature. Topics vary from year to year. May be repeated for credit by petition.

235. Topics in Manifold Theory. (4) Lecture, three hours. Requisites: courses 225A, 225B. Emphasis on low-dimensional manifolds. Structure and classification of manifolds, automorphisms of manifolds, submanifolds (e.g., knots and links). Topics vary from year to year. May be repeated for credit by petition.

236. Topics in Geometric Topology. (4) Lecture, three hours. Requisites: courses 225A, 225B. Decomposition spaces, surgery theory, group actions, dimension theory, infinite dimensional topology. Topics vary from year to year. May be repeated for credit by petition.

237. Topics in Algebraic Topology. (4) Lecture, three hours. Requisites: courses 227A, 227B. Fixed-point theory, fiber spaces and classifying spaces, characteristic classes, generalized homology and cohomology theories. Topics vary from year to year. May be repeated for credit by petition.

238A-238B. Dynamical Systems. (4-4) Lecture, three hours. Recommended preparation: first-year analysis courses. Topics include qualitative theory of differential equations, bifurcation theory, and Hamiltonian systems; differential dynamics, including hyperbolic theory and quasiperiodic dynamics; ergodic theory; low-dimensional dynamics. S/U or letter grading.

Analysis and Differential Equations

240. Methods of Set Theory. (4) Lecture, three hours. Requisites: courses 110A, 110B, 121, 131A, 131B. Naive, axiomatic set theory, axiom of choice and its equivalents, well-orderings, transfinite induction, ordinal and cardinal arithmetic. Applications to algebra: Hamel bases, Stone representation theorem. Applications to analysis and topology: Cantor/Bendixson theorem, counterexamples in measure theory, Borel and analytic sets, Choquet theorem.

245A-245B-245C. Real Analysis. (4-4-4) Lecture, three hours. Requisites: courses 121, 131A, 131B. Basic measure theory. Measure theory on locally compact spaces. Fubini theorem. Elementary aspects of Banach and Hilbert spaces and linear operators. Function spaces. Radon/Nikodym theorem. Fourier transform and Plancherel on R^n and T^n .

246A-246B-246C. Complex Analysis. (4-4-4) Requisites: courses 131A, 131B. Students with credit for course 132 cannot receive MA degree credit for course 246A. Cauchy/Riemann equations. Cauchy theorem. Cauchy integral formula and residue calculus. Power series. Normal families. Harmonic functions. Linear fractional transformations. Conformal mappings. Analytic continuation. Examples of Riemann surfaces. Infinite products. Partial fractions. Classical transcendental functions. Elliptic functions.

247A-247B. Classical Fourier Analysis. (4-4-4) Lecture, three hours. Requisites: courses 245A, 245B, 246A. Distribution on R^n and T^n . Principal values; other examples. Distributions with submanifolds as supports. Kernel theorem. Convolution; examples of singular integrals. Tempered distributions and Fourier transform theory on R^n . Distributions with compact or one-sided supports and their complex Fourier transforms.

250A. Ordinary Differential Equations. (4) Requisite: course 246A. Basic theory of ordinary differential equations. Existence and uniqueness of solutions. Continuity with respect to initial conditions and parameters. Linear systems and nth order equations. Analytic systems with isolated singularities. Self-adjoint boundary value problems on finite intervals.

250B. Nonlinear Ordinary Differential Equations. (4) Requisite: course 250A. Asymptotic behavior of nonlinear systems. Stability. Existence of periodic solutions. Perturbation theory of two-dimensional real autonomous systems. Poincaré/Bendixson theory.

250C. Advanced Topics in Ordinary Differential Equations. (4) Requisites: courses 250A, 250B. Selected topics, such as spectral theory or ordinary differential operators, nonlinear boundary value problems, celestial mechanics, approximation of solutions, and Volterra equations.

251A. Introductory Partial Differential Equations. (4) Classical theory of heat, wave, and potential equations; fundamental solutions, characteristics and Huygens principle, properties of harmonic functions.

Classification of second-order differential operators. Maximum principles, energy methods, uniqueness theorems. Additional topics as time permits.

251B-251C. Topics in Partial Differential Equations. (4-4) In-depth introduction to topics of current interest in partial differential equations or their applications.

252A-252B. Topics in Complex Analysis. (4-4) Lecture, three hours. Requisites: courses 245A, 245B, 245C, 246A, 246B, 246C. Potential theory, subharmonic functions, harmonic measure; Hardy spaces; entire functions; univalent functions; Riemann surfaces; extremal length, variational methods, quasi-conformal mappings. Topics vary from year to year. S/U or letter grading.

253A-253B. Several Complex Variables. (4-4) Requisites: courses 245A, 245B, 245C, 246A, 246B, 246C. Introduction to analytic functions of several complex variables. The d-bar problem, Cousin problems, domains of holomorphy, complex manifolds.

254A-254B. Topics in Real Analysis. (4-4) Requisites: courses 245A, 245B, 245C, 246A, 246B, 246C. Selected topics in analysis and its applications to geometry and differential equations. Topics may vary from year to year. May be repeated for credit by petition.

Functional Analysis

255A. Functional Analysis. (4) Requisites: courses 245A and 245B, or 265A and 265B, and 246A. Banach spaces, basic principles. Weak topologies. Compact operators. Fredholm operators. Special spaces including Hilbert spaces and $C(X)$.

255B-255C. Topics in Functional Analysis. (4-4) Requisite: course 255A. Topics include Banach algebras, operators on Banach spaces and Hilbert space, semigroups of operators, linear topological vector spaces, and other related areas.

256A-256B. Topological Groups and Their Representations. (4-4) Lecture, three hours. Requisite: course 255A. Topological groups and their basic properties. Haar measure. Compact groups and their representations. Duality and Fourier analysis on locally compact abelian groups. Induced representations, Frobenius reciprocity. Representations of special groups (Lorentz, Galilean, etc.). Projective representations. Representations of totally disconnected groups. S/U or letter grading.

259A-259B. Operator Algebras in Hilbert Space. (4-4) Requisites: courses 255A, 255B, 255C. Selected topics from theories of C^* - and von Neumann algebras. Applications.

Applied Mathematics

260. Introduction to Applied Mathematics. (4) Requisite: course 142. Construction, analysis, and interpretation of mathematical models of problems which arise outside of mathematics.

261. Game Theory. (4) Lecture, three hours. Designed for graduate mathematics students. Bargaining theory, core, value, other solution concepts. Applications to oligopoly, general exchange and production economies, and allocation of joint costs. S/U or letter grading.

264. Applied Complex Analysis. (4) Requisite: course 246A. Topics include contour integration conformal mapping, differential equations in complex plane, special functions, asymptotic series, Fourier and Laplace transforms, singular integral equations.

265A-265B. Real Analysis for Applications. (4-4) Requisites: courses 131A, 131B. Not open for credit to students with credit for courses 245A, 245B, 245C. Lebesgue measure and integration on real line, absolutely continuous functions, functions of bounded variation, L^2 - and L^p -spaces. Fourier series. General measure and integrations, Fubini and Radon/Nikodym theorems, representation of functionals, Fourier integrals.

266A. Applied Ordinary Differential Equations. (4) Lecture, three hours; discussion, one hour. Requisites: courses 131A, 131B, 132, and 134 and 135, or 146. Spectral theory of regular boundary value prob-

lems and examples of singular Sturm/Liouville problems, related integral equations, phase/plane analysis of nonlinear equations. S/U or letter grading.

266B-266C. Applied Partial Differential Equations.

(4-4) Requisite: course 266A. Classification of equations, classical potential theory, Dirichlet and Neumann problems. Green's functions, spectral theory of Laplace equation in bounded domains, first-order equations, wave equations, Cauchy problem, energy conservation, heat equation, fundamental solution, equations of fluid mechanics and magnetohydrodynamics.

266D-266E. Applied Differential Equations. (4-4)

Requisites: courses 266A, 266B, 266C. Advanced topics in linear and nonlinear partial differential equations, with emphasis on energy estimates, numerical methods, and applications to fluid mechanics. Additional topics include dispersive waves, systems with multiple time scales, and applications to fluid mechanics.

M268A. Functional Analysis for Applied Mathematics and Engineering. (4) (Same as Electrical Engineering M208B) Lecture, four hours. Requisites: courses 115A and 115B (or Electrical Engineering 208A), 131A, 131B, 132. Topics may include L^p spaces, Hilbert, Banach, and separable spaces; Fourier transforms; linear functionals. Riesz representation theory, linear operators and their adjoints; self-adjoint and compact operators. Spectral theory. Differential operators such as Laplacian and eigenvalue problems. Resolvent distributions and Green's functions. Semigroups. Applications. S/U or letter grading.

M268B. Topics in Functional Analysis for Applied Mathematics and Engineering. (4) (Same as Electrical Engineering M208C) Lecture, four hours. Requisite: course M268A. Semigroups of linear operators over Hilbert spaces; generator and resolvent, generation theorems, Laplace inversion formula. Dissipative operators and contraction semigroups. Analytic semigroups and spectral representation. Semigroups with compact resolvents. Parabolic and hyperbolic systems. Controllability and stabilizability. Spectral theory of differential operators, PDEs, generalized functions. S/U or letter grading.

268C. Topics in Applied Functional Analysis. (4)

Requisite: course 255A. Topics include spectral theory with applications to ordinary differential operators, eigenvalue problems for differential equations, generalized functions, and partial differential equations. S/U or letter grading.

269A-269B-269C. Advanced Numerical Analysis.

(4-4-4) Lecture, three hours; discussion, one hour. Requisites: courses 115A, 151A, 151B. Numerical solution for systems of ordinary differential equations; initial and boundary value problems. Numerical solution for elliptic, parabolic, and hyperbolic partial differential equations. Topics in computational linear algebra. S/U or letter grading.

270A-270F. Mathematical Aspects of Scientific Computing. (4 each) Lecture, three hours. S/U or letter grading:

270A. Techniques of Scientific Computing. (4) Lecture, three hours. Requisites: courses 115A, 151A, 151B, Program in Computing 10A. Mathematical modeling for computer applications, scientific programming languages, software development, graphics, implementation of numerical algorithms on different architectures, case studies. S/U or letter grading.

270B-270C. Computational Linear Algebra. (4-4) Lecture, three hours. Requisites: courses 115A, 151A, 151B, Program in Computing 10A. Direct, fast, and iterative algorithms, overdetermined systems; singular value decomposition, regularization, sparse systems, algebraic eigenvalue problem. S/U or letter grading.

270D-270E. Computational Fluid Dynamics. (4-4)

Lecture, three hours. Requisites: courses 115A, 151A, 151B, Program in Computing 10A. Basic equations, finite difference, finite element, pseudo-spectral, and vortex methods; stability, accuracy, shock capturing, and boundary approximations. S/U or letter grading.

270F. Parallel Numerical Algorithms. (4) Lecture, three hours. Requisites: courses 115A, 151A, 151B, 270B, 270C, Program in Computing 10A. Recommended: courses 270A, 270D, 270E. Design, analysis, and implementation of numerical algorithms on modern vector and parallel computers. Discussion of classical numerical algorithms and novel parallel algorithms. Emphasis on applications to PDEs. S/U or letter grading.

271A. Tensor Analysis. (4) Requisite: course 131A. Algebra and calculus of tensors on n-dimensional manifolds. Curvilinear coordinates and coordinate-free methods. Covariant differentiation. Green/Stokes theorem for differential forms. Applications to topics such as continuum and particle mechanics.

271B. Analytical Mechanics. (4) Preparation: prior knowledge of mechanics. Requisite: course 271A. Newtonian and Lagrangian equations. Hamilton principle. Principle of least action. Holonomic and nonholonomic systems. Hamilton canonical equations, contact transformations, applications.

271C. Introduction to Relativity. (4) Preparation: prior knowledge of mechanics. Requisite: course 271A. Restricted theory of relativity. Extensions to general theory. Relativistic theory of gravitation.

271D. Wave Mechanics. (4) General concepts of mechanical systems (states, space-time, "logics," etc.). Classical and quantum examples. Correspondence principle. Spinors.

272A. Foundations of Continuum Mechanics. (4) Lecture, three hours. Kinematic preliminaries, conservation laws for mass, momentum and energy, entropy production, constitutive laws. Linear elasticity, inviscid fluid, viscous fluid. Basic theorems of fluid mechanics. Simple solutions. Low Reynolds number flow, Stokes drag. High Reynolds number flow, boundary layers. Two-dimensional potential flow, simple aerofoil. Compressible flow, shocks.

272B. Mathematical Aspects of Fluid Mechanics.

(4) Lecture, three hours. Requisite: course 272A. Review of basic theory of moving continua, fluid equations, integral theorems. Simple solutions, flow created by slowly moving bodies, flows where viscosity is negligible, vortices, boundary layers and their separation, water waves, ship waves, compressional waves, shock waves, turbulence theory (overview).

272C. Magnetohydrodynamics. (4) Lecture, three hours. Requisite: course 272A. Basic electromagnetism. Steady flows, Hartmann layers. Alfvén theorem and waves. Compressible media. Magnetostatic equilibria and stability.

272D. Rotating Fluids and Geophysical Fluid Dynamics. (4) Lecture, three hours. Effects of Coriolis forces on fluid behavior. Inviscid flows, Taylor/Proudman theorem, Taylor columns, motions of bodies, inertial waves in spheres and spherical shells, Rossby waves. Ekman layers, spin-up. Shallow-water theory, wind-driven ocean circulation. Effects of stratification, Benard convection. Baroclinic instability, Eady model. S/U or letter grading.

273A. Optimization and Calculus of Variations: Basic Optimization Theory. (4) (Formerly numbered 273) Lecture, three hours. Introduction to basic optimization theory, recognition of solutions, and geometry of optimization. Some convex analysis, separation hyperplane, and duality theory. Basic optimization algorithms and their rates of convergence. S/U or letter grading.

273B. Optimization and Calculus of Variations: Variations Calculus. (4) Lecture, three hours. Abstract convex analysis and variational problems. Convexity, differentiability, existence, and characterization of minimizers. Polar functions, Lagrangians, saddle points, and duality techniques. Application of abstract mathematical theory to optimization problems of calculus of variations on Sobolev spaces. S/U or letter grading.

273C. Optimization and Calculus of Variations: Numerical Optimization. (4) Lecture, three hours. Derivation, analysis, and implementation of numerical methods for constrained and unconstrained optimization problems of variety of types and with data at different scales. S/U or letter grading.

274A. Asymptotic Methods. (4) Lecture, three hours. Requisite: course 132. Fundamental mathematics of asymptotic analysis, asymptotic expansions of Fourier integrals, method of stationary phase. Watson lemma, method of steepest descent, uniform asymptotic expansions, elementary perturbation problems. S/U or letter grading.

274B-274C. Perturbation Methods. (4-4) Lecture, three hours. Requisite: course 266A. Boundary layer theory, matched asymptotic expansions, WKB theory. Problems with several time scales: Poincaré method, averaging techniques, multiple-scale analysis. Application to eigenvalue problems, nonlinear oscillations, wave propagation, and bifurcation problems. Examples from various fields of science and engineering.

Probability and Statistics

275A-275B. Probability Theory. (4-4) Lecture, three hours; discussion, one hour. Connection between probability theory and real analysis. Weak and strong laws of large numbers, central limit theorem, conditioning, ergodic theory, martingale theory. S/U or letter grading.

275C. Stochastic Processes. (4) Lecture, three hours. Requisite: course 275B. Brownian motion, continuous-time martingales, Markov processes, potential theory. S/U or letter grading.

275D. Stochastic Calculus. (4) Lecture, three hours. Requisite: course 275C. Stochastic integration, stochastic differential equations, Ito formula and its applications. S/U or letter grading.

275E. Stochastic Particle Systems. (4) Lecture, three hours. Requisite: course 275C. Interacting particle systems, including contact process, stochastic Ising model, and exclusion processes; percolation theory. S/U or letter grading.

Special Studies

285A-285N. Seminars. (4 each) Seminar, three hours. No more than two 285 courses may be applied toward MA degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading:

285A. History and Development of Mathematics.

285B. Number Theory.

285C. Algebra.

285D. Logic.

285E. Geometry.

285F. Topology.

285G. Analysis.

285H. Differential Equations.

285I. Functional Analysis.

285J. Applied Mathematics.

285K. Probability.

285L. Dynamical Systems.

285N. Combinatorics.

285P. Representation Theory.

290A-290O. Participating Seminars: Current Literature. (4 each) Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading:

290A. History and Development of Mathematics.

290B. Number Theory.

290C. Algebra.

290D. Logic.

290E. Geometry.

290F. Topology.

290G. Analysis.

290H. Differential Equations.

290I. Functional Analysis.

290J. Applied Mathematics.

290K. Probability.

290L. Dynamical Systems.

290M. Mathematics.

290N. Combinatorics.

290O. Cryptography.

296A-296N. Research Seminars. (1 each) Seminar, two hours. Seminars and discussion by staff and students. May be repeated for credit. S/U grading:

296A. History and Development of Mathematics.

296B. Number Theory.

296C. Algebra.

296D. Logic.

296E. Geometry.

296F. Topology.

296G. Analysis.

296H. Differential Equations.

296I. Functional Analysis.

296J. Applied Mathematics.

296K. Probability.

296L. Dynamical Systems.

296M. Mathematics.

296N. Combinatorics.

370A-370B. Teaching of Mathematics. (4-4) Lecture, three hours; discussion, one hour. Requisite: course 33B. Limited to senior Mathematics Department majors. Course 370A is requisite to 370B. Topics in geometry, algebra, number theory, discrete mathematics, and functions presented from a problem-solving and student participation point of view, with emphasis on historical context and appropriate role of proof. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching College Mathematics. (2) Seminar, one hour; two-day intensive training at beginning of Fall Quarter. Required of all new teaching assistants and new PhD students. Special course for teaching assistants designed to deal with problems and techniques of teaching college mathematics. S/U grading.

495B. Technology and Teaching. (2 to 4) Seminar, two hours; laboratory, one hour (when scheduled). Requisite: course 495. Focus on undergraduate mathematics instruction. Web-based electronic communication, using technology for class organization, use of presentation software packages, and creation of electronic teaching portfolio. Provides mechanics of technology and forum for evaluation and comparison of technology in undergraduate mathematics teaching. S/U grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA department chair and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Supervised individual reading and study on project approved by a faculty member, which may be preparation for MA examination. May be repeated for credit, but only two 596 courses (8 units) may be applied toward MA degree unless departmental consent is obtained. S/U or letter grading.

599. Research in Mathematics. (2 to 12) Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Study and research for PhD dissertation. May be repeated for credit. S/U grading.

Program in Computing

Lower Division Courses

1. Introduction to Computers and Computing. (4) Lecture, three hours; laboratory, one hour. Not open for credit to students with credit for course 1S or 10A; may not be taken concurrently with course 1S or 10A. Fundamentals of computers and computing; editors, spreadsheets, file manager; machine organization and computer hardware; Internet; software applications. P/NP or letter grading.

1S. Software Tools for Information Management. (1) Lecture, one hour; laboratory, two hours. Preparation: some familiarity with computers. Not open for credit to students with credit for course 1; may not be taken concurrently with course 1. May be taken by students with credit for more advanced courses. Introduction to spreadsheets and databases in laboratory setting. P/NP grading.

3. Introduction to Computing for Social Sciences and Humanities. (4) Lecture, three hours; discussion, two hours. No prior programming knowledge required. Not open for credit to students pursuing specializations in Computing or to students with credit for course 20A. Basic principles of object-oriented programming and concepts, with applications from social sciences and humanities. Overview of Java programming language, programming with objects, control structures and functions, classes and object-oriented design, event-driven programming, application to multiagent models. P/NP or letter grading.

10A. Introduction to Programming. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. No prior programming experience assumed. Basic principles of programming, using C++; algorithmic, procedural problem solving; program design and development; basic data types, control structures and functions; functional arrays and pointers; introduction to classes for programmer-defined data types. P/NP or letter grading.

10B. Intermediate Programming. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10A. Abstract data types and their implementation using C++ class mechanism; dynamic data structures, including linked lists, stacks, queues, trees, and hash tables; applications; object-oriented programming and software reuse; recursion; algorithms for sorting and searching. P/NP or letter grading.

10C. Advanced Programming. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10B. More advanced algorithms and data structuring techniques; additional emphasis on algorithmic efficiency; advanced features of C++, such as inheritance and virtual functions; graph algorithms. P/NP or letter grading.

15. Introduction to Lisp and Symbolic Computation. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10A. Introduction to symbolic computation using Lisp programming language. Basics: list structures, recursion, function abstraction. Advanced topics: knowledge representation, higher-order functions, problem-solving algorithms and heuristics. P/NP or letter grading.

20A. Principles of Java Language with Applications. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10A. Not open for credit to students with credit for course 3. Introduction to Java computer language. Class and interface hierarchies; graphics components and graphical user interfaces; streams; multi-threading; event and exception handling. Issues in class design and design of interactive Web pages. P/NP or letter grading.

20B. Advanced Aspects of Java Language with Applications. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 20A. Further aspects of use of classes, graphics components, exception handling, multi-

threading, and multimedia. Additional topics may include networking, servlets, database connectivity, and JavaBeans. P/NP or letter grading.

20C. Seminar: Enterprise Computing with Java. (5) Lecture, three hours; discussion, two hours; laboratory, five hours. Enforced requisite: course 20B. Overview of Enterprise Java APIs: remote method invocation, database access with SQL, servlets, and JSP. Issues in implementation of server-side Java applications. Use of Java in conjunction with XML. Individual or group projects and presentations. P/NP or letter grading.

30. Machine Organization and Assembly Language Programming. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10B. Description of machine organization and operation. Representation of information, instruction sets and formats, addressing modes, memory organization and management, input/output (I/O) processing and interrupts. P/NP or letter grading.

40A. Introduction to Programming for Internet. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10A. Recommended: course 10B. Introduction to core technologies of Internet, with focus on client-side Web programming. Fundamental protocols, static Web pages, Perl language, Common Gateway Interface, XML. P/NP or letter grading.

40B. Advanced Topics in Programming for Internet. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 40A. Study of advanced topics in Web programming, with focus on server-side technologies. P/NP or letter grading.

60. Data Structures and Algorithms. (4) Lecture, three hours; discussion, one hour; laboratory, five hours. Enforced requisites: course 10B, Mathematics 31A, 31B, 61. Review of basic data structures: arrays, stacks, queues, lists, trees. Advanced data structures: priority queues, heaps, balanced trees. Sorting, searching techniques. Corresponding algorithms. P/NP or letter grading.

97. Special Topics in Programming. (1 to 4) Lecture, one to three hours; discussion, zero to one hour. Enforced requisite: course 10A. Variable topics in programming not covered in regular program in computing courses. May be repeated for credit with topic change. P/NP or letter grading.

Upper Division Courses

110. Parallel and Distributed Computing. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Requisite: course 10B or equivalent familiarity with programming in C or C++ language. Introduction to programming of parallel computers. Shared and distributed memory parallel architectures; currently available parallel machines; parallel algorithms and program development; estimation of algorithmic performance; distributed computing; selected advanced topics. P/NP or letter grading.

130. Cryptography. (4) Lecture, three hours; discussion, one hour; laboratory, three hours. Requisites: course 10B, Mathematics 115A. Design and analysis of cryptosystems for confidentiality and authentication. Classical cryptosystems and their security, modern private-key cryptosystems and applications, public-key cryptography and applications; generating prime numbers, factoring integers, discrete logarithms, digital signatures, perfect secrecy. P/NP or letter grading.

187. Advanced Variable Topics in Programming. (4) Lecture, three hours; discussion, one hour. Variable topics in programming and mathematics of programming not covered in regular program in computing courses. May be repeated for credit with topic change. P/NP or letter grading.

Graduate Courses

285C-285L. Seminars. (4 each) Seminar, three hours. Considered equivalent to Mathematics 285A through 285L for purposes of degree requirements. Topics in

various computational fields by means of lectures and informal conferences with staff members. S/U or letter grading:

285C. Computational Algebra.

285D. Logic and Theory of Computation.

285J. Scientific Computation.

285K. Randomness and Computation.

285L. Computational Statistics.

296. Participating Seminar: Logic and Theory of Computation. (1 to 4) Seminar, to be arranged. Seminar and discussion by staff and students. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

MATHEMATICS/ ATMOSPHERIC AND OCEANIC SCIENCES

*Interdepartmental Program
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J. David Neelin, PhD, *Chair*

Faculty Committee

Christopher R. Anderson, PhD (*Mathematics*)
J. David Neelin, PhD (*Atmospheric and Oceanic Sciences*)
Peter Peterson, PhD (*Mathematics*)
Andrew L. Stewart, PhD (*Atmospheric and Oceanic Sciences*)

Scope and Objectives

The Mathematics/Atmospheric and Oceanic Sciences BS degree program is designed for students who have an interest in and talent for both subjects. Students completing the major are well-qualified for graduate study in the most demanding graduate programs in atmospheric sciences, oceanic sciences, or applied mathematics. Postgraduate training leads to employment at a professional level in academia, government, or private enterprise. Opportunities outside academia include environmental agencies, consulting companies, and governmental agencies such as NASA, National Oceanic and Atmospheric Administration (NOAA), National Center for Atmospheric Research (NCAR), Department of Energy (DOE), and the military, the Air Force and Navy in particular.

Graduates of the program are employed by private and public weather products firms, consulting companies, public utilities, and as science teachers at the elementary and secondary levels.

Undergraduate Study

The Mathematics/Atmospheric and Oceanic Sciences major is a designated capstone major. Students acquire experience in conceiving and executing research projects designed to evaluate hypotheses and complete an individual project or thesis selected with the assistance of the program advisers and faculty mentor. The topic should reflect integrative application of mathematics to atmospheric and oceanic sciences. Students are expected to prepare a significant independent piece of work that applies knowledge gained in their coursework in a new and unique way.

Mathematics/Atmospheric and Oceanic Sciences BS Capstone Major

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Physics 1A, 1B, 1C, Program in Computing 10A, and two courses selected from Atmospheric and Oceanic Sciences 1, 2, 3, 5. Physics 4AL and 4BL are recommended but not required. Chemistry and Biochemistry 14A and 14B (or 20A and 20B) may also be required, depending on atmospheric and oceanic sciences upper division course selection. Each course must be taken for a letter grade and must be passed with a grade of C- or better, and students must have a minimum overall grade-point average of 2.0 for the courses.

Transfer Students

Transfer applicants to the Mathematics/Atmospheric and Oceanic Sciences major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of calculus for majors, physics courses equivalent to Physics 1A, 1B, and 1C, and one C++ programming course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Six mathematics courses, including Mathematics 115A, 131A, 134, and three elective courses selected from 115B, 131B, 135, 136, 142, 151A, 151B, 170A, 170B, one of which must be 115B, 131B, 151B, or 170B; six atmospheric and oceanic sciences courses, including three core courses selected from Atmospheric and Oceanic Sciences 101, 102, 103, 104, M105, and three elective courses selected from the five listed above (if not taken to satisfy the core requirement) or from C110, C115, M120, 130, 145, C160, C170, 180.

One capstone senior projects/thesis course, Atmospheric and Oceanic Sciences 199, taken for a minimum of 2 units, is also required. An individual project or thesis to be selected with the assistance of the program advisers and a faculty mentor must be completed.

No more than one course may be applied toward both this major and a major or minor in another department or program.

MATHEMATICS/ ECONOMICS

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Don M. Blasius, PhD, *Chair*

Faculty Committee

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Science and Engineering, Mathematics*)
Ichiro Obara, PhD (*Economics*)
Peter Petersen, PhD (*Mathematics*)
Marek G. Pycia, PhD (*Economics*)
John G. Riley, PhD (*Economics*)

Scope and Objectives

In recent years economics has become increasingly dependent on mathematical methods, and the mathematical tools it employs have become more sophisticated. Mathematically competent economists, with bachelor's degrees and with advanced degrees, are needed in industry and government. Graduate programs in economics and finance programs in graduate schools of management require strong undergraduate preparation in mathematics for admission.

The Mathematics/Economics BS degree program is designed to give students a solid foundation in both mathematics and economics, stressing those areas of mathematics and statistics that are most relevant to economics and the parts of economics that emphasize the use of mathematics and statistics. It is ideal for students who may wish to complete a higher degree in economics.

Undergraduate Study

Mathematics/Economics BS

Mathematics/Economics Premajor

Students entering UCLA directly from high school or first-term transfer students who want to declare the Mathematics/Economics premajor at the time they apply for admission are automatically admitted to the premajor.

Current UCLA students need to file a petition with the Undergraduate Advising Office in 6356 Math Sciences. All students are identified as Mathematics/Economics premajors until

they satisfy the following minimum requirements for the major: (1) achieve grades of C or better in all premajor mathematics sequenced courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61, Program in Computing 10A) with a minimum 2.7 grade-point average and no more than two repeats, (2) achieve grades of C or better in all premajor economics courses (Economics 1, 2, 11) with a minimum 2.7 grade-point average and no more than one repeat, and (3) file a petition to declare the major before completing 160 quarter units.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61, Economics 1, 2, 11, Program in Computing 10A, one Writing II course. Each course must be taken for a letter grade. The economics preparation for the major courses (Economics 1, 2, 11) are calculated separately from the mathematics preparation for the major courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61, Program in Computing 10A). The economics preparation courses must be completed with a minimum overall 2.7 grade-point average and a grade of C or better in each course, as must the mathematics preparation courses. Students must receive a grade of C or better in the Writing II course.

Repetition of more than one economics preparation course, more than two mathematics preparation courses, or of any economics or mathematics preparation course more than once results in automatic dismissal from the major.

Transfer Students

Transfer applicants to the Mathematics/Economics major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of calculus for majors, one introduction to discrete structures course, one microeconomic theory course, one macroeconomics course, and one C++ programming course.

Transfer credit for any of the above is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eight mathematics courses, including Mathematics 115A, 131A, 131B, 164, 170A, 170B, 174E (or 174A or Economics 141 or Statistics C183), and one elective course from Mathematics 135, 136, or 171; five economics courses, including Economics 101, 102, 103 (with 103L), and two additional courses from 106E through 199B. Each course must be taken for a letter grade. Transfer credit is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

To graduate, the eight Mathematics Department courses must be completed with an

overall grade-point average of 2.0, with grades of C- or better in Mathematics 115A and 131A, as must the five courses from the Economics Department, with grades of C- or better in Economics 101 and 102.

It is strongly recommended that students take Mathematics 115A as one of their first upper division courses for the major.

Honors Program

Students who wish to graduate with departmental honors should apply for admission to the honors program in the Mathematics Department Student Services Office. They may apply any time after completing the preparation for the major courses and meeting the following requirements: (1) be officially enrolled in the Mathematics/Economics major, (2) complete all the preparation for the major courses, (3) achieve a minimum 3.5 grade-point average in the mathematics preparation for the major courses, (4) achieve a minimum 3.5 grade-point average in the economics preparation for the major courses, and (5) achieve a minimum 3.5 grade-point average in Economics 11, 101, and 102.

To qualify for honors at graduation, students must (1) complete Mathematics 115AH, 131AH, and 131BH, (2) complete Economics 198A and 198B (the thesis process requires enrollment in a two-term sequence for economics courses), (3) present the thesis in Economics 198B, and (4) complete the major requirements with a minimum 3.5 grade-point average in both the upper division economics and mathematics courses. Highest honors are awarded at the discretion of the departmental honors committee based on grade-point average and quality of the senior thesis.

Computing Specialization

Students may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the major and (2) completing Mathematics 61 or 180, Program in Computing 10A, 10B, two courses from 10C, 15, 16, 20A, 20B, 30, 40A, 60, and at least two courses from Mathematics 149 through 159, with a minimum grade of C- in each course and a combined grade-point average of at least 2.0. Students must petition for admission to the program and are advised to do so after they complete Program in Computing 10B (petitions should be filed in the Mathematics Department Student Services Office). Students graduate with a bachelor's degree in mathematics/economics and a specialization in Computing.

MECHANICAL AND AEROSPACE ENGINEERING

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Jayathi Y. Murthy, PhD, *Dean*
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Jacob Rosen, PhD
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Tsu-Chin Tsao, PhD
Xiaolin Zhong, PhD

Professors Emeriti

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Richard E. Stern, PhD
Russell A. Westmann, PhD
Daniel C.H. Yang, PhD

Associate Professors

Veronica J. Santos, PhD
Richard E. Wirz, PhD

Assistant Professors

Jonathan B. Hopkins, PhD
Yongjie Hu, PhD
Raymond M. Spearrin, PhD

Lecturers

Ravnesh C. Amar, PhD
Amiya K. Chatterjee, PhD
Robert J. Kinsey, PhD
Damian M. Toohey, PhD

Adjunct Professors

Dan M. Goebel, PhD
Leslie M. Lackman, PhD
Wilbur J. Marner, PhD
Neil B. Morley, PhD
Neil Siegel, PhD

Adjunct Assistant Professor

Abdon E. Sepulveda, PhD

Scope and Objectives

The Department of Mechanical and Aerospace Engineering offers curricula in aerospace engineering and mechanical engineering at both the undergraduate and graduate levels. The scope of the departmental research and teaching program is broad, encompassing dynamics, fluid mechanics, heat and mass transfer, manufacturing and design, nanoelectromechanical and microelectromechanical systems, structural and solid mechanics, and systems and control. The applications of mechanical and aerospace engineering are quite diverse, including aircraft, spacecraft, automobiles, energy and propulsion systems, robotics, machinery, manufacturing and materials processing, microelectronics, biological systems, and more.

At the undergraduate level, the department offers accredited programs leading to BS degrees in Aerospace Engineering and in Mechanical Engineering. At the graduate level, the department offers programs leading to MS and PhD degrees in Mechanical Engineering and in Aerospace Engineering. An MS in Manufacturing Engineering is also offered.

Undergraduate Study

The aerospace engineering and mechanical engineering programs are accredited by the Engineering Accreditation Commission of ABET. See <http://www.abet.org>.

The Aerospace Engineering and Mechanical Engineering majors are designated capstone majors. Within their capstone courses, Aerospace Engineering students are exposed to the conceptual and design phases for aircraft development and produce a structural design of a component, such as a lightweight aircraft wing. Mechanical Engineering students work in teams in their capstone courses to propose, design, analyze, and build a mechanical or electromechanical device. Graduates of both programs should be able to apply their knowledge of mathematics, science, and engineering in technical systems; design a system, component, or process to meet desired needs; function as productive members of a team; identify, formulate, and solve engineering problems; and communicate effectively, both orally and in writing.

Aerospace Engineering BS

Capstone Major

The aerospace engineering program is concerned with the design and construction of various types of fixed-wing and rotary-wing (helicopters) aircraft used for air transportation and national defense. It is also concerned with the design and construction of spacecraft, the exploration and utilization of space, and related technological fields.

Aerospace engineering is characterized by a very high level of technology. The aerospace engineer is likely to operate at the forefront of scientific discoveries, often stimulating these discoveries and providing the inspiration for the creation of new scientific concepts. Meeting these demands requires the imaginative use of many disciplines, including fluid mechanics and aerodynamics, structural mechanics, materials and aeroelasticity, dynamics, control and guidance, propulsion, and energy conversion.

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L; Mathematics 31A, 31B, 32A, 32B, 33A; Mechanical and Aerospace Engineering M20 (or Computer Science 31), 82; Physics 1A, 1B, 1C, 4AL, 4BL.

The Major

Required: Mechanical and Aerospace Engineering 96, 102, 103, 105A, 107, 150A, 150B, C150P, C150R or 161A, 154S, 157A, 157S, 166A, 171A; two departmental breadth courses (Electrical Engineering 100 and Materials Science and Engineering 104—if one or both of these courses are taken as part of the technical breadth requirement, students must select a replacement upper division course or courses from the department—except for Mechanical and Aerospace Engineering 156A—or, by petition, from outside the department); three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; two capstone design courses (Mechanical and Aerospace Engineering 154A, 154B); and two major field elective courses (8 units) from Mechanical and Aerospace Engineering 94, 105D, 131A, C132A, 133A, 135, 136, C137, CM140, CM141, 150C, C150G, C150R (unless taken as a required course), 153A, 155, C156B, 161A (unless taken as a required course), 161B, 161C, 161D, 162A, 166C, M168, 169A, 171B, 172, 174, C175A, 181A, 182B, 182C, 183A, M183B, C183C, 184, 185, C186, C187L.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Mechanical Engineering BS

Capstone Major

The mechanical engineering program is designed to provide basic knowledge in thermodynamics, fluid mechanics, heat transfer, solid mechanics, mechanical design, dynamics, control, mechanical systems, manufacturing, and materials. The program includes funda-

mental subjects important to all mechanical engineers.

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L; Mathematics 31A, 31B, 32A, 32B, 33A; Mechanical and Aerospace Engineering M20 (or Computer Science 31), 82, 94; Physics 1A, 1B, 1C, 4AL, 4BL.

The Major

Required: Electrical Engineering 110L, Mechanical and Aerospace Engineering 96, 102, 103, 105A, 105D, 107, 131A or 133A, 156A, 157, 162A, 171A, 183A (or M183B); two departmental breadth courses (Electrical Engineering 100 and Materials Science and Engineering 104—if one or both of these courses are taken as part of the technical breadth requirement, students must select a replacement upper division course or courses from the department—except for Mechanical and Aerospace Engineering 166A—or, by petition, from outside the department); three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; two capstone design courses (Mechanical and Aerospace Engineering 162D, 162E); and two major field elective courses (8 units) from Mechanical and Aerospace Engineering 131A (unless taken as a required course), C132A, 133A (unless taken as a required course), 135, 136, C137, CM140, CM141, 150A, 150B, 150C, C150G, C150P, C150R, 153A, 154S, 155, C156B, 157A, 161A through 161D, 166C, M168, 169A, 171B, 172, 174, C175A, 181A, 182B, 182C, 183A (unless taken as a required course), M183B (unless taken as a required course), C183C, 184, 185, C186, C187L.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Mechanical and Aerospace Engineering offers the Master of Science (MS) degree in Manufacturing Engineering, Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Aerospace Engineering, and Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Mechanical Engineering.

Mechanical and Aerospace Engineering

Lower Division Courses

1. Undergraduate Seminar. (1) Seminar, one hour; outside study, two hours. Introduction by faculty members and industry lecturers to mechanical and

aerospace engineering disciplines through current and emerging applications in aerospace, medical instrumentation, automotive, entertainment, energy, and manufacturing industries. P/NP grading.

15. Technical Communication for Engineers. (2) Lecture, two hours; outside study, four hours. Requisite: English Composition 3. Understanding writing process. Determining the purpose. Prewriting. Principles of organizing technical information. Eliminating unnecessary words, structuring paragraphs clearly, structuring effective sentences. Writing abstracts, introductions, and conclusions. Drafting and revising coherent documents. Writing collaboratively. Letter grading.

M20. Introduction to Computer Programming with MATLAB. (4) (Same as Civil Engineering M20.) Lecture, two hours; discussion, two hours; laboratory, two hours; outside study, six hours. Requisite: Mathematics 33A. Fundamentals of computer programming taught in context of MATLAB computing environment. Basic data types and control structures. Input/output. Functions. Data visualization. MATLAB-based data structures. Development of efficient codes. Introduction to object-oriented programming. Examples and exercises from engineering, mathematics, and physical sciences. Letter grading.

82. Mathematics of Engineering. (4) (Formerly numbered 182A.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Mathematics 33A. Methods of solving ordinary differential equations in engineering. Review of matrix algebra. Solutions of systems of first- and second-order ordinary differential equations. Introduction to Laplace transforms and their application to ordinary differential equations. Introduction to boundary value problems, partial differential equating, and separation of variables. Letter grading.

94. Introduction to Computer-Aided Design and Drafting. (4) Lecture, two hours; laboratory, four hours. Fundamentals of computer graphics and two- and three-dimensional modeling on computer-aided design and drafting systems. Students use one or more online computer systems to design and display various objects. Letter grading.

96. Statics and Strength of Materials. (4) (Formerly numbered 101.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 82, Mathematics 31A, 31B, Physics 1A. Review of vector representation of forces, resultant force and moment; equilibrium of concurrent and nonconcurrent forces. Area moments and products of inertia. Support reactions, free-body diagrams. Forces in simple models of mechanical and aerospace structures. Internal forces in beams, shear and moment diagrams. Stress and strain components in solids, equilibrium equations, Hooke's law for isotropic solids. Bending and shear stresses in beams. Deflection of symmetric beams and indeterminate problems. Stresses in thin-walled pressure vessels and in circular cylinders under torsion. Letter grading.

Upper Division Courses

102. Dynamics of Particles and Rigid Bodies. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 96 (enforced), Mathematics 33A, Physics 1A. Fundamental concepts of Newtonian mechanics. Kinematics and kinetics of particles and rigid bodies in two and three dimensions. Impulse-momentum and work-energy relationships. Applications. Letter grading.

103. Elementary Fluid Mechanics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Mathematics 32B, 33A, Physics 1B. Introductory course dealing with application of principles of mechanics to flow of compressible and incompressible fluids. Letter grading.

105A. Introduction to Engineering Thermodynamics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Chemistry 20B, Mathematics 32B. Phenomenological thermodynamics. Concepts of equilibrium, temperature, and reversibility. First law and concept of energy; second law and concept of entropy. Equations of state and

thermodynamic properties. Engineering applications of these principles in analysis and design of closed and open systems. Letter grading.

105D. Transport Phenomena. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 82, 103, 105A. Transport phenomena; heat conduction, mass species diffusion, convective heat and mass transfer, and radiation. Engineering applications in thermal and environmental control. Letter grading.

107. Introduction to Modeling and Analysis of Dynamic Systems. (4) Lecture, four hours; discussion, one hour; laboratory, two hours; outside study, five hours. Enforced requisites: courses M20 (or Computer Science 31), 82, Electrical Engineering 100. Introduction to modeling of physical systems, with examples of mechanical, fluid, thermal, and electrical systems. Description of these systems with coverage of impulse response, convolution, frequency response, first- and second-order system transient response analysis, and numerical solution. Nonlinear differential equation descriptions with discussion of equilibrium solutions, small signal linearization, large signal response. Block diagram representation and response of interconnections of systems. Hands-on experiments reinforce lecture material. Letter grading.

131A. Intermediate Heat Transfer. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses M20 (or Civil Engineering M20 or Computer Science 31), 82, 105D. Steady conduction: two-sided, two-ended, tapered, and circular fins; buried cylinders, thick fins. Transient conduction: slabs, cylinders, products. Convection: transpiration, laminar pipe flow, film condensation, boundary layers, dimensional analysis, working correlation, surface radiation. Two-stream heat exchangers. Elements of thermal design. Letter grading.

C132A. Mass Transfer. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 105D, 131A. Principles of mass transfer by diffusion and convection. Simultaneous heat and mass transfer. Transport in multicomponent systems. Thermal, forced, and pressure diffusion, Brownian diffusion. Analysis of evaporative and transpiration cooling, catalysis, and combustion. Mass exchangers, including automobile catalytic converters, electrostatic precipitators, filters, scrubbers, humidifiers, and cooling towers. Concurrently scheduled with course C232A. Letter grading.

133A. Engineering Thermodynamics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 103, 105A. Applications of thermodynamic principles to engineering processes. Energy conversion systems. Rankine cycle and other cycles, refrigeration, psychrometry, reactive and non-reactive fluid flow systems. Letter grading.

135. Fundamentals of Nuclear Science and Engineering. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 82, Chemistry 20A. Review of nuclear physics, radioactivity and decay, and radiation interaction with matter. Nuclear fission and fusion processes and mass defect, chain reactions, criticality, neutron diffusion and multiplication, heat transfer issues, and applications. Introduction to nuclear power plants for commercial electricity production, space power, spacecraft propulsion, nuclear fusion, and nuclear science for medical uses. Letter grading.

136. Energy and Environment. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 105A. Global energy use and supply, electrical power generation, fossil fuel and nuclear power plants, renewable energy such as hydro-power, biomass, geothermal, solar, wind, and ocean, fuel cells, transportation, energy conservation, air and water pollution, global warming. Letter grading.

C137. Design and Analysis of Smart Grids. (4) Lecture, four hours; outside study, eight hours. Demand response; transactive/price-based load control; home-area network, smart energy profile; advanced metering infrastructure; renewable energy integration; solar and wind generation intermittency and correction; microgrids; grid stability; energy storage and

electric vehicles-simulation; monitoring; distribution and transmission grids; consumer-centric technologies; sensors, communications, and computing; wireless, wireline, and powerline communications for smart grids; grid modeling, stability, and control; frequency and voltage regulation; ancillary services; wide-area situational awareness, phasor measurements; analytical methods and tools for monitoring and control. Concurrently scheduled with course C237. Letter grading.

CM140. Introduction to Biomechanics. (4) (Same as Bioengineering CM140.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 96, 102, and 156A or 166A. Introduction to mechanical functions of human body; skeletal adaptations to optimize load transfer, mobility, and function. Dynamics and kinematics. Fluid mechanics applications. Heat and mass transfer. Power generation. Laboratory simulations and tests. Concurrently scheduled with course CM240. Letter grading.

CM141. Mechanics of Cells. (4) (Same as Bioengineering CM141.) Lecture, four hours. Introduction to physical structures of cell biology and physical principles that govern how they function mechanically. Review and application of continuum mechanics and statistical mechanics to develop quantitative mathematical models of structural mechanics in cells. Structure of macromolecules, polymers as entropic springs, random walks and diffusion, mechanosensitive proteins, single-molecule force-extension, DNA packing and transcriptional regulation, lipid bilayer membranes, mechanics of cytoskeleton, molecular motors, biological electricity, muscle mechanics, pattern formation. Concurrently scheduled with course CM241. Letter grading.

150A. Intermediate Fluid Mechanics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 82, 103. Basic equations governing fluid motion. Fundamental solutions of Navier/Stokes equations. Lubrication theory. Elementary potential flow theory. Boundary layers. Turbulent flow in pipes and boundary layers. Compressible flow: normal shocks, channel flow with friction or heat addition. Letter grading.

150B. Aerodynamics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 103, 150A. Advanced aspects of potential flow theory. Incompressible flow around thin airfoils (lift and moment coefficients) and wings (lift, induced drag). Gas dynamics: oblique shocks, Prandtl/Meyer expansion. Linearized subsonic and supersonic flow around thin airfoils and wings. Wave drag. Transonic flow. Letter grading.

150C. Combustion Systems. (4) Lecture, four hours; outside study, eight hours. Enforced requisites: courses 103, 105A. Chemical thermodynamics of ideal gas mixtures, premixed and diffusion flames, explosions and detonations, combustion chemistry, high explosives. Combustion processes in rocket, turbine, and internal combustion engines; heating applications. Letter grading.

C150G. Fluid Dynamics of Biological Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 103. Mechanics of aquatic locomotion; insect and bird flight aerodynamics; pulsatile flow in circulatory system; rheology of blood; transport in microcirculation; role of fluid dynamics in arterial diseases. Concurrently scheduled with course C250G. Letter grading.

C150P. Aircraft Propulsion Systems. (4) (Formerly numbered 150P) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 105A, 150A. Thermodynamic properties of gases, aircraft jet engine cycle analysis and component performance, component matching, advanced aircraft engine topics. Concurrently scheduled with course C250P. Letter grading.

C150R. Rocket Propulsion Systems. (4) (Formerly numbered 150R) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 103, 105A. Rocket propulsion concepts, including chemical rockets (liquid, gas, and solid pro-

pellants), hybrid rocket engines, electric (ion, plasma) rockets, nuclear rockets, and solar-powered vehicles. Current issues in launch vehicle technologies. Concurrently scheduled with course C250R. Letter grading.

153A. Engineering Acoustics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Designed for junior/senior engineering majors. Fundamental course in acoustics; propagation of sound; sources of sound. Design of field measurements. Estimation of jet and blade noise with design aspects. Letter grading.

154A. Preliminary Design of Aircraft. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 154S. Classical preliminary design of aircraft, including weight estimation, performance and stability, and control consideration. Term assignment consists of preliminary design of low-speed aircraft. Letter grading.

154B. Design of Aerospace Structures. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 154A, 166A. Design of aircraft, helicopter, spacecraft, and related structures. External loads, internal stresses. Applied theory of thin-walled structures. Material selection, design using composite materials. Design for fatigue prevention and structural optimization. Field trips to aerospace companies. Letter grading.

154S. Flight Mechanics, Stability, and Control of Aircraft. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 150A, 150B. Aircraft performance, flight mechanics, stability, and control; some basic ingredients needed for design of aircraft. Effects of airplane flexibility on stability derivatives. Letter grading.

155. Intermediate Dynamics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 102. Axioms of Newtonian mechanics, generalized coordinates, Lagrange equation, variational principles; central force motion; kinematics and dynamics of rigid bodies. Euler equations, motion of rotating bodies, oscillatory motion, normal coordinates, orthogonality relations. Letter grading.

156A. Advanced Strength of Materials. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 82, 96. Not open to students with credit for course 166A. Concepts of stress, strain, and material behavior. Stresses in loaded beams with symmetric and asymmetric cross sections. Torsion of cylinders and thin-walled structures, shear flow. Stresses in pressure vessels, press-fit and shrink-fit problems, rotating shafts. Curved beams. Contact stresses. Strength and failure, plastic deformation, fatigue, elastic instability. Letter grading.

C156B. Material Failure in Mechanical Design I: Power Transmission. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 156A or 166A. Material selection in mechanical design. Load and stress analysis. Deflection and stiffness. Failure due to static loading. Fatigue failure. Design for safety factors and reliability. Statistical considerations in design. Applications of failure prevention in design of power transmission shafting. Design project involving computer-aided design (CAD) and finite element analysis (FEA) modeling. Concurrently scheduled with course C296A. Letter grading.

157. Basic Mechanical and Aerospace Engineering Laboratory. (4) Laboratory, eight hours; outside study, four hours. Enforced requisites: courses 96, 102, 103, 105A, Electrical Engineering 100. Methods of measurement of basic quantities and performance of basic experiments in fluid mechanics, structures, and thermodynamics. Primary sensors, transducers, recording equipment, signal processing, and data analysis. Letter grading.

157A. Fluid Mechanics and Aerodynamics Laboratory. (4) Laboratory, eight hours; outside study, four hours. Requisites: courses 150A, 150B, and 157 or 157S. Experimental illustration of important physical phenomena in area of fluid mechanics/aerodynamics, as well as hands-on experience with design of experimental programs and use of modern experimental tools and techniques in field. Letter grading.

157S. Basic Aerospace Engineering Laboratory. (4) Laboratory, eight hours; outside study, four hours. Enforced requisites: courses 102, 103, 105A, Electrical Engineering 100. Recommended: course 15. Measurements of basic physical quantities in fluid mechanics, thermodynamics, and structures. Operation of primary transducers, computer-aided data acquisition, signal processing, and data analysis. Performance of experiments to enhance understanding of basic physical principles and characteristics of structures/systems of relevance to aerospace engineering. Letter grading.

161A. Introduction to Astronautics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 102. Recommended: course 182A. Spaceflight, including two-body and three-body problem, Kepler laws, and Keplerian orbits. Ground track and taxonomy of common orbits. Orbital and transfer maneuvers, patched conics, perturbation theory, low-thrust trajectories, spacecraft pointing, and spacecraft attitude control. Space mission design, space environment, rendezvous, reentry, and launch. Letter grading.

161B. Introduction to Space Technology. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended preparation: courses 102, 161A. Spacecraft systems and dynamics, including spacecraft power, instruments, communications, structures, materials, thermal control, and attitude/orbit determination and control. Space mission design, launch vehicles/considerations, space propulsion. Letter grading.

161C. Spacecraft Design. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 161B. Preliminary design and analysis by students of Earth-orbiting or interplanetary space missions and spacecraft. Students work in groups of three or four, with each student responsible primarily for one subsystem and for integration with whole. Letter grading.

161D. Space Technology Hardware Design. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Enforced requisite: course 161B. Design by students of hardware with applications to space technology. Designs are then built by HSSEAS professional machine shop and tested by students. Letter grading.

162A. Introduction to Mechanisms and Mechanical Systems. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses M20 (or Computer Science 31), 102. Analysis and synthesis of mechanisms and mechanical systems. Kinematics, dynamics, and mechanical advantages of machinery. Displacement velocity and acceleration analyses of linkages. Fundamental law of gearing and various gear trains. Computer-aided mechanism design and analysis. Letter grading.

162D. Mechanical Engineering Design I. (4) Lecture, two hours; laboratory, four hours; outside study, six hours. Enforced requisites: courses 94, 156A (or 183A or M183B), 162A (or 171A). Limited to seniors. First of two mechanical engineering capstone design courses. Lectures on engineering project management, design of thermal systems, mechatronics, mechanical systems, and mechanical components. Students work in teams to begin their two-term design project. Laboratory modules include CAD design, CAD analysis, mechatronics, and conceptual design for team project. Letter grading.

162E. Mechanical Engineering Design II. (4) Lecture, two hours; laboratory, four hours; outside study, six hours. Enforced requisite: course 162D. Limited to seniors. Second of two mechanical engineering capstone design courses. Student groups continue design projects started in course 162D, making use of CAD design laboratory, CAD analysis laboratory, and mechatronics laboratory. Design theory, design tools, economics, marketing, manufacturability, quality, intellectual property, design for manufacture and assembly, design for safety and reliability, and engineering ethics. Students conduct hands-on design, fabrication, and testing. Culminating project demon-

strations or competition. Preparation of design project presentations in both oral and written formats. Letter grading.

166A. Analysis of Flight Structures. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 82, 96. Not open to students with credit for course 156A. Introduction to two-dimensional elasticity, stress-strain laws, yield and fatigue; bending of beams; torsion of beams; warping; torsion of thin-walled cross sections; shear flow, shear-lag; combined bending torsion of thin-walled, stiffened structures used in aerospace vehicles; elements of plate theory; buckling of columns. Letter grading.

166C. Design of Composite Structures. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 156A or 166A. History of composites, stress-strain relations for composite materials, bending and extension of symmetric laminates, failure analysis, design examples and design studies, buckling of composite components, nonsymmetric laminates, micromechanics of composites. Letter grading.

M168. Introduction to Finite Element Methods. (4) (Same as Civil Engineering M135C.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 156A or 166A or Civil Engineering 130. Introduction to basic concepts of finite element methods (FEM) and applications to structural and solid mechanics and heat transfer. Direct matrix structural analysis; weighted residual, least squares, and Ritz approximation methods; shape functions; convergence properties; isoparametric formulation of multidimensional heat flow and elasticity; numerical integration. Practical use of FEM software; geometric and analytical modeling; preprocessing and postprocessing techniques; term projects with computers. Letter grading.

169A. Introduction to Mechanical Vibrations. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 96, 102, 107. Fundamentals of vibration theory and applications. Free, forced, and transient vibration of one and two degrees of freedom systems, including damping. Normal modes, coupling, and normal coordinates. Vibration isolation devices, vibrations of continuous systems. Letter grading.

171A. Introduction to Feedback and Control Systems: Dynamic Systems Control I. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 107. Introduction to feedback principles, control systems design, and system stability. Modeling of physical systems in engineering and other fields; transform methods; controller design using Nyquist, Bode, and root locus methods; compensation; computer-aided analysis and design. Letter grading.

171B. Digital Control of Physical Systems. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 171A or Electrical Engineering 141. Analysis and design of digital control systems. Sampling theory. Z-transformation. Discrete-time system representation. Design using classical methods: performance specifications, root locus, frequency response, loop-shaping compensation. Design using state-space methods: state feedback, state estimator, state estimator feedback control. Simulation of sampled data systems and practical aspects: roundoff errors, sampling rate selection, computation delay. Letter grading.

172. Control System Design Laboratory. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Enforced requisite: course 171A. Introduction to loop shaping controller design with application to laboratory electromechanical systems. Power spectrum models of noise and disturbances, and performance trade-offs imposed by conflicting requirements. Constraints on sensitivity function and complementary sensitivity function imposed by nonminimum phase plants. Lecture topics supported by weekly hands-on laboratory work. Letter grading.

174. Probability and Its Applications to Risk, Reliability, and Quality Control. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Mathematics 33A. Introduction to probability theory; random variables, distributions, functions of random variables, models of failure of components, reliability, redundancy, complex systems, stress-strength models, fault tree analysis, statistical quality control by variables and by attributes, acceptance sampling. Letter grading.

C175A. Probability and Stochastic Processes in Dynamical Systems. (4) Lecture, four hours; outside study, eight hours. Enforced requisites: courses 82, 107. Probability spaces, random variables, stochastic sequences and processes, expectation, conditional expectation, Gauss/Markov sequences, and minimum variance estimator (Kalman filter) with applications. Concurrently scheduled with course C271A. Letter grading.

181A. Complex Analysis and Integral Transforms. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 82. Complex variables, analytic functions, conformal mapping, contour integrals, singularities, residues, Cauchy integrals; Laplace transform: properties, convolution, inversion; Fourier transform: properties, convolution, FFT, applications in dynamics, vibrations, structures, and heat conduction. Letter grading.

182B. Mathematics of Engineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 82. Analytical methods for solving partial differential equations arising in engineering. Separation of variables, eigenvalue problems, Sturm/Liouville theory. Development and use of special functions. Representation by means of orthonormal functions; Galerkin method. Use of Green's function and transform methods. Letter grading.

182C. Numerical Methods for Engineering Applications. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses M20 (or Civil Engineering M20 or Computer Science 31), 82. Basic topics from numerical analysis having wide application in solution of practical engineering problems, computer arithmetic, and errors. Solution of linear and nonlinear systems. Algebraic eigenvalue problem. Least-square methods, numerical quadrature, and finite difference approximations. Numerical solution of initial and boundary value problems for ordinary and partial differential equations. Letter grading.

183A. Introduction to Manufacturing Processes. (4) (Formerly numbered 183.) Lecture, three hours; laboratory, four hours; outside study, five hours. Enforced requisite: Materials Science 104. Manufacturing fundamentals. Materials in manufacturing. Solidification processes. Metal forming processes. Material removal processes. Welding/joining. Rapid prototyping. Electronics manufacturing. Microelectromechanical systems (MEMS) and nanotechnology. Letter grading.

M183B. Introduction to Microscale and Nanoscale Manufacturing. (4) (Same as Bioengineering M153, Chemical Engineering M153, and Electrical Engineering M153.) Lecture, three hours; laboratory, four hours; outside study, five hours. Enforced requisites: Chemistry 20A, Physics 1A, 1B, 1C, 4AL, 4BL. Introduction to general manufacturing methods, mechanisms, constraints, and microfabrication and nanofabrication. Focus on concepts, physics, and instruments of various microfabrication and nanofabrication techniques that have been broadly applied in industry and academia, including various photolithography technologies, physical and chemical deposition methods, and physical and chemical etching methods. Hands-on experience for fabricating microstructures and nanostructures in modern cleanroom environment. Letter grading.

C183C. Rapid Prototyping and Manufacturing. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Enforced requisite: course 183A. Rapid prototyping (RP), solid freeform fabrication, or additive manufacturing has emerged as popular man-

ufacturing technology to accelerate product creation in last two decades. Machine for layered manufacturing builds parts directly from CAD models. This novel manufacturing technology enables building of parts that have traditionally been impossible to fabricate because of their complex shapes or of variety in materials. In analogy to speed and flexibility of desktop publishing, rapid prototyping is also called desktop manufacturing, with actual three-dimensional solid objects instead of mere two-dimensional images. Methodology of rapid prototyping has also been extended into meso-/micro-/nano-scale to produce three-dimensional functional miniature components. Concurrently scheduled with course C297A. Letter grading.

184. Introduction to Geometry Modeling. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Enforced requisites: courses M20 (or Civil Engineering M20 or Computer Science 31), 94. Fundamentals in parametric curve and surface modeling, parametric spaces, blending functions, conics, splines and Bezier curve, coordinate transformations, algebraic and geometric form of surfaces, analytical properties of curve and surface, hands-on experience with CAD/CAM systems design and implementation. Letter grading.

185. Introduction to Radio Frequency Identification and Its Application in Manufacturing and Supply Chain. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course M20 or Civil Engineering M20 or Computer Science 31. Manufacturing today requires assembling of individual components into assembled products, shipping of such products, and eventually use, maintenance, and recycling of such products. Radio frequency identification (RFID) chips installed on components, subassemblies, and assemblies of products allow them to be tracked automatically as they move and transform through manufacturing supply chain. RFID tags have memory and small CPU that allows information about product status to be written, stored, and transmitted wirelessly. Tag data can then be forwarded by reader to enterprise software by way of RFID middleware layer. Study of how RFID is being utilized in manufacturing, with focus on automotive and aerospace. Letter grading.

C186. Applied Optics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Physics 1C. Fundamental principles of optical systems. Geometric optics and aberration theory. Diffraction and interference. Fourier optics, beam optics. Propagation of light, Snell's law, and Huygen principle. Refraction and reflection. Plane waves, spherical waves, and image formation. Total internal reflection. Polarization, polarizers, and wave-plates. Lenses and aberrations, lens laws and formation of images, resolution and primary aberrations. Simple optical instruments, still cameras, shutters, apertures. Design of telescopes, microscope design, projection system design. Interference, Young's slit experiment and fringe visibility, Michelson interferometer, multiple-beam interference and thin film coatings. Diffraction theory, Fraunhofer and Fresnel diffraction, Fresnel zone plate. Fiber optics, waveguides and modes, fiber coupling, types of fiber: single and multimode. Concurrently scheduled with course C286. Letter grading.

C187L. Nanoscale Fabrication, Characterization, and Biodection Laboratory. (4) Lecture, two hours; laboratory, three hours; outside study, seven hours. Multidisciplinary course that introduces laboratory techniques of nanoscale fabrication, characterization, and biodection. Basic physical, chemical, and biological principles related to these techniques, top-down and bottom-up (self-assembly) nanofabrication, nanocharacterization (AEM, SEM, etc.), and optical and electrochemical biosensors. Students encouraged to create their own ideas in self-designed experiments. Concurrently scheduled with course C287L. Letter grading.

188. Special Courses in Mechanical and Aerospace Engineering. (2 to 4) Lecture, two to four hours; outside study, four to eight hours. Special topics in mechanical and aerospace engineering for

undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. P/NP or letter grading.

194. Research Group Seminars: Mechanical and Aerospace Engineering. (2 to 4) Seminar, two hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field. Student presentation of projects in research specialty. May be repeated for credit. P/NP or letter grading.

199. Directed Research in Mechanical and Aerospace Engineering. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

Graduate Courses

231A. Convective Heat Transfer Theory. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 182B. Recommended: course 250A. Conservation equations for flow of real fluids. Analysis of heat transfer in laminar and turbulent, incompressible and compressible flows. Internal and external flows; free convection. Variable wall temperature; effects of variable fluid properties. Analogies among convective transfer processes. Letter grading.

231B. Radiation Heat Transfer. (4) Lecture, four hours; outside study, eight hours. Requisite: course 105D. Radiative properties of materials and radiative energy transfer. Emphasis on fundamental concepts, including energy levels and electromagnetic waves as well as analytical methods for calculating radiative properties and radiation transfer in absorbing, emitting, and scattering media. Applications cover laser-material interactions in addition to traditional areas such as combustion and thermal insulation. Letter grading.

231C. Phase Change Heat Transfer and Two-Phase Flow. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 150A. Two-phase flow, boiling, and condensation. Generalized constitutive equations for two-phase flow. Phenomenological theories of boiling and condensation, including forced flow effects. Letter grading.

231G. Microscopic Energy Transport. (4) Lecture, four hours; outside study, eight hours. Requisite: course 105D. Heat carriers (photons, electronics, phonons, molecules) and their energy characteristics, statistical properties of heat carriers, scattering and propagation of heat carriers, Boltzmann transport equations, derivation of classical laws from Boltzmann transport equations, deviation from classical laws at small scale. Letter grading.

C232A. Mass Transfer. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 105D, 131A. Principles of mass transfer by diffusion and convection. Simultaneous heat and mass transfer. Transport in multicomponent systems. Thermal, forced, and pressure diffusion, Brownian diffusion. Analysis of evaporative and transpiration cooling, catalysis, and combustion. Mass exchangers, including automobile catalytic converters, electrostatic precipitators, filters, scrubbers, humidifiers, and cooling towers. Concurrently scheduled with course C132A. Letter grading.

235A. Nuclear Reactor Theory. (4) Lecture, four hours; outside study, eight hours. Underlying physics and mathematics of nuclear reactor (fission) core design. Diffusion theory, reactor kinetics, slowing down and thermalization, multigroup methods, introduction to transport theory. Letter grading.

C237. Design and Analysis of Smart Grids. (4) Lecture, four hours; outside study, eight hours. Demand response; transactive/price-based load control; home-area network, smart energy profile; advanced metering infrastructure; renewable energy integration; solar and wind generation intermittency and corre-

tion; microgrids; grid stability; energy storage and electric vehicles-simulation; monitoring; distribution and transmission grids; consumer-centric technologies; sensors, communications, and computing; wireless, wireline, and powerline communications for smart grids; grid modeling, stability, and control; frequency and voltage regulation; ancillary services; wide-area situational awareness, phasor measurements; analytical methods and tools for monitoring and control. Concurrently scheduled with course C137. Letter grading.

M237B. Fusion Plasma Physics and Analysis. (4) (Same as Electrical Engineering M287.) Lecture, four hours; outside study, eight hours. Fundamentals of plasmas at thermonuclear burning conditions. Fokker/Planck equation and applications to heating by neutral beams, RF, and fusion reaction products. Bremsstrahlung, synchrotron, and atomic radiation processes. Plasma surface interactions. Fluid description of burning plasma. Dynamics, stability, and control. Applications in tokamaks, tandem mirrors, and alternate concepts. Letter grading.

237D. Fusion Engineering and Design. (4) Lecture, four hours; outside study, eight hours. Fusion reactions and fuel cycles. Principles of inertial and magnetic fusion. Plasma requirements for controlled fusion. Plasma-surface interactions. Fusion reactor concepts and technological components. Analysis and design of high heat flux components, energy conversion and tritium breeding components, radiation shielding, magnets, and heating. Letter grading.

239B. Seminar: Current Topics in Transport Phenomena. (2 to 4) Seminar, two to four hours; outside study, four to eight hours. Designed for graduate mechanical and aerospace engineering students. Lectures, discussions, student presentations, and projects in areas of current interest in transport phenomena. May be repeated for credit. S/U grading.

239F. Special Topics in Transport Phenomena. (2 to 4) Lecture, two to four hours; outside study, four to eight hours. Designed for graduate mechanical and aerospace engineering students. Advanced and current study of one or more aspects of heat and mass transfer, such as turbulence, stability and transition, buoyancy effects, variational methods, and measurement techniques. May be repeated for credit with topic change. S/U grading.

239G. Special Topics in Nuclear Engineering. (2 to 4) Lecture, two to four hours; outside study, four to eight hours. Designed for graduate mechanical and aerospace engineering students. Advanced study in areas of current interest in nuclear engineering, such as reactor safety, risk-benefit trade-offs, nuclear materials, and reactor design. May be repeated for credit with topic change. S/U grading.

239H. Special Topics in Fusion Physics, Engineering, and Technology. (2 to 4) Seminar, two to four hours; outside study, four to eight hours. Designed for graduate mechanical and aerospace engineering students. Advanced treatment of subjects selected from research areas in fusion science and engineering, such as instabilities in burning plasmas, alternate fusion confinement concepts, inertial confinement fusion, fission-fusion hybrid systems, and fusion reactor safety. May be repeated for credit with topic change. S/U grading.

CM240. Introduction to Biomechanics. (4) (Same as Bioengineering CM240.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 96, 102, and 156A or 166A. Introduction to mechanical functions of human body; skeletal adaptations to optimize load transfer, mobility, and function. Dynamics and kinematics. Fluid mechanics applications. Heat and mass transfer. Power generation. Laboratory simulations and tests. Concurrently scheduled with course CM140. Letter grading.

CM241. Mechanics of Cells. (4) (Same as Bioengineering CM241.) Lecture, four hours. Introduction to physical structures of cell biology and physical principles that govern how they function mechanically. Review and application of continuum mechanics and statistical mechanics to develop quantitative mathe-

matical models of structural mechanics in cells. Structure of macromolecules, polymers as entropic springs, random walks and diffusion, mechanosensitive proteins, single-molecule force-extension, DNA packing and transcriptional regulation, lipid bilayer membranes, mechanics of cytoskeleton, molecular motors, biological electricity, muscle mechanics, pattern formation. Concurrently scheduled with course CM141. Letter grading.

242. Introduction to Multiferroic Materials. (4) Lecture, four hours; outside study, eight hours. Overview of different types of multiferroic materials, including strain mediated. Basic crystal structure of single-phase multiferroics, as well as fundamental physics underlying ferroelectricity and ferromagnetism. Material science description of these materials, with focus on linear and nonlinear behavior with associated mechanisms such as spin reorientation. Presentation of analytical tools necessary to predict material response ranging from constitutive relations to governing equations, including elastodynamics and Maxwell's. Analytical and physical descriptions used to explain several devices manufactured with multiferroics, including magnetometers, memory devices, motors, and antennas. Letter grading.

250A. Foundations of Fluid Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150A. Corequisite: course 182B. Development and application of fundamental principles of fluid mechanics at graduate level, with emphasis on incompressible flow. Flow kinematics, basic equations, constitutive relations, exact solutions on the Navier/Stokes equations, vorticity dynamics, decomposition of flow fields, potential flow. Letter grading.

250B. Viscous and Turbulent Flows. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150A. Fundamental principles of fluid dynamics applied to study of fluid resistance. States of fluid motion discussed in order of advancing Reynolds number; wakes, boundary layers, instability, transition, and turbulent shear flows. Letter grading.

250C. Compressible Flows. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 150A, 150B. Effects of compressibility in viscous and inviscid flows. Steady and unsteady inviscid subsonic and supersonic flows; method of characteristics; small disturbance theories (linearized and hypersonic); shock dynamics. Letter grading.

250D. Computational Aerodynamics. (4) Lecture, eight hours. Requisites: courses 150A, 150B, 182C. Introduction to useful methods for computation of aerodynamic flow fields. Coverage of potential, Euler, and Navier/Stokes equations for subsonic to hypersonic speeds. Letter grading.

250E. Spectral Methods in Fluid Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 182A, 182B, 182C, 250A, 250B. Introduction to basic concepts and techniques of various spectral methods applied to solving partial differential equations. Particular emphasis on techniques of solving unsteady three-dimensional Navier/Stokes equations. Topics include spectral representation of functions, discrete Fourier transform, etc. Letter grading.

250F. Hypersonic and High-Temperature Gas Dynamics. (4) Lecture, four hours; outside study, eight hours. Recommended requisite: course 250C. Molecular and chemical description of equilibrium and non-equilibrium hypersonic and high-temperature gas flows, chemical thermodynamics and statistical thermodynamics for calculation gas properties, equilibrium flows of real gases, vibrational and chemical rate processes, nonequilibrium flows of real gases, and computational fluid dynamics methods for nonequilibrium hypersonic flows. Letter grading.

C250G. Fluid Dynamics of Biological Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 103. Mechanics of aquatic locomotion; insect and bird flight aerodynamics; pulsatile flow in circulatory system; rheology of blood; transport in microcirculation; role of fluid dynamics in arterial diseases. Concurrently scheduled with course C150G. Letter grading.

250H. Numerical Methods for Incompressible Flows. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 150A, 182C. Review of equations of incompressible flow, finite difference methods and other methods of spatial approximation, time-marching schemes, numerical solution of model partial differential equations, application to Navier/Stokes equations, boundary conditions. Letter grading.

250M. Introduction to Microfluids/Nanofluids. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150A. Introduction to fundamentals of microfluids. No-slip and slip boundary conditions. Sedimentation and diffusion in liquids. Osmotic pressure and Donnan equilibrium in fluid mixtures. Fundamentals of surface phenomena, spreading, and contact angles. Introduction to van der Waals interactions, electrical double layer, and zeta potential. Basics of non-Newtonian fluid mechanics. Letter grading.

C250P. Aircraft Propulsion Systems. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 105A, 150A. Thermodynamic properties of gases, aircraft jet engine cycle analysis and component performance, component matching, advanced aircraft engine topics. Concurrently scheduled with course C150P. Letter grading.

C250R. Rocket Propulsion Systems. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 103, 105A. Rocket propulsion concepts, including chemical rockets (liquid, gas, and solid propellants), hybrid rocket engines, electric (ion, plasma) rockets, nuclear rockets, and solar-powered vehicles. Current issues in launch vehicle technologies. Concurrently scheduled with course C150R. Letter grading.

252A. Stability of Fluid Motion. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150A. Mechanisms by which laminar flows can become unstable and lead to turbulence of secondary motions. Linear stability theory; thermal, centrifugal, and shear instabilities; boundary layer instability. Nonlinear aspects: sufficient criteria for stability, subcritical instabilities, supercritical states, transition to turbulence. Letter grading.

252B. Turbulence. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 250B. Characteristics of turbulent flows, conservation and transport equations, statistical description of turbulent flows, scales of turbulent motion, simple turbulent flows, free-shear flows, wall-bounded flows, turbulence modeling, numerical simulations of turbulent flows, and turbulence control. Letter grading.

252C. Fluid Mechanics of Combustion Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 150A, 150B. Recommended: course 250C. Review of fluid mechanics and chemical thermodynamics applied to reactive systems, laminar diffusion flames, premixed laminar flames, stability, ignition, turbulent combustion, supersonic combustion. Letter grading.

252D. Combustion Rate Processes. (4) Lecture, four hours; outside study, eight hours. Requisite: course 252C. Basic concepts in chemical kinetics: molecular collisions, distribution functions and averaging, semiempirical and ab initio potential surfaces, trajectory calculations, statistical reaction rate theories. Practical examples of large-scale chain mechanisms from combustion chemistry of several elements, etc. Letter grading.

252P. Plasma and Ionized Gases. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 102, 150A, 182A, 182B. Neutral and charged particle motion, magnetohydrodynamics, two-fluid plasma treatments, ion and electron diffusion, gas diffusion, Child/Langmuir law, basic plasma devices, electron emission and work function, thermal distributions, vacuum and vacuum systems, space-charge, particle collisions and ionization, plasma discharges, sheaths, and electric arcs. Letter grading.

254A. Special Topics in Aerodynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 150A, 150B, 182A, 182B, 182C. Special topics of current interest in advanced aerodynamics.

Examples include transonic flow, hypersonic flow, sonic booms, and unsteady aerodynamics. Letter grading.

255A. Advanced Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 155, 169A. Variational principles and Lagrange equations. Kinematics and dynamics of rigid bodies; procession and nutation of spinning bodies. Letter grading.

255B. Mathematical Methods in Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 255A. Concepts of stability; state-space interpretation; stability determination by simulation, linearization, and Lyapunov direct method; the Hamiltonian as a Lyapunov function; nonautonomous systems; averaging and perturbation methods of nonlinear analysis; parametric excitation and nonlinear resonance. Application to mechanical systems. Letter grading.

M256A. Linear Elasticity. (4) (Same as Civil Engineering M230A.) Lecture, four hours; outside study, eight hours. Requisite: course 156A or 166A. Linear elastostatics. Cartesian tensors; infinitesimal strain tensor; Cauchy stress tensor; strain energy; equilibrium equations; linear constitutive relations; plane elastostatic problems, holes, corners, inclusions, cracks; three-dimensional problems of Kelvin, Boussinesq, and Cerruti. Introduction to boundary integral equation method. Letter grading.

M256B. Nonlinear Elasticity. (4) (Same as Civil Engineering M230B.) Lecture, four hours; outside study, eight hours. Requisite: course M256A. Kinematics of deformation, material and spatial coordinates, deformation gradient tensor, nonlinear and linear strain tensors, strain displacement relations; balance laws, Cauchy and Piola stresses, Cauchy equations of motion, balance of energy, stored energy; constitutive relations, elasticity, hyperelasticity, thermoelasticity; linearization of field equations; solution of selected problems. Letter grading.

M256C. Plasticity. (4) (Same as Civil Engineering M230C.) Lecture, four hours; outside study, eight hours. Requisites: courses M256A, M256B. Classical rate-independent plasticity theory, yield functions, flow rules and thermodynamics. Classical rate-dependent viscoplasticity, Perzyna and Duvant/Lions types of viscoplasticity. Thermoplasticity and creep. Return mapping algorithms for plasticity and viscoplasticity. Finite element implementations. Letter grading.

256F. Analytical Fracture Mechanics. (4) Lecture, four hours; outside study, eight hours. Requisite: course M256A. Review of modern fracture mechanics, elementary stress analyses; analytical and numerical methods for calculation of crack tip stress intensity factors; engineering applications in stiffened structures, pressure vessels, plates, and shells. Letter grading.

M257A. Elastodynamics. (4) (Same as Earth, Planetary, and Space Sciences M224A.) Lecture, four hours; outside study, eight hours. Requisites: courses M256A, M256B. Equations of linear elasticity, Cauchy equation of motion, constitutive relations, boundary and initial conditions, principle of energy. Sources and waves in unbounded isotropic, anisotropic, and dissipative solids. Half-space problems. Guided waves in layered media. Applications to dynamic fracture, non-destructive evaluation (NDE), and mechanics of earthquakes. Letter grading.

258A. Nanomechanics and Micromechanics. (4) Lecture, four hours; outside study, eight hours. Requisite: course M256A. Analytical and computational modeling methods to describe mechanics of materials at scales ranging from atomistic through microstructure or transitional and up to continuum. Discussion of atomistic simulation methods (e.g., molecular dynamics, Langevin dynamics, and kinetic Monte Carlo) and their applications at nanoscale. Developments and applications of dislocation dynamics and statistical mechanics methods in areas of nanostructure and microstructure self-organization, heterogeneous plastic deformation, material instabilities, and failure phenomena. Presentation of technical applications of these emerging modeling techniques to sur-

faces and interfaces, grain boundaries, dislocations and defects, surface growth, quantum dots, nanotubes, nanoclusters, thin films (e.g., optical thermal barrier coatings and ultrastrong nanolayer materials), nano-identification, smart (active) materials, nano-bending and microbending, and torsion. Letter grading.

259A. Seminar: Advanced Topics in Fluid Mechanics. (4) Seminar, four hours; outside study, eight hours. Advanced study of topics in fluid mechanics, with intensive student participation involving assignments in research problems leading to term paper or oral presentation (possible help from guest lecturers). Letter grading.

259B. Seminar: Advanced Topics in Solid Mechanics. (4) Seminar, four hours; outside study, eight hours. Advanced study in various fields of solid mechanics on topics which may vary from term to term. Topics include dynamics, elasticity, plasticity, and stability of solids. Letter grading.

260. Current Topics in Mechanical Engineering. (2 to 4) Seminar, two to four hours; outside study, four to eight hours. Designed for graduate mechanical and aerospace engineering students. Lectures, discussions, and student presentations and projects in areas of current interest in mechanical engineering. May be repeated for credit. S/U grading.

261A. Energy and Computational Methods in Structural Mechanics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 156A or 166A. Review of theory of linear elasticity and reduced structural theories (rods, plates, and shells). Calculus of variations. Virtual work. Minimum and stationary variational principles. Variational approximation methods. Weighted residual methods, weak forms. Static finite element method. Isoparametric elements, beam and plate elements. Numerical quadrature. Letter grading.

261B. Computational Mechanics of Solids and Structures. (4) Lecture, four hours; outside study, eight hours. Requisite: course 261A. Variational formulation and computer implementation of linear elastic finite element method. Error analysis and convergence. Methods for large displacements, large deformations, and other geometric nonlinearities. Solution techniques for nonlinear equations. Finite element method for dynamics of solids and structures. Time integration algorithms. Term projects using digital computers. Letter grading.

262. Mechanics of Intelligent Material Systems. (4) Lecture, four hours; outside study, eight hours. Recommended requisite: course 166C. Constitutive relations for electro-magneto-mechanical materials. Fiber-optic sensor technology. Micro/macro analysis, including classical lamination theory, shear lag theory, concentric cylinder analysis, hexagonal models, and homogenization techniques as they apply to active materials. Active systems design, inch-worm, and biomorph. Letter grading.

263A. Kinematics of Robotic Systems. (4) Lecture, four hours; outside study, eight hours. Recommended requisites: courses 155, 171A. Kinematical models of serial robotic manipulators, including spatial descriptions and transformations (Euler angles, Denavit-Hartenberg/DH parameters, equivalent angle vector), frame assignment procedure, direct kinematics, inverse kinematics (geometric and algebraic approaches), mechanical design topics. Letter grading.

263B. Dynamics of Robotic Systems. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 263A. Recommended: course 255B. Dynamics models of serial and parallel robotic manipulators, including review of spatial descriptions and transformations along with direct and inverse kinematics, linear and angular velocities, Jacobian matrix (velocity and force), velocity propagation method, force propagation method, explicit formulation of Jacobian matrix, manipulator dynamics (Newton/Euler formulation, Lagrangian formulation), trajectory generation, introduction to parallel manipulators. Letter grading.

263C. Control of Robotic Systems. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 263B. Sensors, actuators, and control schemes for robotic systems, including computed torque control, linear feedback control, impedance and force feedback control, and advanced control topics from nonlinear and adaptive control, hybrid control, nonholonomic systems, vision-based control, and perception. Letter grading.

263D. Advanced Topics in Robotics and Control. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 263C. Current and advanced topics in robotics and control, including kinematics, dynamics, control, mechanical design, advanced sensors and actuators, flexible links, manipulability, redundant manipulators, human-robot interaction, teleoperation, haptics. Letter grading.

M269A. Dynamics of Structures. (4) (Same as Civil Engineering M237A.) Lecture, four hours; outside study, eight hours. Requisite: course 169A. Principles of dynamics. Determination of normal modes and frequencies by differential and integral equation solutions. Transient and steady state response. Emphasis on derivation and solution of governing equations using matrix formulation. Letter grading.

269B. Advanced Dynamics of Structures. (4) Lecture, four hours; outside study, eight hours. Requisite: course M269A. Analysis of linear and nonlinear response of structures to dynamic loadings. Stresses and deflections in structures. Structural damping and self-induced vibrations. Letter grading.

269D. Aeroelastic Effects in Structures. (4) Lecture, four hours; outside study, eight hours. Requisite: course M269A. Presentation of field of aeroelasticity from unified viewpoint applicable to flight structures, suspension bridges, buildings, and other structures. Derivation of aeroelastic operators and unsteady airloads from governing variational principles. Flow induced instability and response of structural systems. Letter grading.

M270A. Linear Dynamic Systems. (4) (Same as Chemical Engineering M280A and Electrical Engineering M240A.) Lecture, four hours; outside study, eight hours. Requisite: course 171A or Electrical Engineering 141. State-space description of linear time-invariant (LTI) and time-varying (LTV) systems in continuous and discrete time. Linear algebra concepts such as eigenvalues and eigenvectors, singular values, Cayley/Hamilton theorem, Jordan form; solution of state equations; stability, controllability, observability, realizability, and minimality. Stabilization design via state feedback and observers; separation principle. Connections with transfer function techniques. Letter grading.

270B. Linear Optimal Control. (4) Lecture, four hours; outside study, eight hours. Requisite: course M270A or Electrical Engineering M240A. Existence and uniqueness of solutions to linear quadratic (LQ) optimal control problems for continuous-time and discrete-time systems, finite-time and infinite-time problems; Hamiltonian systems and optimal control; algebraic and differential Riccati equations; implications of controllability, stabilizability, observability, and detectability solutions. Letter grading.

M270C. Optimal Control. (4) (Same as Chemical Engineering M280C and Electrical Engineering M240C.) Lecture, four hours; outside study, eight hours. Requisite: course 270B. Applications of variational methods, Pontryagin maximum principle, Hamilton/Jacobi/Bellman equation (dynamic programming) to optimal control of dynamic systems modeled by nonlinear ordinary differential equations. Letter grading.

C271A. Probability and Stochastic Processes in Dynamical Systems. (4) Lecture, four hours; outside study, eight hours. Enforced requisites: courses 82, 107. Probability spaces, random variables, stochastic sequences and processes, expectation, conditional expectation, Gauss/Markov sequences, and minimum variance estimator (Kalman filter) with applications. Concurrently scheduled with course C175A. Letter grading.

271B. Stochastic Estimation. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course C271A. Linear and nonlinear estimation theory, orthogonal projection lemma, Bayesian filtering theory, conditional mean and risk estimators. Letter grading.

271C. Stochastic Optimal Control. (4) Lecture, four hours; outside study, eight hours. Requisite: course 271B. Stochastic dynamic programming, certainty equivalence principle, separation theorem, information statistics; linear-quadratic-Gaussian problem, linear-exponential-Gaussian problem. Relationship between stochastic control and robust control. Letter grading.

271D. Seminar: Special Topics in Dynamic Systems Control. (4) Seminar, four hours; outside study, eight hours. Seminar on current research topics in dynamic systems modeling, control, and applications. Topics selected from process control, differential games, nonlinear estimation, adaptive filtering, industrial and aerospace applications, etc. Letter grading.

M272A. Nonlinear Dynamic Systems. (4) (Same as Chemical Engineering M282A and Electrical Engineering M242A.) Lecture, four hours; outside study, eight hours. Requisite: course M270A or Chemical Engineering M280A or Electrical Engineering M240A. State-space techniques for studying solutions of time-invariant and time-varying nonlinear dynamic systems with emphasis on stability. Lyapunov theory (including converse theorems), invariance, center manifold theorem, input-to-state stability and small-gain theorem. Letter grading.

273A. Robust Control System Analysis and Design. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 171A, M270A. Graduate-level introduction to analysis and design of multivariable control systems. Multivariable loop-shaping, performance requirements, model uncertainty representations, and robustness covered in detail from frequency domain perspective. Structured singular value and its application to controller synthesis. Letter grading.

275A. System Identification. (4) Lecture, four hours; outside study, eight hours. Methods for identification of dynamical systems from input/output data, with emphasis on identification of discrete-time (digital) models of sampled-data systems. Coverage of conversion to continuous-time models. Models identified include transfer functions and state-space models. Discussion of applications in mechanical and aerospace engineering, including identification of flexible structures, microelectromechanical systems (MEMS) devices, and acoustic ducts. Letter grading.

M276. Dynamic Programming. (4) (Same as Electrical Engineering M237.) Lecture, four hours; outside study, eight hours. Recommended requisite: Electrical Engineering 232A or 236A or 236B. Introduction to mathematical analysis of sequential decision processes. Finite horizon model in both deterministic and stochastic cases. Finite-state infinite horizon model. Methods of solution. Examples from inventory theory, finance, optimal control and estimation, Markov decision processes, combinatorial optimization, communications. Letter grading.

277. Advanced Digital Control for Mechatronic Systems. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Requisites: courses 171B, M270A. Digital signal processing and control analysis of mechatronic systems. System inversion-based digital control algorithms and robustness properties, Youla parameterization of stabilizing controllers, previewed optimal feedforward compensator, repetitive and learning control, and adaptive control. Real-time control investigation of topics to selected mechatronic systems. Letter grading.

279. Dynamics and Control of Biological Oscillations. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 107, M270A. Analysis and design of dynamical mechanisms underlying biological control systems that generate coordinated oscillations. Topics include neuronal information processing through action potentials (spike train), central pattern generator, coupled nonlinear oscillators, op-

timal gaits (periodic motion) for animal locomotion, and entrainment to natural oscillations via feedback control. Letter grading.

M280B. Microelectromechanical Systems (MEMS) Fabrication. (4) (Same as Bioengineering M250B and Electrical Engineering M250B.) Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisite: course M183B. Advanced discussion of micromachining processes used to construct MEMS. Coverage of many lithographic, deposition, and etching processes, as well as their combination in process integration. Materials issues such as chemical resistance, corrosion, mechanical properties, and residual/intrinsic stress. Letter grading.

281. Microsciences. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 102, 103, 105D. Fundamental issues of being in microscopic world and mechanical engineering of microscale devices. Topics include scale issues, surface tension, superhydrophobic surfaces and applications, and electrowetting and applications. Letter grading.

M282. Microelectromechanical Systems (MEMS) Device Physics and Design. (4) (Same as Bioengineering M252 and Electrical Engineering M252.) Lecture, four hours; outside study, eight hours. Introduction to MEMS design. Design methods, design rules, sensing and actuation mechanisms, microsensors, and microactuators. Designing MEMS to be produced with both foundry and nonfoundry processes. Computer-aided design for MEMS. Design project required. Letter grading.

284. Sensors, Actuators, and Signal Processing. (4) Lecture, four hours; outside study, eight hours. Principles and performance of micro transducers. Applications of using unique properties of micro transducers for distributed and real-time control of engineering problems. Associated signal processing requirements for these applications. Letter grading.

285. Interfacial Phenomena. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 103, 105A, 105D, 182A. Introduction to fundamental physical phenomena occurring at interfaces and application of their knowledge to engineering problems. Fundamental concepts of interfacial phenomena, including surface tension, surfactants, interfacial thermodynamics, interfacial forces, interfacial hydrodynamics, and dynamics of triple line. Presentation of various applications, including wetting, change of phase (boiling and condensation), forms and emulsions, microelectromechanical systems, and biological systems. Letter grading.

C286. Applied Optics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Physics 1C. Fundamental principles of optical systems. Geometric optics and aberration theory. Diffraction and interference. Fourier optics, beam optics. Propagation of light, Snell's law, and Huygen principle. Refraction and reflection. Plane waves, spherical waves, and image formation. Total internal reflection. Polarization, polarizers, and wave-plates. Lenses and aberrations, lens laws and formation of images, resolution and primary aberrations. Simple optical instruments, still cameras, shutters, apertures. Design of telescopes, microscope design, projection system design. Interference, Young's slit experiment and fringe visibility, Michelson interferometer, multiple-beam interference and thin film coatings. Diffraction theory, Fraunhofer and Fresnel diffraction, Fresnel zone plate. Fiber optics, waveguides and modes, fiber coupling, types of fiber: single and multimode. Concurrently scheduled with course C186. Letter grading.

M287. Nanoscience and Technology. (4) (Same as Electrical Engineering M257.) Lecture, four hours; outside study, eight hours. Enforced requisite: course CM280A. Introduction to fundamentals of nanoscale science and technology. Basic physical principles, quantum mechanics, chemical bonding and nanostructures, top-down and bottom-up (self-assembly) nanofabrication; nanocharacterization; nanomaterials, nanoelectronics, and nanobiodetection technology. Introduction to new knowledge and techniques in

nano areas to understand scientific principles behind nanotechnology and inspire students to create new ideas in multidisciplinary nano areas. Letter grading.

C287L. Nanoscale Fabrication, Characterization, and Biodetection Laboratory. (4) Lecture, two hours; laboratory, three hours; outside study, seven hours. Multidisciplinary course that introduces laboratory techniques of nanoscale fabrication, characterization, and biodetection. Basic physical, chemical, and biological principles related to these techniques, top-down and bottom-up (self-assembly) nanofabrication, nanocharacterization (AEM, SEM, etc.), and optical and electrochemical biosensors. Students encouraged to create their own ideas in self-designed experiments. Concurrently scheduled with course C187L. Letter grading.

288. Laser Microfabrication. (4) Lecture, four hours; outside study, eight hours. Requisites: Materials Science 104, Physics 17. Science and engineering of laser microscopic fabrication of advanced materials, including semiconductors, metals, and insulators. Topics include fundamentals in laser interactions with advanced materials, transport issues (therma, mass, chemical, carrier, etc.) in laser microfabrication, state-of-art optics and instrumentation for laser microfabrication, applications such as rapid prototyping, surface modifications (physical/chemical), micromachines for three-dimensional MEMS (microelectromechanical systems) and data storage, up-to-date research activities. Student term projects. Letter grading.

294A. Compliant Mechanism Design. (4) (Formerly numbered 294B.) Lecture, four hours; outside study, eight hours. Requisite: linear algebra. Advanced compliant mechanism synthesis approaches, modeling techniques, and optimization tools. Fundamentals of flexible constraint theory, principles of constraint-based design, projective geometry, screw theory kinematics, and freedom and constraint topologies. Applications: precision motion stages, general purpose flexure bearings, microstructural architectures, MEMS, optical mounts, and nanoscale positioning systems. Hands-on exercises include build-your-own flexure kits, CAD and FEA simulations, and term project. Letter grading.

295A. Radio Frequency Identification Systems: Analysis, Design, and Applications. (4) (Formerly numbered 295C.) Lecture, four hours; outside study, eight hours. Designed for graduate engineering students. Examination of emerging discipline of radio frequency identification (RFID), including basics of RFID, how RFID systems function, design and analysis of RFID systems, and applications to fields such as supply chain, manufacturing, retail, and homeland security. Letter grading.

C296A. Material Failure in Mechanical Design I: Power Transmission. (4) (Formerly numbered 296A.) Lecture, four hours; outside study, eight hours. Enforced requisite: course 156A or 166A. Material selection in mechanical design. Load and stress analysis. Deflection and stiffness. Failure due to static loading. Fatigue failure. Design for safety factors and reliability. Statistical considerations in design. Applications of failure prevention in design of power transmission shafting. Design project involving computer-aided design (CAD) and finite element analysis (FEA) modeling. Concurrently scheduled with course C156B. Letter grading.

296B. Material Failure in Mechanical Design II: High-Temperature Components. (4) Lecture, four hours; outside study, eight hours. Enforced requisites: courses 156A, C296A. Review of elasticity and continuum thermodynamics, multiaxial plasticity, flow rules, cyclic plasticity, viscoplasticity, creep, creep damage in cyclic loading. Damage mechanics: thermodynamics, ductile, creep, fatigue, and fatigue-creep interaction damage. Fracture mechanics: elastic and elastoplastic analysis, J-integral, brittle fracture, ductile fracture, fatigue and creep crack propagation. Applications in design of high-temperature components such as turbine blades, pressure vessels, heat exchangers, connecting rods. Design project involving CAD and FEM modeling. Letter grading.

C297A. Rapid Prototyping and Manufacturing. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Recommended requisite: level of knowledge in manufacturing equivalent to course 183A and CAD capability. Rapid prototyping (RP), solid freeform fabrication, or additive manufacturing has emerged as popular manufacturing technology to accelerate product creation in last two decades. Machine for layered manufacturing builds parts directly from CAD models. This novel manufacturing technology enables building of parts that have traditionally been impossible to fabricate because of their complex shapes or of variety in materials. In analogy to speed and flexibility of desktop publishing, rapid prototyping is also called desktop manufacturing, with actual three-dimensional solid objects instead of mere two-dimensional images. Methodology of rapid prototyping has also been extended into meso-/micro-/nano-scale to produce three-dimensional functional miniature components. Concurrently scheduled with course C183C. Letter grading.

M297B. Material Processing in Manufacturing. (4) (Formerly numbered 297A.) (Same as Materials Science M297B.) Lecture, four hours; outside study, eight hours. Enforced requisite: course 183A. Thermodynamics, principles of material processing: phase equilibria and transitions, transport mechanisms of heat and mass, nucleation and growth of microstructure. Applications in casting/solidification, welding, consolidation, chemical vapor deposition, infiltration, composites. Letter grading.

M297C. Composites Manufacturing. (4) (Formerly numbered 297D.) (Same as Materials Science M297C.) Lecture, four hours; outside study, eight hours. Requisites: course 166C, Materials Science 151. Matrix materials, fibers, fiber preforms, elements of processing, autoclave/compression molding, filament winding, pultrusion, resin transfer molding, automation, material removal and assembly, metal and ceramic matrix composites, quality assurance. Letter grading.

298. Seminar: Engineering. (2 to 4) Seminar, to be arranged. Limited to graduate mechanical and aerospace engineering students. Seminars may be organized in advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change. Letter grading.

M299A. Seminar: Systems, Dynamics, and Control Topics. (2) (Same as Chemical Engineering M297 and Electrical Engineering M248S.) Seminar, two hours; outside study, six hours. Limited to graduate engineering students. Presentations of research topics by leading academic researchers from fields of systems, dynamics, and control. Students who work in these fields present their papers and results. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Assistant Training Seminar. (2) Seminar, two hours; outside study, four hours. Preparation: appointment as teaching assistant in department. Seminar on communication of mechanical and aerospace engineering principles, concepts, and methods; teaching assistant preparation, organization, and presentation of material, including use of visual aids; grading, advising, and rapport with students. S/U grading.

596. Directed Individual or Tutorial Studies. (2 to 8) Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

597A. Preparation for MS Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Reading and preparation for MS comprehensive examination. S/U grading.

597B. Preparation for PhD Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. S/U grading.

597C. Preparation for PhD Oral Qualifying Examination. (2 to 16) Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

598. Research for and Preparation of MS Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Supervised independent research for MS candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of PhD Dissertation. (2 to 16) Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

MEDICINE

David Geffen School of Medicine

UCLA

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Chairs

Alan M. Fogelman, MD (Castera Professor of Cardiology), Executive Chair

Jan H. Tillisch, MD, Executive Vice Chair

Jose Escarce, MD, PhD, Executive Vice Chair, Academic Affairs

Robert K. Oye, MD, Executive Vice Chair, Clinical Services

Dennis J. Slamon, MD (Bowyer Professor of Medical Oncology), Executive Vice Chair, Research

Scope and Objectives

The principal goal of the Department of Medicine is to educate students in the expert diagnosis and compassionate management of human illness. Building on the biochemical, physiological, and behavioral foundations of the preclinical experience, students are taught *information acquisition* through history taking, physical examination, and laboratory evaluation; *information synthesis* through achieving a differential diagnosis and evaluative plan; and *medical decision making* for continued evaluation and therapy. Students are encouraged and guided in developing a caring physician/patient relationship.

Instruction in the department is provided in all four years of medical school, with the third and fourth years constituting a continuum of clinical experience. Students become integrated into a ward team and have significant ambulatory care experiences. They apply and extend their clinical skills, medical knowledge, and judgment in the care of patients assigned to them under the immediate supervision of house officers and attending staff.

The department offers a broad range of advanced clinical clerkships in general and subspecialty ambulatory and hospital-based internal medicine at all the major affiliated centers.

For further details on the Department of Medicine and a listing of the courses offered, see <http://medschool.ucla.edu/current-degrees-programs>.

Medicine

Upper Division Courses

M160A. Health Outreach and Education for At-Risk Populations. (4) (Same as Public Health M160A.) Lecture, four hours; possible field observations. First in series of courses to explore prevention of disease in at-risk populations, clinical services and referrals for disadvantaged, and effects of low socioeconomic status on academic achievement, career, and family. Lectures by faculty and practitioners, with field visits. P/NP or letter grading.

M160B. Health Outreach and Education for At-Risk Populations. (4) (Same as Public Health M160B.) Lecture, two hours; discussion, two hours. Requisite: course M160A. Second in series of courses to explore prevention of disease in at-risk populations, clinical services and referrals for disadvantaged, and effects of low socioeconomic status on academic achievement, career, and family. Lectures by faculty and practitioners, discussion groups, and field activities including health education. P/NP or letter grading.

160C. Health Outreach and Education to At-Risk Populations. (4) Seminar, two hours; fieldwork, six to eight hours. Requirements: courses M160A, M160B. Processes involved with designing, delivering, and assessing community health education programs, under supervision of professional staff. P/NP or letter grading.

180. Special Topics in Medicine. (4) Lecture, four hours; discussion, one hour. Medical topics of special interest to undergraduate students. Specific subjects may vary each term depending on particular interest of instructors and students. Topics may include East/West medicine and global medicine. May be repeated for credit with topic or instructor change. P/NP or letter grading.

199. Directed Research in Medicine. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M215. Interdepartmental Course: Tropical Medicine. (2) (Same as Pathology M215 and Pediatrics M215.) Lecture, two and one half hours. Preparation: basic courses in microbiology and parasitology of infectious diseases in School of Medicine or Public Health. Study of current knowledge about diseases prevalent in tropical areas of the world. Major emphasis on infectious diseases, with coverage of problems in nutrition and exotic noninfectious diseases. Syllabus supplements topics covered in classroom. S/U grading.

M256. Interdisciplinary Response to Infectious Disease Emergencies: Medicine Perspective. (4) (Same as Community Health Sciences M256, Nursing M298, and Oral Biology M256.) Lecture, three hours; discussion, one hour. Designed to instill in professional students ideas of common emergency health problems and coordinated response, with specific attention to bioterrorism. Examination of tools to help students prevent, detect, and intervene in infectious disease emergencies. Interdisciplinary sessions also attended by students in Schools of Dentistry, Nursing, and Public Health during weeks two through five. Letter grading.

M260A-M260B. Methodology in Clinical Research I, II. (4-4) (Same as Biomathematics M260A-M260B.) Lecture, four hours. Recommended preparation: MD, PhD, or dental degree. Requisites: Biomathematics 170A, 265A. Course M260A is requisite to M260B.

Presentation of principles and practices of major disciplines underlying clinical research methodology, such as biostatistics, epidemiology, pharmacokinetics. S/U or letter grading.

M260C. Methodology in Clinical Research III. (4) (Same as Biomathematics M260C.) Discussion, four hours. Recommended preparation: MD, PhD, or dental degree. Presentation of principles and practices of major disciplines underlying clinical research methodology, such as biostatistics, epidemiology, pharmacokinetics. S/U or letter grading.

M261. Responsible Conduct of Research Involving Humans. (2) (Same as Biomathematics M261.) Lecture, two hours; discussion, two hours. Preparation: completion of one basic course in protection of human research subjects through Collaborative Institutional Training Initiative. Discussion of current issues in responsible conduct of clinical research, including reporting of research, basis for authorship, issues in genetic research, principles and practice of research on humans, conflicts of interest, Institutional Review Board (IRB), and related topics. S/U or letter grading.

M263. Clinical Pharmacology. (2) (Same as Biomathematics M263 and Psychiatry M263.) Lecture, two hours. Preparation: completion of professional health sciences degree (MD, DDS, DNSc, or PhD). Overview of principles of clinical pharmacology, especially as they relate to clinical and translational medicine and to advances in contemporary medicine such as targeting, gene therapy, and genomics. Letter grading.

M270C. Advanced Modeling Methodology for Dynamic Biomedical Systems. (4) (Same as Bioengineering M296A and Computer Science M296A.) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering 141 or 142 or Mathematics 115A or Mechanical and Aerospace Engineering 171A. Development of dynamic systems modeling methodology for physiological, biomedical, pharmacological, chemical, and related systems. Control system, multicompartmental, noncompartmental, and input/output models, linear and nonlinear. Emphasis on model applications, limitations, and relevance in biomedical sciences and other limited data environments. Problem solving in PC laboratory. Letter grading.

M270D. Optimal Parameter Estimation and Experiment Design for Biomedical Systems. (4) (Same as Bioengineering M296B, Biomathematics M270, and Computer Science M296B.) Lecture, four hours; outside study, eight hours. Requisite: course M270C or Bioengineering CM286 or Biomathematics 220. Estimation methodology and model parameter estimation algorithms for fitting dynamic system models to biomedical data. Model discrimination methods. Theory and algorithms for designing optimal experiments for developing and quantifying models, with special focus on optimal sampling schedule design for kinetic models. Exploration of PC software for model building and optimal experiment design via applications in physiology and pharmacology. Letter grading.

M270E. Advanced Topics and Research in Biomedical Systems Modeling and Computing. (4) (Same as Bioengineering M296C and Computer Science M296C.) Lecture, four hours; outside study, eight hours. Requisite: course M270D. Research techniques and experience on special topics involving models, modeling methods, and model/computing in biological and medical sciences. Review and critique of literature. Research problem searching and formulation. Approaches to solutions. Individual MS- and PhD-level project training. Letter grading.

M290A-M290B. Child Abuse and Neglect. (2-2) (Same as Community Health Sciences M245A-M245B-M245C, Dentistry M300A-M300B-M300C, Education M217G-M217H-M217I, Law M281A-M281B, Nursing M290A-M290B-M290C, and Social Welfare M203F-M203G-M203H.) Lecture, two hours. Course M290A is requisite to M290B. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of Schools of Dentistry, Law, Medicine, Nursing, and

Public Health and Departments of Education and Psychology, as well as by relevant public agencies. Letter grading.

MICROBIOLOGY, IMMUNOLOGY, AND MOLECULAR GENETICS

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Jerome H. Zack, PhD, Chair

Professors

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Peter J. Bradley, PhD
David A. Campbell, PhD
Irvin S.Y. Chen, PhD
Genhong Cheng, PhD
Asim Dasgupta, PhD
James S. Economou, MD, PhD
Lawrence T. Feldman, PhD
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David A. Haake, MD, *in Residence*
Kent L. Hill, PhD
Alexander Hoffmann, PhD (*Thomas M. Asher Endowed Professor of Microbiology*)
Marcus Horwitz, MD
Patricia J. Johnson, PhD
H. Ronald Kaback, MD
Donald B. Kohn, MD
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Otoniel M. Martinez-Maza, PhD
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Otto O. Yang, MD
Jerome H. Zack, PhD
Z. Hong Zhou, PhD

Professors Emeriti

Benjamin Bonavida, PhD
Frederick A. Eiserling, PhD
Sydney M. Finegold, MD
C. Fred Fox, PhD
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Associate Professors

Steven J. Bensinger, VMD, PhD
 Elissa A. Hallem, PhD
 Beth A. Lazazzera, PhD
 April D. Pyle, PhD

Assistant Professors

Oliver I. Fregoso, PhD
 Lili Yang, PhD

Adjunct Associate Professor

Imke Schroeder, PhD

Adjunct Assistant Professor

Erin R. Sanders, PhD

Scope and Objectives

Microbiology at UCLA is a diverse science that includes bacteriology, virology, immunology, genetics, molecular biology, and the study of single cells. The science has its roots in the fundamental human needs of health, nutrition, and environmental control, and it provides opportunities for study in the basic biological fields of genetics and cellular and molecular biology.

Undergraduate students majoring in the Department of Microbiology, Immunology, and Molecular Genetics prepare for careers in biomedical research, medicine, dentistry, or other health professions, biotechnology and genetic engineering, industrial microbiology, agricultural or environmental sciences, public health, and law or bioethics, among others. The courses presented by the department lead to a Bachelor of Science degree and depend heavily on preparation in the biological sciences, chemistry, physics, and mathematics.

The graduate program emphasizes the areas of molecular genetics, cell biology, immunology, cell and virus structure and morphogenesis, animal virology, general bacteriology and physiology, host/parasite relationships, medical microbiology, microbial genetics, microbial pathogenesis, and recombinant DNA research. Students are prepared for creative research careers in all of these fields. The objective of the department is to provide breadth in microbiology, immunology, and molecular genetics at the undergraduate level and depth and training in independent study and research for graduate students.

Undergraduate Study**Microbiology, Immunology, and Molecular Genetics BS****Microbiology, Immunology, and Molecular Genetics Premajor**

While students are completing the preparation courses for the major, they are classified as Microbiology, Immunology, and Molecular Genetics premajors.

Preparation for the Major**Life Sciences Core Curriculum**

Required: Chemistry and Biochemistry 14A, 14B, 14BL, 14C, and 14D, or 20A, 20B, 20L, 30A, 30AL, and 30B; Mathematics 3A, 3B, 3C, and Statistics 13, or 31A, 31B, 32A, and Statistics 13, or Life Sciences 30A, 30B, and

Statistics 13; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

Students must also complete one of two life sciences sequences—either Life Sciences 1, 2, 3, 4, and 23L OR 7A, 7B, 7C, 23L, and 107. They may not substitute courses in either sequence.

Each core curriculum course must be passed with a grade of C- or better, and all courses must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade of D or lower in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants to the Microbiology, Immunology, and Molecular Genetics major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2 OR 7A, 7B, and 7C, one year of calculus, one year of general chemistry with laboratory for majors, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

Students intending to major in Microbiology, Immunology, and Molecular Genetics may seek counseling and petition to enter the major in the Student Affairs Office, 1602B Molecular Sciences.

The Major

Two plans are offered by the department:

Plan I—Research Immersion Laboratory

Required: (1) Three foundation courses: Chemistry and Biochemistry 153A, Microbiology, Immunology, and Molecular Genetics 101, 185A, (2) two courses from one of the following groups: (a) Microbiology, Immunology, and Molecular Genetics 103AL and 103BL or (b) 109AL and 109BL, (3) three focus elective courses selected from Chemistry and Biochemistry 153L, Microbiology, Immunology, and Molecular Genetics 102, 105, 106, 107, 132, CM156, 158, 168, CM256, Molecular, Cell, and Developmental Biology 138, 165A, and (4) at least 12 units of general elective courses selected from any course under item 3 above, Biostatistics 100A, Chemistry and Biochemistry 103, 110A, M117, 136, C140, 153B, 153C, 156, CM160A, C161A, 171, 172, C179, C181, Ecology and Evolutionary Biology 121, 135, 137, 162, Epidemiology 100, Human Genetics C144, Microbiology, Immunology, and Molecular Genetics C122, 174, 191H, 198C, 199 (may be taken twice), Molecular, Cell, and Developmental Biology 100, 104AL, 138, M140, C141, 143, 144, 165A, 168, 172, 187AL, Neuroscience M101A, M101B, M101C.

No more than 8 units of course 199 or a combination of 198C and 199 may be applied toward the general electives under Plan I.

Plan II—Advanced Independent Research

Required: (1) Three foundation courses: Chemistry and Biochemistry 153A, Microbiology, Immunology, and Molecular Genetics 101, 185A, (2) Microbiology, Immunology, and Molecular Genetics 196A, 196B or Molecular, Cell, and Developmental Biology 196A, 196B, (3) Microbiology, Immunology, and Molecular Genetics 180A, 180B or Molecular, Cell, and Developmental Biology 180A, 180B, (4) three focus elective courses selected from Chemistry and Biochemistry 153L, Microbiology, Immunology, and Molecular Genetics 102, 105, 106, 107, 132, CM156, 158, 168, CM256, Molecular, Cell, and Developmental Biology 138, 165A, and (5) at least 8 units of general elective courses selected from any course under item 3 above, Biostatistics 100A, Chemistry and Biochemistry 103, 110A, M117, 136, C140, 153B, 153C, 156, CM160A, C161A, 171, 172, C179, C181, Ecology and Evolutionary Biology 121, 135, 137, 162, Epidemiology 100, Human Genetics C144, Microbiology, Immunology, and Molecular Genetics 103AL, 103BL, 109AL, 109BL, C122, 174, 191H, 198C, 199, Molecular, Cell, and Developmental Biology 100, 104AL, 138, M140, C141, 143, 144, 165A, 168, 172, 187AL, Neuroscience M101A, M101B, M101C.

No more than 4 units of course 198C or 199 may be applied toward the general electives under Plan II.

Plan II requires submission and approval of an admissions application. Detailed information may be obtained at the Student Affairs Office, 1602B Molecular Sciences,

Each major course must be taken for a letter grade of C- or better, and students must have a minimum overall grade-point average of 2.0 or better in the major. Students receiving a grade of D or below in two major courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Honors Program

Overall grade-point averages of 3.2 and 3.5 in the preparation for the major and major respectively are required to apply for departmental honors. In addition students must have junior standing and the sponsorship of a faculty adviser from the department. The core of the program consists of Microbiology, Immunology, and Molecular Genetics 198A, 198B, and 198C research, culminating in a thesis. If the thesis is accepted by the honors committee and students complete all major requirements with a GPA of at least 3.5, they are awarded the bachelor's degree with departmental honors. The department also offers an honors seminar course each winter quarter that is required for the honors program. For further information, contact the Student Affairs Office, 1602B Molecular Sciences.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Microbiology, Immunology, and Molecular Genetics offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Microbiology, Immunology, and Molecular Genetics. Applicants interested in studying with faculty in the department are encouraged to apply to an appropriate home area in Graduate Programs in Bioscience. See <http://bioscience.ucla.edu>.

Microbiology, Immunology, and Molecular Genetics

Lower Division Courses

5. Science of Memory and Learning. (4) Lecture, seven hours. Nature of intelligence, overview of brain structure, study of memory systems, including memory retrieval, context of memories with emotion, sleep, and memory. Survey of metacognition and performance of learning. Offered in summer only. P/NP or letter grading.

6. Microbiology for Nonmajors. (4) Lecture, four hours. Not open for credit to students with credit for course 101. Designed for nonscience students; introduction to biology of microorganisms (bacteria, viruses, protozoa, algae, fungi), their significance as model systems for understanding fundamental cellular processes, and their role in human affairs. P/NP or letter grading.

10. Medical Microbiology for Nursing Students. (4) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 30A or 30B or Mathematics 3A or 31A. Limited to Nursing majors. Introduction to biology of microbial pathogens, their role in development of human immune response, and presentation of symptoms and disease caused by microbial infections. Letter grading.

15. Nanoscale Microscopy Laboratory. (2) Lecture, 26 hours; laboratory, nine hours. Recommended requisites: high school biology, chemistry, and physics. Designed as one-week summer course for high school students. Exploratory introduction to three key microscopy techniques for nanoscience research: fluorescence microscopy, scanning probe microscopy, and electron microscopy. Nanoscience is umbrella term that encompasses one diverse interdisciplinary branch of modern science research, including molecular sciences, biotechnology, material science, chemistry, biochemistry, and various fields of engineering. Offered in summer only. P/NP grading.

Upper Division Courses

100L. Microbiology Laboratory for Professional Schools. (3) Lecture, two hours; laboratory, three hours. Requisites: Life Sciences 3, 4, with grades of C- or better. Recommended corequisite: course 101. Limited to nonmajors. Experimental techniques of microbiology, with emphasis on cultivation and characterization of bacteria. Laboratory exercises include light microscopy, quantitative techniques, and identification methods. Students learn to work effectively in groups to perform experiments, record observations, and analyze results. Letter grading.

101. Introductory Microbiology. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Historical foundations of microbiology; introduction to bacterial structure, physiology, biochemistry, genetics, and ecology. Letter grading.

102. Introductory Virology. (4) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 3 with grade of C- or better. Biological properties of bacterial and animal viruses, replication, methods of detection, interactions with host cells and multicellular hosts. Letter grading.

103AL. Research Immersion Laboratory in Virology. (5) Lecture, two and one half hours; laboratory, eight hours. Requisites: Life Sciences 3, 4, 23L. Recommended requisite or corequisite: course 101. Course 103AL is enforced requisite to 103BL. Limited to Microbiology, Immunology, and Molecular Genetics premajors and majors and Molecular, Cell, and Developmental Biology majors. Research-oriented laboratory experience designed to promote discovery of novel microorganisms. Working in teams, students conduct research projects that incorporate techniques in microbiology and molecular biology and involve use of bioinformatics tools and phylogenetics software for data analysis. Emphasis on reading and understanding scientific literature as well as improving critical thinking skills such as ability to create and evaluate hypotheses or experimentally address scientific questions. Critical aspects of research process, including record keeping, ethics, laboratory safety and citizenry, mechanics of scientific writing, and project responsibilities and ownership. Letter grading.

103BL. Advanced Research Analysis in Virology. (4) Laboratory, six hours. Enforced requisites: course 103AL, Statistics 13. Limited to Microbiology, Immunology, and Molecular Genetics premajors and majors. Designed to provide students authentic, discovery-based research experience in life sciences. Investigation to be primarily computational in nature whereby students use bioinformatics or mathematical modeling software to interpret, expand, or refine datasets. Use of graphics software to prepare figures and illustrations for presentations, posters, reports, and websites (database entries). Research accomplishments discussed in weekly seminar-style meetings in which student groups create PowerPoint slides and formally present results to class. Production of team poster and final report describing entire research project required. Letter grading.

105. Biological Microscopy. (4) Lecture, four hours; laboratory, three hours (five weeks only). Requisite or corequisite: Physics 1C or 6C. Introduction to modern microscopy technologies used in biochemistry, medicine, microbiology, and nano research. Basic image formation principles of microscopy, methods for sample preparation, imaging, data acquisitions, and three-dimensional reconstruction and visualization. Fluorescence, confocal, and super-resolution light microscopy; transmission electron microscopy, electron tomography, and three-dimensional cryo-electron microscopy; and atomic force and other scanning probe microscopy modalities. Practical experience in research provided through five carefully designed electron microscopy laboratory modules. P/NP or letter grading.

106. Molecular and Genetic Basis of Bacterial Infections. (4) Lecture, three hours; discussion, one hour. Requisite: course 101. Biochemical and genetic properties of bacteria that afford potential for pathogenicity. Epidemiology and transmission of disease; chemotherapy and drug resistance. Regulation of virulence factors. Letter grading.

107. Viral Pathogenesis. (4) Lecture, three hours; discussion, one hour. Requisites: course 185A, Chemistry 153A. Viral pathogens that infect mammals. Viral entry into and replication in host cells. Host response and host/virus interaction. Pathogenic manifestations exhibited during viral infections. Letter grading.

109AL. Research Immersion Laboratory in Microbiology. (5) Lecture, three hours; laboratory, eight hours. Requisites: Life Sciences 3, 4, 23L. Recommended requisite or corequisite: course 101. Course

109AL is enforced requisite to 109BL. Limited to Microbiology, Immunology, and Molecular Genetics premajors and majors and Molecular, Cell, and Developmental Biology majors. Research-oriented laboratory experience designed to promote discovery of novel microorganisms. Working in teams, students conduct research projects that incorporate techniques in microbiology and molecular biology and involve use of bioinformatics tools and phylogenetics software for data analysis. Emphasis on reading and understanding scientific literature as well as improving critical thinking skills such as ability to create and evaluate hypotheses or experimentally address scientific questions. Critical aspects of research process, including record keeping, ethics, laboratory safety and citizenry, mechanics of scientific writing, and project responsibilities and ownership. Letter grading.

109BL. Advanced Research Analysis in Microbiology. (4) Laboratory, six hours. Enforced requisites: course 109AL, Statistics 13. Limited to Microbiology, Immunology, and Molecular Genetics premajors and majors. Designed to provide students authentic, discovery-based research experience in life sciences. Investigation to be primarily computational in nature whereby students use bioinformatics or mathematical modeling software to interpret, expand, or refine datasets. Use of graphics software to prepare figures and illustrations for presentations, posters, reports, and websites (database entries). Research accomplishments discussed in weekly seminar-style meetings in which student groups create PowerPoint slides and formally present results to class. Production of team poster and final report describing entire research project required. Letter grading.

C122. Mouse Molecular Genetics. (2) (Formerly numbered CM122.) Seminar, two hours. Enforced requisite: Life Sciences 4. Designed for students doing research with mice. During past 25 years, molecular revolution has greatly increased power and scope of mouse genetics, and today mouse is primary experimental model in virtually all fields of biology and biomedicine. Seminar forum for in-depth discussion of tools and technologies of mouse genetics and their application to functional genomics, complex traits, stem cell biology, developmental biology, epigenetics, and genetic dissection of diseases. Concurrently scheduled with course C222. P/NP or letter grading.

123. Advanced Annotation and Comparative Genomics. (4) Lecture, two and one half hours; computer laboratory, six hours. Requisite: course 103AL or Molecular, Cell, and Developmental Biology 187AL with grade of B- or better. Participation in discovery-based research experience, working as research team to analyze microbial genomes using bioinformatics techniques involving variety of online databases. Investigation of cellular pathways and structures as means to discover novel genes and unusual variations in classical systems. Results of high-quality annotation efforts may lead to publication in peer-reviewed science journal. Part of DOE Joint Genome Institute Undergraduate Research in Microbial Genome Annotation education program. Offered in summer only. Letter grading.

132. Cell Biology of Nucleus. (4) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4. Cell biology of eukaryotic nucleus, including principles of chromosome structure, transcription, RNA processing, nuclear-cytoplasmic transport, and cell cycle control. Letter grading.

C134. Ethics and Accountability in Biomedical Research. (2) Seminar, two hours. Designed for graduate students and undergraduates who have credit for life sciences or biomedical individual studies 199 course. Responsibilities and ethical conduct of investigators in research, data management, mentorship, grant applications, and publications. Responsibilities to peers, sponsoring institutions, and society. Conflicts of interest, disclosure, animal subject welfare, human subject protection, and areas in which investigational goals and certain societal values may conflict. Concurrently scheduled with course C234. P/NP grading.

CM156. Human Genetics and Genomics. (5) (Same as Molecular, Cell, and Developmental Biology CM156.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4, 23L. Application of genetic principles in human populations, with emphasis on genomics, family studies, positional cloning, Mendelian and common diseases, cancer genetics, animal models, cytogenetics, pharmacogenetics, population genetics, and genetic counseling. Lectures and readings in literature, with focus on current questions in fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM256. Letter grading.

158. Microbial Genomics. (4) Lecture, three hours; discussion, one hour. Requisites: course 101, Chemistry 153A. Evolution, biodiversity, and sequencing of genomes; bacterial and viral genomes; bioenergetics; gene knockouts; genomics of antibiotic resistance; proteomics. Guest lecturers from department and related departments who discuss key papers with focus on their areas of expertise. Letter grading.

168. Molecular Parasitology. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Survey of parasitic protozoa not only as parasites that interact with host, but also as model systems for analysis of basic biological phenomena such as gene regulation, molecular development, cell-cell interactions, molecular evolution, and novel biochemical pathways. Letter grading.

174. Advanced Topics in Molecular Parasitology. (2) (Formerly numbered C174.) Lecture, two hours. Requisites: course 168, Life Sciences 3, 4. Examination of recent advances in molecular biology of parasites and host/parasite relationship. Specific topics include parasite development, antigenic variation in trypanosomes, RNA editing, prospects for parasitic vaccines. Letter grading.

180A. Scientific Analysis and Communication I. (2) Seminar, two hours. Enforced corequisite: course 196A. Students read and discuss scientific articles and give presentations, introducing research topics using relevant primary literature. Critical aspects of research process, including record keeping, ethics, laboratory safety and citizenry, mechanics of scientific writing, diverse approaches to research, and project responsibilities and ownership. Acquisition of in-depth and broad knowledge about student research projects, improvement of oral and written communication skills, and full appreciation of process of doing good science and becoming skilled researchers. Letter grading.

180B. Scientific Analysis and Communication II. (2) Seminar, two hours. Enforced requisites: course 180A, Statistics 13. Enforced corequisite: course 196B. Students give presentations similar to laboratory meeting or research symposium talk in which speakers discuss project goals, methodological approaches, results, and conclusions. How to write research papers as well as prepare and present scientific posters. Production of deliverables that demonstrate research achievements and creation of sense of pride for work accomplished as skilled researchers. Letter grading.

185A. Immunology. (5) Lecture, three hours; discussion, 90 minutes. Enforced requisites: Chemistry 153A, Life Sciences 3, 4, 23L. Not open for credit to students with credit for course 261. Introduction to experimental immunobiology and immunochemistry; cellular and molecular aspects of humoral and cellular immune reactions. Letter grading.

188A. Special Courses in Microbiology, Immunology, and Molecular Genetics. (4) (Formerly numbered 188.) Seminar, four hours. Enforced requisites: Life Sciences 3, 4. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

188B. Special Courses in Microbiology, Immunology, and Molecular Genetics. (2) Seminar, two hours. Enforced requisite: Life Sciences 3. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. Letter grading.

191H. Honors Research Seminars: Microbiology, Immunology, and Molecular Genetics. (2) Seminar, two hours. Requisite or corequisite: course 198A or 198B or 198C. Limited to senior microbiology, immunology, and molecular genetics honors program students. Discussion of current research literature, with focus on thesis topics/areas that students are working on as part of departmental honors requirements. One-hour presentation of student thesis research and current literature associated with it required. May be repeated for credit. Letter grading.

192. Undergraduate Practicum in Microbiology, Immunology, and Molecular Genetics. (2) Seminar, six hours. Limited to junior/senior departmental majors. Training and supervised practicum for advanced undergraduate students. Students assist in preparation of materials and development of innovative programs under guidance of faculty members in small course settings. Consult Student Affairs Office for further information. May not be applied toward course requirements for departmental majors. May be repeated for credit. P/NP or letter grading.

193A. Journal Club Seminars: Microbiology, Immunology, and Molecular Genetics. (1) Seminar, one hour. Limited to undergraduate students. Discussion of readings selected from current literature in microbiology, immunology, and molecular genetics field. P/NP grading.

193B. Journal Club Seminars: Microbiology, Immunology, and Molecular Genetics. (1) Seminar, one hour. Limited to undergraduate students. Discussion of readings selected from current literature in microbiology, immunology, and molecular genetics. Letter grading.

194A. Research Group Seminars: Microbiology, Immunology, and Molecular Genetics. (1) Seminar, one hour. Designed for undergraduate students who are part of research group in department faculty laboratory. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP grading.

194B. Research Group Seminars: UC LEADS and NIH/MARC. (2) Seminar, two hours. Limited to students in UC LEADS and NIH/MARC programs. Analysis, review, and critique of current papers in biomedical sciences disciplines, using skills necessary for effective oral communication and effective use of software such as PowerPoint for oral presentations. May be repeated for credit. Letter grading.

196A. Research Apprenticeship I in Microbiology, Immunology, and Molecular Genetics. (4) (Formerly numbered 199A.) Tutorial, 12 hours. Enforced requisites: Life Sciences 3, 4, 23L, 3.0 premajor and/or major grade-point average, and at least one term of prior experience in same laboratory in which 196A research is to be conducted. Enforced corequisite: course 180A. Course 196A is enforced requisite to 196B. Designed for undergraduate students who are interested in pursuing inquiry-based and hypothesis-driven research experience in laboratory of departmental faculty mentor. Guided research course to be taken in conjunction with course 180A, followed by continuation research course 196B. Technical aspects vary depending on specific laboratory; however, all students learn how to apply scientific method: propose hypothesis, identify experiments to address hypothesis, perform experiments, and analyze results. How to record information from experimental activities into laboratory notebooks and to write research proposals. Letter grading.

196B. Research Apprenticeship II in Microbiology, Immunology, and Molecular Genetics. (4) (Formerly numbered 199B.) Tutorial, 12 hours. Enforced requisite: course 196A. Enforced corequisite: course 180B. Expansion of scope, increasing depth, and implementation of independence in research to be performed in same laboratory as course 196A to facilitate learning

and implementation of goals stated previously. Technical aspects vary depending on specific laboratory; however, all students use scientific method learned in course 196A and continue same experimental scope proposed, but with additional degree of independence in technical and intellectual aspects of research. Letter grading.

197. Individual Studies in Microbiology, Immunology, and Molecular Genetics. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198A-198B-198C. Honors Research in Microbiology, Immunology, and Molecular Genetics. (4-4-4) Tutorial, 12 hours. Course 198A is requisite to 198B, which is requisite to 198C. Limited to junior/senior microbiology, immunology, and molecular genetics honors program students. Directed individual research for departmental honors; students must have faculty sponsor. Progress report must be submitted to faculty sponsor at end of each of first two terms, with honors thesis submitted at end of final term. Maximum of 8 units may be applied toward major, with balance applied toward BS degree requirements. Individual contract required. Letter grading.

199. Directed Research in Microbiology, Immunology, and Molecular Genetics. (4) Tutorial, 12 hours. Preparation: minimum 2.5 grade-point average in premajor and major. Supervised individual research project under guidance of departmental faculty mentor. Copy of report describing research must be filed with Student Affairs Office by end of term. May be repeated for credit. Individual contract required. Letter grading.

Graduate Courses

C222. Mouse Molecular Genetics. (2) (Formerly numbered CM222.) Seminar, two hours. Enforced requisite: Life Sciences 4. Designed for students doing research with mice. During past 25 years, molecular revolution has greatly increased power and scope of mouse genetics, and today mouse is primary experimental model in virtually all fields of biology and biomedicine. Seminar forum for in-depth discussion of tools and technologies of mouse genetics and their application to functional genomics, complex traits, stem cell biology, developmental biology, epigenetics, and genetic dissection of diseases. Concurrently scheduled with course C122. S/U or letter grading.

M229. Molecular Mechanisms of Host/Pathogen Interaction. (4) (Same as Pathology M229.) Lecture, two hours; discussion, two hours. Requisites: Biological Chemistry 254A through 254D. Molecular mechanisms of microbial interactions with eukaryotic host cells that result in disease or pathogen survival. Topics include pathogenesis of common viruses, bacteria, fungi, and parasites, basis of toxin-mediated cellular damage, and immune suppression of microbial tissue damage. Letter grading.

C234. Ethics and Accountability in Biomedical Research. (2) Seminar, two hours. Designed for graduate students and undergraduates who have credit for life sciences or biomedical individual studies 199 course. Responsibilities and ethical conduct of investigators in research, data management, mentorship, grant applications, and publications. Responsibilities to peers, sponsoring institutions, and society. Conflicts of interest, disclosure, animal subject welfare, human subject protection, and areas in which investigational goals and certain societal values may conflict. Concurrently scheduled with course C134. S/U grading.

CM256. Human Genetics and Genomics. (5) (Same as Molecular, Cell, and Developmental Biology CM256.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4, 23L. Application of genetic principles in human populations, with emphasis on genomics, family studies, positional cloning, Mendelian and common diseases, cancer genetics, an-

imal models, cytogenetics, pharmacogenetics, population genetics, and genetic counseling. Lectures and readings in literature, with focus on current questions in fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM156. Independent research project required of graduate students. Letter grading.

261. Molecular and Cellular Immunology. (4) Lecture, four hours. Strongly recommended requisites: Molecular Biology 254A through 254D. Limited to graduate students. Comprehensive course for graduate students and selected undergraduate students covering fundamentals and recent advances in molecular and cellular immunology. Oral presentation required. S/U or letter grading.

262A-262B-262C. Seminars: Current Topics in Immunobiology of Cancer. (2-2-2) Seminar, two hours. Designed for graduate students (or undergraduate students with consent of instructor). Review of recent literature in immunology, biology, and biochemistry of cancer, with emphasis on fundamental studies involving cell-mediated immunity, humoral response, tumor specific antigens, and new techniques. Discussion of reports on scientific meetings. Each course may be repeated for credit. S/U or letter grading.

296. Seminar: Research Topics in Microbiology, Immunology, and Molecular Genetics. (1 to 4) Seminar, two hours; research group meeting, one hour. Limited to departmental graduate students. Advanced study and analysis of current topics in microbiology, immunology, and molecular genetics. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

298. Current Topics in Microbiology, Immunology, and Molecular Genetics. (2) Seminar, two hours. Presentation of student oral critiques and participation in discussions on assigned topics. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495A. Preparation for Teaching Microbiology in Higher Education I. (2) (Formerly numbered 495.) Seminar, two hours. Designed for graduate students. Study of problems and methodologies in teaching microbiology, including workshops, seminars, apprentice teaching, and peer observation. S/U grading.

495B. Preparation for Teaching Microbiology in Higher Education II. (1) Seminar, one hour. Requisite or corequisite: course 495A. Designed for first-time teaching assistants and to be taken in term in which they teach. In odd weeks, discussion of developments in student classes, with instruction on digital pedagogy and evaluation of student teaching. In even weeks, participation in online discussion forum case studies. S/U grading.

596. Directed Individual Research. (2 to 12) Tutorial, to be arranged. S/U grading.

598. Research for MS Thesis. (2 to 12) Tutorial, to be arranged. S/U grading.

599. Research for PhD Dissertation. (2 to 12) Tutorial, to be arranged. S/U grading.

MOLECULAR AND MEDICAL PHARMACOLOGY

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John C. Mazzuotta, MD, PhD (*Frances Stark Professor of Neurology*)
William P. Melega, PhD, *in Residence*
Paul Mischel, MD
Michael E. Phelps, PhD (*Norton Simon Professor of Biophysics*)
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Anna M. Wu, PhD
Lily Wu, MD, PhD

Professors Emeriti

Jorge R. Barrio, PhD
Arthur K. Cho, PhD
Matthew E. Conolly, MD
Harvey R. Herschman, PhD (*Crump Professor Emeritus of Medical Engineering*)
Sung-Cheng (Henry) Huang, DSc
Louis J. Ignarro, PhD (*Nobel laureate, Jerome J. Belzer Professor Emeritus of Medical Research*)
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Nagichettiar Satyamurthy, PhD
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Ting-Ting Wu, PhD, *in Residence*

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Peter M. Clark, PhD
Pei Y. Keng, PhD
Huiying Li, PhD
Jennifer M. Murphy, PhD
David A. Nathanson, PhD
Saman Sadeghi, PhD, *in Residence*

Adjunct Professors

James R. Heath, PhD
Meisheng Jiang, PhD
Noriyuki Kasahara, MD, PhD
Jide Tian, MD
Hong Wu, MD, PhD

Adjunct Associate Professors

Wei Chen, MD, PhD
Robert D. Damoiseaux, PhD
Joy A. Umbach, PhD

Adjunct Assistant Professors

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Roy Doumani, JD
Nikolai M. Evdokimov, PhD
Umesh Gangadhamath, PhD
Jason T. Lee, PhD
Jennifer T. McCaney, PhD
Tove Olafsen, PhD
Roger J. Slavik, PhD
Ratan N. Tata
Wei Wei, PhD

Scope and Objectives

The Department of Molecular and Medical Pharmacology provides an opportunity for gifted students to work with accomplished faculty members toward making novel discoveries in basic and clinical research.

Departmental research interests span a broad range of studies by integrating biological, physical, engineering, and medical sciences to explore mechanisms of disease in biological systems from *in silico* through a single cell to the whole organism level, while encompassing patient studies. Faculty members strive to understand basic biological systems and disease states and, where appropriate, to use these observations to develop both new molecular diagnostic technologies and new molecular therapeutics.

With the department as home to the Crump Institute for Molecular Imaging and the Ahmanson Translational Imaging Division with its nuclear medicine and positron emission tomography (PET) imaging research and clinical service, students have access to both state-of-the-art science and technology and the opportunity to make a direct impact on patient care. In addition, the department is home to the Business of Science Center. This program provides education, experience, and industry mentorship to graduate students in the department and in other academic programs to prepare them for professional careers.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA

MIDDLE EASTERN AND NORTH AFRICAN STUDIES

See African and Middle Eastern Studies under International and Area Studies

Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Molecular and Medical Pharmacology offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Molecular and Medical Pharmacology but does not admit applicants who seek only an MS degree.

The department also offers two MD/PhD programs concurrently with the Geffen School of Medicine. One is the Medical Scientist Training Program (MSTP) in which candidates are medical students that have been accepted into MSTP by the School of Medicine in order to qualify. The second is the Specialty Training and Advanced Research (STAR) Program in which candidates are post-MD housestaff (interns, residents, or fellows) who have been accepted into the STAR Program by its selection committee in order to qualify.

The department, together with the Division of Laboratory Animal Medicine, offers PhD or postdoctoral training combined with residency training for veterinarians (with DVM or DVM/PhD degrees) in the Veterinary Investigator in Scientific Training and Advancement (VISTA) program.

Note: There is no degree program in pharmacy at UCLA.

Molecular and Medical Pharmacology

Upper Division Courses

M110A. Drugs: Mechanisms, Uses, and Misuse. (4) (Same as Molecular Toxicology M110A.) Lecture, four hours (seven weeks); discussion, four hours (three weeks). Requirements: Life Sciences 2, 3. Course M110A is requisite to 110B. Introduction to pharmacology and toxicology for undergraduate students, emphasizing drug development and mechanisms of action of drugs and toxic agents. Letter grading.

110B. Drugs: Mechanisms, Uses, and Misuse. (4) Lecture, four hours (seven weeks); discussion, four hours (three weeks). Requirements: course M110A, Life Sciences 2, 3. Introduction to pharmacology for undergraduate students, emphasizing principles underlying mechanism of action of drugs, their development, control, rational use, and misuse. Letter grading.

194. Group Seminars and Discussions: Cross-Disciplinary Scholars in Science and Technology Project. (4) Seminar, two hours; discussion, two hours. Limited to Cross-Disciplinary Scholars in Science and Technology (CSST) students. Communication and collaboration skills, specifically in interdisciplinary settings and introduction to research project design and proposal process. Students submit written CSST project proposal and give oral presentations of scientific proposals. May be repeated for credit. Letter grading.

199. Directed Research in Molecular and Medical Pharmacology. (2 to 8) Tutorial, three hours per week per unit. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Special studies in pharmacology, including either reading assignments or laboratory work or both, de-

signed for proper training of students. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Introduction to Laboratory Research. (8) Laboratory, eight to 20 hours. Individual projects in laboratory research for beginning graduate students. At end of each term students submit to their supervisor reports covering research performed. Pharmacology graduate students must take this course three times during their first two years in residence. Letter grading.

203. Medical Pharmacology. (2) Lecture, zero to two hours; discussion, zero to two hours. Requirements: courses 211A, 211B. Series of lectures and case presentations designed to illustrate principles of pharmacology in a clinical context, and solution of practical therapeutics by reference to pharmacokinetics, mechanisms of action, and disposition of drugs. S/U or letter grading.

M205A. Introduction to Chemistry of Biology. (4) (Same as Chemistry CM205A.) Lecture, three hours; discussion, one hour. Enforced requisite: Chemistry 153A with grade of C- or better. Introduction to chemical biology. Topics include computational chemical biology, utility of synthesis in biochemical research, peptidomimetics, designed reagents for cellular imaging, natural product biosynthesis, protein engineering and directed evolution, cell biology of metal ions, imaging metal ions in cells, metal-containing drugs. Letter grading.

M205B. Issues on Chemistry/Biology Interface. (2) (Same as Chemistry M205B.) Seminar, one hour. Requirement: course M205A. Selected talks and papers presented by training faculty on solving problems and utilizing tools in chemistry and molecular biology on chemistry/biology interface (CBI). S/U grading.

211A-211B. Principles of Pharmacology. (4-2) Lecture, three to eight hours; discussion, zero to nine hours. Preparation: mammalian physiology, biochemistry. Systematic consideration of principles governing interaction between drugs and biological systems and of principal groups of drugs used in therapeutics. Particular attention on modes of action, pharmacokinetics, and disposition to provide a scientific basis for their rational use in medicine. S/U or letter grading.

212A-212B. Graduate Commentary: Medical Pharmacology. (2-2) Preparation: mammalian physiology, biochemistry. Supplementation of topics covered in course 203. Primarily for graduate students. S/U or letter grading.

234A-234B. Experimental Methods in Pharmacology. (2-2) Laboratory, three hours. Survey of experimental methods and instrumentation used in analysis, identification, and study of mechanisms of action of pharmacologically active compounds. S/U or letter grading.

M234C. Laboratory in Toxicological Methods. (2) (Same as Environmental Health Sciences M245 and Molecular Toxicology M245.) Lecture, one hour; laboratory, four to five hours. Survey of experimental techniques used in study of toxic substances. Experiments conducted within known toxin to demonstrate its effects at molecular, cellular, and tissue levels. Presentation of principles of techniques and methods of data analysis at discussion session prior to laboratory. Letter grading.

237. Research Frontiers in Cellular and Molecular Pharmacology. (6) Lecture, six hours; laboratory, five hours total. Detailed examination of principles of pharmacology and mechanisms of drug action at organismal, tissue, cellular, and molecular levels, with emphasis on receptors, receptor/effectector coupling, neurotransmitters, cardiovascular pharmacology, autonomic and central nervous system pharmacology. Letter grading.

M241. Introduction to Chemical Pharmacology and Toxicology. (6) (Same as Molecular Toxicology M241.) Lecture, six hours. Preparation: organic and biological chemistry. Designed for molecular and

medical pharmacology students. Introduction to general principles of pharmacology. Role of chemical properties of drugs in their distribution, metabolism, excretion, and modes of action. S/U or letter grading.

M248. Introduction to Biological Imaging. (4) (Same as Bioengineering M248 and Physics and Biology in Medicine M248.) Lecture, three hours; laboratory, one hour; outside study, seven hours. Exploration of role of biological imaging in modern biology and medicine, including imaging physics, instrumentation, image processing, and applications of imaging for range of modalities. Practical experience provided through series of imaging laboratories. Letter grading.

251. Seminar: Pharmacology. (2) Seminar, two hours. Required of all first- and second-year students. Presentation and discussion of graduate student research progress. Letter grading.

M252A. Molecular Mechanisms of Human Diseases I. (4) (Same as Molecular, Cellular, and Integrative Physiology M252A.) Lecture, four hours. Preparation: prior satisfactory molecular biology coursework. Corequisite: course M252B. Fundamental concepts and methodologies in modern biology, with emphasis on implications and relevance to human disease and integration of biology with mechanisms underlying disease development and applications in therapy as they apply to cancer biology, infectious disease, and modern biological approaches. Letter grading.

M252B. Seminar: Molecular Mechanisms of Human Diseases I. (2) (Same as Molecular, Cellular, and Integrative Physiology M252B.) Seminar, two hours. Corequisite: course M252A. Reading, review, and discussion of primary research literature addressing fundamental concepts and methodologies in modern biology, with particular emphasis on implications and relevance to human diseases of topics presented in course M252A. Letter grading.

M257. Introduction to Toxicology. (4) (Same as Pathology M257.) Requisite: course M241. Biochemical and systemic toxicology, basic mechanisms of toxicology, and interaction of toxic agents with specific organ systems. S/U or letter grading.

M258. Pathologic Changes in Toxicology. (4) (Same as Pathology M258.) Designed to give students experience in learning normal histology of tissues which are major targets of toxin and the range of pathologic changes that occur in these tissues (liver, bladder, lung, kidney, nervous system, and vascular system). S/U or letter grading.

261. Institute for Molecular Medicine Seminar Series: Analysis and Discussion. (2) Seminar, one hour. Corequisite: course 251. Limited to graduate students. In-depth evaluation of Institute for Molecular Medicine (IMED) Seminar speakers, with focus on scientific approach and rationale, experimental methods, novel and pioneering findings (past and present), relevant background information on speakers and their institute, and presentation style and communication strengths. Discussion on characteristics that define and shape leaders in given fields. Students host lunches with seminar speakers, lead discussions to deconstruct all aspects of seminar presentations, and submit write-ups for online Wiki-postings on seminar-specific scientific topics. S/U grading.

M262A. Molecular Mechanisms of Human Diseases II. (4) (Same as Molecular, Cellular, and Integrative Physiology M262A.) Lecture, four hours. Preparation: prior satisfactory molecular biology coursework. Corequisite: course M262B. Fundamental concepts and methodologies in modern biology, with emphasis on implications and relevance to human disease and integration of biology with mechanisms underlying disease development and applications in therapy as they apply to neurological, cardiovascular, and metabolic diseases. Letter grading.

M262B. Molecular Mechanisms of Human Diseases II. (2) (Same as Molecular, Cellular, and Integrative Physiology M262B.) Seminar, two hours. Corequisite: course M262A. Reading, review, and discussion of primary research literature addressing fundamental concepts and methodologies in modern biology, with

particular emphasis on implications and relevance to human diseases of topics presented in course M262A. Letter grading.

286. Business of Science: Exploring Entrepreneurship Seminar. (1) Seminar, one hour. Limited to graduate students. Further exploration of topics discussed in course 287, allowing students to interact with speakers and bring their individual concerns to table. Past and present students encouraged to enroll. S/U grading.

287. Business of Science. (2) Lecture, two hours. Designed for graduate students. (undergraduate students may enroll with consent of instructor). Introduction to principles of business and entrepreneurship in technology sectors. Basic business skills taught to effectively perform in commercial environment and within academic environment. Application of course material by performing feasibility studies that have potential to receive funding and become actual companies. Exploration of entrepreneurship, particularly formation and operation of new business ventures. Presentations by and questioning of successful technology entrepreneurs, identifying and evaluating new venture opportunities, development of financing, and entry and exit strategies. S/U or letter grading.

288. Gene Therapy. (4) Lecture, three hours; discussion, one hour. Introduction to basic concepts of gene therapy, wherein treatment of human disease is based on transfer of genetic material into an individual. Discussion of molecular basis of disease, gene delivery vectors, and animal models. Letter grading.

291. Special Topics in Pharmacology. (4) Lecture, four hours. Examination in depth of topics of current importance in pharmacology. Emphasis on recent contributions of special interest to advanced PhD candidates and faculty. Letter grading.

292. Research Projects, Proposals, and Presentations. (6) Lecture, four hours; discussion, four hours. Limited to departmental majors. Introduction to format and requirements of research proposals, so students can critically read primary papers and give formal scientific presentations, ask new questions, formulate new hypotheses, and construct research projects, understand balance of importance, novelty, and feasibility, and develop ability to think independently, creatively, and comprehensively. Letter grading.

293. Nitric Oxide Chemistry, Biochemistry, and Physiology. (2 or 4) Lecture, two or four hours. Basic chemistry, biochemistry, and physiology of nitric oxide and related species, with emphasis on understanding novel mechanisms of nitrogen oxide function as both a physiological and pathophysiological agent/messenger. S/U or letter grading.

298. Seminar: Current Topics in Molecular and Medical Pharmacology. (2) Limited to pharmacology, ACCESS program, and interdepartmental Molecular Biology PhD program students. Students conduct or participate in discussions on assigned topics. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Research in Pharmacology. (4 to 12) Tutorial, to be arranged. S/U or letter grading.

599. Research for and Preparation of PhD Dissertation. (4 to 12) Tutorial, to be arranged. S/U grading.

MOLECULAR BIOLOGY

*Interdepartmental Program
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Luisa M. Irueña-Arispe, PhD, Chair

Faculty Committee

Peter J. Bradley, PhD (*Microbiology, Immunology, and Molecular Genetics*)
Michael F. Carey, PhD (*Biological Chemistry*)
Feng Guo, PhD (*Biological Chemistry*)
Luisa M. Irueña-Arispe, PhD (*Molecular, Cell, and Developmental Biology*)
D. Leanne Jones, PhD (*Molecular, Cell, and Developmental Biology*)
William E. Lowry, PhD (*Molecular, Cell, and Developmental Biology*)

Scope and Objectives

The PhD in Molecular Biology is offered under the supervision of an interdepartmental committee. The Molecular Biology Institute serves this committee and the various departments concerned in support of faculty research and teaching associated with the PhD program. Staff members are from participating departments and from the Molecular Biology Institute. Areas for study include cell biology; developmental biology and neurobiology; nucleic acid biochemistry; gene regulation; immunobiology; microbiology/virology and pathogenesis; molecular evolution and paleobiology; oncogenes and signal transduction; plant molecular biology; protein and enzyme structure and function; genomics; bioinformatics; and structural biology.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Molecular Biology Program offers the Doctor of Philosophy (PhD) degree in Molecular Biology.

Molecular Biology

Graduate Courses

252. Writing for Science (1) Seminar, one hour. Corequisite: Biological Chemistry 251A or 251B or 251C. Limited to first-year Molecular Biology PhD students. Development of specific skills in scientific writing within context of one advanced course on mechanics of gene transcription. Letter grading.

254A-254D. Concepts in Molecular Biosciences. (3 each) (Formerly numbered Biological Chemistry 254A-254D.) Lecture, three hours; discussion, two hours. Letter grading:

254A. (3) (Formerly numbered Biological Chemistry 254A.) Lecture, three hours; discussion, two hours. Limited to human genetics and molecular biology graduate students. Five-week course covering four basic experimental approaches of biochemistry and molecular biology in context of various specific topics, including (1) structural biology, with protein and nucleic acid structure and molecular recognition, (2) use of cell-free and purified *in vitro* systems to dissect reaction mechanisms, (3) biochemical approaches to dissecting complex reactions/pathways in cells, and (4) enzymology and protein chemistry. Letter grading.

254B. (3) (Formerly numbered Biological Chemistry 254B.) Five-week course. Lecture, three hours; discussion, two hours. Enforced requisite: course 254A. Important biological problems that have been genetically analyzed in different organisms or small number of related problems. Major genetic approaches used in relevant organisms, including both forward and reverse genetic approaches, genetic interactions between genes (genetic enhancers and suppressors), transgenic technology, and systematic genomic strategies. Letter grading.

254C. (3) (Formerly numbered Biological Chemistry 254C.) Five-week course. Lecture, three hours; discussion, two hours. Enforced requisites: courses 254A, 254B. Molecular mechanisms underlying complex problems in cell biology. Experimental approaches used to define mechanisms involved in protein targeting, cell structure and subcellular organization, cell communication, and intracellular signaling. Analysis of pathways that connect these cellular processes. Letter grading.

254D. (3) (Formerly numbered Biological Chemistry 254D.) Five-week course. Lecture, three hours; discussion, two hours. Enforced requisites: courses 254A, 254B, 254C. Application of biochemical, molecular biological, genetic, and cell biological approaches to understand specialized topics in life and biomedical sciences, including developmental disease, stem cell biology, synaptic transmission in nervous system, cancer, and heart disease. Letter grading.

255. Scientific Writing. (3) Lecture, two hours; discussion, one hour. Limited to first-year Molecular Biology PhD students. Improvement of academic literacy through development of specific skills in scientific writing. Review of principles of effective writing using practical examples and exercises. Topics include principles of good writing, tricks for writing faster and with less anxiety, format of scientific manuscripts, art of editing, and issues in publication and peer review. Letter grading.

298. Current Topics in Molecular Biology. (2) Student presentation/seminar, two hours. Students present oral critiques and participate in discussions on assigned topics. S/U grading.

596. Directed Individual Studies. (2 to 12) Tutorial, to be arranged. Directed individual research or study. May be repeated for maximum of 12 units. S/U grading.

599. PhD Dissertation Research and Writing. (2 to 12) Tutorial, to be arranged. Directed individual studies for students who have advanced to candidacy. May be repeated for maximum of 12 units. S/U grading.

MOLECULAR, CELL, AND DEVELOPMENTAL BIOLOGY

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Utpal Banerjee, PhD, Chair

Professors

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Utpal Banerjee, PhD (*Irving and Jean Stone Endowed Professor of Life Science*)
Jau-Nian Chen, PhD
Amander T. Clark, PhD
Daniel H. Cohn, PhD
Robert B. Goldberg, PhD
Volker Hartenstein, PhD
Ann M. Hirsch, PhD
Luisa M. Iruela-Arispe, PhD
Steven E. Jacobsen, PhD
Tracy L. Johnson, PhD (*Maria Rowena Ross Term Professor of Cell Biology and Biochemistry*)
D. Leanne Jones, PhD
James A. Lake, PhD
Frank A. Laski, PhD
Chentao Lin, PhD
Shuo Lin, PhD
Jeffrey A. Long, PhD
William E. Lowry, PhD
Karen M. Lyons, PhD
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Professors Emeriti

William R. Clark, PhD
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Associate Professors

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Arjun Deb, MD
Atsushi Nakano, MD, PhD
Alvaro Sagasti, PhD

Assistant Professor

Jesse R. Zamudio, PhD

Lecturers

Tiffany T. Cvrkel, PhD
Pei-Yun Lee, PhD

Adjunct Professor

Nissim Benevisty, MD, PhD

Scope and Objectives

The revolution in modern biology that began with the elucidation of the structure of DNA by Watson and Crick in the 1950s has had a profound effect not only on biological research, but on the way biology is taught as a subject. The field of biology spawned by this discovery, generally called molecular biology, has provided an entirely new framework within which to approach questions in cell and developmental biology. The specializations, both technical and conceptual, demanded by this field have

led to the growth of molecular biology and its related disciplines into an essentially separate branch of scientific inquiry.

Students who complete the requirements for the Bachelor of Science degree in the Department of Molecular, Cell, and Developmental Biology are exceptionally well prepared to pursue careers in cellular and subcellular biological research, biomedical research, or medicine or allied health fields. The degree combines essential background studies in mathematics, chemistry, and physics with a general introduction to all of the biological subjects, as well as in-depth exposure to key topics in molecular, cell, and developmental biology. The PhD degree provides opportunity for advanced concentrated study and requires independent and innovative research that ultimately results in publishable dissertation materials.

Undergraduate Study

Molecular, Cell, and Developmental Biology BS

The Bachelor of Science degree in Molecular, Cell, and Developmental Biology (MCDB) is designed especially for students who intend to go on to postgraduate work in biology or medicine and for students aiming for entry-level positions in biotechnology-related fields. Students are exposed to basic biological and molecular concepts underlying recent technical advances in molecular, cell, and developmental biology of animals and plants. Areas of emphasis include cell biology, immunology, molecular biology, plant biology, developmental biology, and neurobiology, among others.

Preparation for the Major

Life Sciences Core Curriculum

Required: Chemistry and Biochemistry 14A, 14B, 14BL, 14C, and 14D, or 20A, 20B, 20L, 30A, 30AL, and 30B; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, or Life Sciences 30A, 30B, and Statistics 13; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

Students must also complete one of two life sciences sequences—either Life Sciences 1, 2, 3, 4, and 23L OR 7A, 7B, 7C, 23L, and 107. They may not substitute courses in either sequence.

Each core curriculum course must be passed with a grade of C- or better, and all courses must be completed with an overall grade-point average of 2.0 or better. Students receiving grades below C- in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants to the Molecular, Cell, and Developmental Biology major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2 OR 7A, 7B, and 7C, one year of calculus, one year of general chemistry with laboratory for

majors, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required Courses: Chemistry and Biochemistry 153A; one course from Molecular, Cell, and Developmental Biology 104AL, 150AL, 187AL, 198B, 198C, 199B, 199C, or Microbiology, Immunology, and Molecular Genetics 103AL; one developmental biology course from Molecular, Cell, and Developmental Biology 138 or C141; one cell biology course from M140 or 165A; and one molecular biology course from 144 or 165B.

Electives: At least 20 upper division elective units, of which at least 10 must be in courses offered by the department. Any upper division departmental course, except Molecular, Cell, and Developmental Biology 100, 190A, 190B, 190C, 192A, 192B, 193, 194A, or 199, may be selected. The following courses outside the department may be taken to satisfy a maximum of 10 units in this category: Biostatistics 100A or Statistics 100A, Chemistry and Biochemistry 153C, 153L, 154, 156, C159A, C159B, CM160A, Ecology and Evolutionary Biology 110, 121, 162, 162L, Human Genetics C144, Microbiology, Immunology, and Molecular Genetics 100L, 101, 102, 103AL, 105, 106, 158, 168, 174, 185A, Physiological Science C126, 166, Society and Genetics M102.

Credit for a maximum of two upper division developmental biology courses from Molecular, Cell, and Developmental Biology 138, C141, and 143 may be applied toward the major. Due to content overlap, students with credit for both courses 165A and 165B cannot receive major credit for course M140.

A maximum of 4 units of approved seminar course credit may be applied toward the electives requirement. A maximum of 12 units of Molecular, Cell, and Developmental Biology 198A through 198D or 199A through 199D may be applied toward the major. Credit for 199 courses from other departments may not be applied except by petition.

Any single course may be applied toward only one category within the major (e.g., course C141 may be applied toward the required or elective category but not toward both).

Each course applied toward requirements for preparation for the major and the major must be taken for a letter grade. Majors must earn a C- or better in each preparation for the major course, and at least a 2.0 (C) overall average in all courses applied toward the major.

Honors Program

Admission

The honors program provides exceptional Molecular, Cell, and Developmental Biology majors with the opportunity to do research culmi-

nating in an honors thesis. Junior and senior majors who have completed all university-level coursework, including all preparation courses and requirements for the major with an overall grade-point average of 3.0 or better and a 3.5 GPA or better in the required major courses, may apply for admission to the honors program. Students must have the sponsorship of an approved faculty adviser.

For further information and application forms, students should consult the Student Affairs Office, 128 Hershey Hall, early in their educational planning. Completed applications should be submitted at least two weeks prior to the term in which students plan to begin the honors program.

Requirements

The core of the program consists of at least one approved undergraduate seminar course from Molecular, Cell, and Developmental Biology 191 and three research courses (12 units minimum) from 198A, 198B, and 198C, culminating in a thesis.

To qualify for graduation with honors, students must satisfactorily complete all requirements for the honors program and the major and obtain at least an overall 3.0 grade-point average and a 3.5 GPA or better in coursework required for the major. On recommendation by the faculty sponsor and with approval of the thesis by the departmental honors committee, students are awarded no honors, departmental honors, or highest departmental honors.

At the discretion of the departmental honors committee, students who have (1) a GPA of 3.6 or better, both overall and in the major and (2) demonstrated exceptional accomplishment on the research thesis are awarded highest departmental honors.

Computing Specialization

Majors in Molecular, Cell, and Developmental Biology may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the major, (2) completing Program in Computing 10A, 10B, 10C, 30, and 60, and (3) completing one course from Computer Science CM186 or Ecology and Evolutionary Biology C159. A grade of C- or better is required in each course, with a combined grade-point average in the specialization of at least 2.0. Students must petition for admission to the program and are advised to do so after completing Program in Computing 10B (petitions should be filed in the Student Affairs Office). Students graduate with a bachelor's degree in their major and a specialization in Computing.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Molecular, Cell, and Developmental Biology offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Molecular, Cell, and Developmental Biology. Applicants interested in studying with faculty in the department are encouraged to apply to an appropriate home area in Graduate Programs in Bioscience. See <http://bioscience.ucla.edu>.

Molecular, Cell, and Developmental Biology

Lower Division Courses

30H. Collaborative Undergraduate Research Laboratory in Yeast, Genetics, and Molecular Biology. (5) Lecture, two hours; laboratory, six hours. Limited to 24 students in Collaborative Undergraduate Research Laboratory (CURL), sponsored by Howard Hughes Medical Institute Professors Program. Basic training in biological research, covering topics in molecular genetics, molecular biology, model organism biology, and data analysis. Letter grading.

40. AIDS and Other Sexually Transmitted Diseases. (5) Lecture, three hours; discussion, one hour; experiential service learning, one hour. Biology of HIV blended with socioeconomic problems associated with AIDS. Discussion of contemporary public health approaches to characterizing and addressing of HIV epidemics, as well as of other sexually transmitted diseases. P/NP or letter grading.

50. Stem Cell Biology, Politics, and Ethics: Teasing Apart Issues. (5) Lecture, three and one half hours; discussion, 90 minutes. Developmental biology of various types of human stem cells. Important functional differences between embryonic, hematopoietic, and adult stem cells, as well as differences in their biomedical potentials. Discussion of history of debate surrounding embryos, as well as various social, ethical, political, and economic aspects of stem cell research. P/NP or letter grading.

60. Biomedical Ethics. (5) Lecture, three hours; discussion, one hour. Examination of importance of ethics in research and exploration of how and why bioethics is relevant to reproductive screening, policy formation, public regulation, and law. Provides foundation in traditional ethics, consideration of subcategories of bioethics, neuroethics, and eugenics, and how to apply ethics to contemporary issues in research and technology. P/NP or letter grading.

70. Genetic Engineering and Society. (5) Lecture, four hours; discussion, one hour. Designed for non-majors. Not open to students with credit for Honors Collegium 70A or Life Sciences 3 or 4. Basic principles of genetic engineering. Overview of genetic engineering concepts and specific applications of genetic engineering to medicine, agriculture, law, and society. Emphasis on genetic engineering history and foundations to generate discussion on its use in society. P/NP or letter grading.

90. Human Stem Cells and Medicine. (5) Lecture, three and one half hours; discussion 90 minutes. Stem cells have potential to revolutionize way medicine is practiced today. Some stem cell therapies are already used successfully to treat thousands of people worldwide. Other stem cell therapies are considered experimental; therefore treatments must be monitored by Food and Drug Administration to ensure safety and efficacy. Some stem cell therapies are offered with minimal scientific justification, relying on hope and hype rather than scientific fact. Exploration of use of stem cells in modern medicine to take close look at science behind some of today's most famous and infamous stem cell medical applications. P/NP or letter grading.

Upper Division Courses

100. Introduction to Cell Biology. (5) Lecture, three hours; discussion, one hour. Enforced requisites: Life Sciences 3, 4, 23L. Enforced requisites or corequisite: Chemistry 153A. Not open for credit to Molecular, Cell, and Developmental Biology majors or to students with credit for course 165A. Analysis of cell organization, structure, and function at molecular level. Cell membranes and organelles, membrane transport, cellular signaling, cytoskeleton and cell movement, intracellular trafficking, cell energetics. Letter grading.

104AL. Research Immersion Laboratory in Developmental Biology. (5) (Formerly numbered 104.) Lecture, two hours; laboratory, eight hours. Enforced requisites: Life Sciences 3, 4, 23L. Course 104AL is enforced requisite to 104BL. Limited to Molecular, Cell, and Developmental Biology and Microbiology, Immunology, and Molecular Genetics majors. Discovery-based research using sea urchins as model system. Students determine expression of unstudied sea urchin genes using combination of molecular biology and computation techniques. May not be repeated for credit. Letter grading.

104BL. Advanced Research Analysis in Developmental Biology. (4) Laboratory, six hours. Enforced requisite: course 104AL. Limited to Molecular, Cell, and Developmental Biology and Microbiology, Immunology, and Molecular Genetics majors. Investigation to be primarily computational in nature whereby students use bioinformatics or mathematical modeling software to interpret, expand, or refine datasets. Use of graphics software to prepare figures and illustrations for presentations, posters, reports, and websites (database entries). Research accomplishments discussed in weekly seminar-style meetings in which student groups create PowerPoint slides and formally present results to class. Production of team poster and final report describing entire research project required. Letter grading.

120. Introduction to Plant Biology. (4) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4. Introduction to plant biology, as well as to concepts and techniques in molecular biology and genetics. Letter grading.

138. Developmental Biology. (5) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4, 23L. Development of understanding of fundamental molecular mechanisms and cellular activities guiding formation of complex organism from single fertilized egg. Development of model organisms to understand conserved nature of developmental decisions across animal kingdom, distinct features that lead to diversification of animal shape and form during evolution. Origin and roles of stem and progenitor cells in development and maintenance of specific organ systems. Roles of cell shape change, cell death, proliferation, and migration in generating shape of embryo, organs, and tissues. Mechanisms by which cells become different from and communicate with one another to coordinate their activities in time and space in embryo. Special emphasis on experimental approaches used to address these fundamental questions that determine how organized tissues and organs are formed and maintained throughout life of organism. Letter grading.

M140. Cancer Cell Biology. (5) (Same as Biological Chemistry M140.) Lecture, three hours; discussion, one hour. Requisite: course 165A. Cancer causes and genetics. Effects of cell transformation on cell growth and metabolism. Altered cell cycle, metabolism, and differentiation pathways in cancer cells. Tumor microenvironment contributions to cancer malignancy, including angiogenesis, metastasis, and immune system evasion. Letter grading.

C141. Molecular Basis of Plant Differentiation and Development. (5) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 3, 4, 23L. In-depth study of basic processes of growth differentiation and development in plants and molecular mechanisms underlying these processes. Discussion of variety of plant systems, with focus on developing crit-

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ical understanding of current experimental basis of research in this field. Concurrently scheduled with course C239. Letter grading.

142. Seminar: Topics in Developmental Biology. (2) Seminar, two hours. Requisite: course 138. Undergraduate seminar on topics in developmental biology. Reading and group discussions on current research. P/NP or letter grading.

143. Developmental Biology: Genetic Control of Organogenesis. (5) Lecture, three hours; discussion, one hour. Requisites: course 138, Life Sciences 3, 4, 23L. Cellular and molecular basis of animal embryology, with primary emphasis on vertebrate organ development, but including pertinent material from *Drosophila* and other invertebrate model organisms. Letter grading.

144. Molecular Biology of Cellular Processes. (5) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4, 23L. Not open for credit to students with credit for Chemistry 153B. Development of thorough understanding of fundamentals of modern molecular biology both from perspective of known molecular mechanisms for regulating fundamental processes in cells and from theoretical applied perspective for using molecular biology as laboratory tool. Special emphasis on molecular mechanisms that relate to chromatin and histone modifications, DNA replication and repair, transposition, microRNAs, meiosis, and splicing. Application of molecular biology as tool to understand embryonic development, reprogramming, cancer, and stem cells. Development of sophisticated understanding of DNA, RNA, and protein as well as capability of designing experiments to address fundamental questions in biology and interpreting experimental data. Letter grading.

C150. Plant Communication. (4) Lecture, three hours; discussion, one hour. Enforced requisites: Life Sciences 3, 4. Most people think of plants as static organisms, yet they live in world of symbiosis and community. Plants change atmosphere, enrich soil, and communicate with insects, bacteria, and each other—Earth's ultimate symbiont. Just as science has revealed over time misconceptions about how things work at deeper level, scientists and economists now recognize that beyond obvious need to grow above-ground biomass for fuel production, we must better understand how to make that biomass in sustainable manner. Introductory course in chemical ecology and how natural compounds affect gene expression. Emphasis on role of natural compounds in plant/microbe, plant/plant, and plant/herbivore interactions; synopsis of principles of plant defense mechanisms and responses to microbial infections. Concurrently scheduled with course C250. P/NP or letter grading.

150AL. Research Immersion Laboratory in Plant-Microbe Ecology. (5) Laboratory, four hours. Enforced requisite: course C150. Course 150AL is enforced requisite to 150BL. Limited to Molecular, Cell, and Developmental Biology and Microbiology, Immunology, and Molecular Genetics majors. Introductory plant biology laboratory to give students hands-on experience doing experiments and making their own observations about plant biology. Letter grading.

150BL. Advanced Research Investigations in Plant-Microbe Ecology. (4) Laboratory, six hours. Enforced requisites: courses C150, 150AL. Limited to Molecular, Cell, and Developmental Biology and Microbiology, Immunology, and Molecular Genetics majors. Analysis and presentation of data obtained in course 150AL. Investigation to be primarily computational in nature whereby students use bioinformatics or mathematical modeling software to interpret, expand, or refine datasets. Use of graphics software to prepare figures and illustrations for presentations, posters, and reports. Discussion of scientific method, research process, and how science relates to daily lives. Letter grading.

155. Molecular Genetic Methods. (4) Lecture, two hours; discussion, one hour; laboratory, six hours. Recommended preparation: course 104. Designed for and limited to Molecular, Cell, and Developmental Bi-

ology majors for priority pass and first pass. Gene mapping and detection and analysis of gene variants by means of inheritance patterns. Letter grading.

CM156. Human Genetics and Genomics. (5) (Same as Microbiology CM156.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4, 23L. Application of genetic principles in human populations, with emphasis on genomics, family studies, positional cloning, Mendelian and common diseases, cancer genetics, animal models, cytogenetics, pharmacogenetics, population genetics, and genetic counseling. Lectures and readings in literature, with focus on current questions in fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM256. Letter grading.

162. Genetic Control of Animal Behavior. (5) Lecture, three hours; discussion, one hour. Enforced requisites: Life Sciences 4, two upper division molecular, cell, and developmental biology or neuroscience courses. How do worms decide whether something smells good or bad? What happens to brain of fruit fly when it is exposed to alcohol? How does fish embryo decide whether to respond to touch by swimming leisurely or rapidly escaping? Behavior of animals, including humans, is controlled by ensembles of neurons that together form neural circuits. Understanding how these circuits function is unifying goal of neurobiology. Physiological techniques have been used in past to investigate logic of neural circuits. Scientists now ask how genes make neural circuits work and use variety of cutting-edge genetic and molecular techniques. Survey of recent primary literature that applies these approaches to three models: olfaction in nematode worms, alcohol-induced behavior in fruit flies, and motor responses in zebrafish. Letter grading.

165A. Biology of Cells. (5) Lecture, three hours; discussion, one hour. Requisites: Chemistry 14D or 30B, Life Sciences 3. Not open for credit to students with credit for course 100. Molecular basis of cellular structure and function, with focus on each individual cellular organelle, as well as interaction of cells with extracellular environment and with other cells. Material presented in context of experimental questions and answers to incorporate concept of scientific method and recent advances in cell biology research. Exposure in discussions to recent scientific articles that directly relate to information examined in lectures. Letter grading.

165B. Molecular Biology of Cell Nucleus. (5) Lecture, three hours; discussion, two hours. Requisites: course 165A, Chemistry 14D or 30B, Life Sciences 3, 4. Continuation of course 165A. Molecular biology of eukaryotic cell nucleus, with focus on structure, organization, replication, and repair of eukaryotic genome; eukaryotic gene expression, including transcription, translation, and transport; cell cycle and cancer. Study of advanced specialized topics to allow integrated approach to molecular cell biology. Material presented in context of experimental questions and answers to incorporate concept of scientific method and recent advances in cell biology research. Exposure in discussions to current literature that directly relates to information examined in lectures. Letter grading.

168. Stem Cell Biology. (5) Lecture, three hours; discussion, one hour. Enforced requisites: courses 138, 165A. Strongly recommended: courses 143, 165B (or Microbiology 132). State-of-art education of embryonic and adult stem cells and how these pluripotent/multipotent cells can be used to treat congenital defects, diseases, or injury in humans. Review of current knowledge of human and mouse embryonic stem cells and how they develop into various tissue types. Discussion of adult stem cells in hematopoietic, nervous, and other organ systems to provide examples of tissue-specific stem cells and their impact in human disease. Examination of various model organisms as examples of how model organisms have helped to discover fundamental principles in stem cell biology. How advances in cell and molecular biology

and tissue engineering can be applied to use of stem cells in regenerative medicine. Ethical and legal issues related to stem cell research. Letter grading.

M170. Biochemistry and Molecular Biology of Photosynthetic Apparatus. (2 to 4) (Same as Chemistry CM170.) Lecture, two to three hours; discussion, zero to two hours. Requisites: Chemistry 153A and 153B, or Life Sciences 3 and 23L, and Chemistry 153L. Recommended: Chemistry 153C, 154, Life Sciences 4. Light harvesting, photochemistry, electron transfer, carbon fixation, carbohydrate metabolism, pigment synthesis in chloroplasts and bacteria. Assembly of photosynthetic membranes and regulation of genes encoding those components. Emphasis on understanding of experimental approaches. P/NP or letter grading.

172. Genomics and Bioinformatics. (5) Lecture, three hours; discussion, one hour. Requisite: course 144 or 165B or Chemistry 153B or Microbiology 132. Genomics is study of complete repertoire of molecules in cells. Topics include human and yeast genomes and genetic approaches to study of function of individual genes, fundamental bioinformatics algorithms used to study relationship between nucleotide and protein sequences and reconstruction of their evolution, use of microarray technologies to measure changes in gene expression, analysis of microarray data including clustering and promoter analysis, proteomics topics including protein expression and interactions, epigenomic study of DNA methylation and chromatin modification, and systems biology, or computational approaches to integrating varied genomic data to gain more complete understanding of cellular biology. Letter grading.

C174A-C174D. Advanced Topics in Cell and Molecular Biology. (2 each) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Recent developments in fields of molecular, cell, and developmental biology. Concurrently scheduled with courses C222A-C222D. Letter grading:

C174A. Molecular Evolution. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Current developments in field of molecular evolution. Constructing evolutionary trees at molecular level; formal testing of evolutionary hypotheses using sequencing data. Letter grading.

C174B. Molecular Biology of Cell Nucleus. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Animal cell nucleus regulation of cell metabolism. Structure/function relationships, nuclear-cytoplasmic exchange, DNA replication and gene expression. Letter grading.

C174D. Molecular Biology of Extracellular Matrix. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Recommended: course 138. Synthesis of key extracellular matrix proteins and their assembly into supramolecular structures. Interactions of matrix proteins with cells and their influence on tissue formation. Letter grading.

M175A-M175B-M175C. Neuroscience: From Molecules to Mind. (5-5-5) (Same as Neuroscience M101A-M101B-M101C, Physiological Science M180A-M180B-M180C, and Psychology M117A-M117B-M117C.) Lecture, four hours; discussion, 90 minutes. P/NP or letter grading:

M175A. Cellular and Systems Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisites: Chemistry 14C or 30A (14C may be taken concurrently), Life Sciences 2, Physics 1B or 1BH or 6B or 6BH. Not open for credit to students with credit for Physiological Science 111A. For Neuroscience and Physiological Science majors, grade of C- or better is required to proceed to Neuroscience M101B or Physiological Science 111B. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement. P/NP or letter grading.

M175B. Molecular and Developmental Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisites: course M175A (or Neuroscience M101A or Physiological Science M180A or Psychology M117A; Neuroscience majors must have grade of C- or better)

or Physiological Science 111A or Psychology 115, Life Sciences 3, 4 (4 may be taken concurrently). Molecular biology of channels and receptors: focus on voltage dependent channels and neurotransmitter receptors. Molecular biology of supramolecular mechanisms: synaptic transmission, axonal transport, cytoskeleton, and muscle. Classical experiments and modern molecular approaches in developmental neurobiology. P/NP or letter grading.

M175C. Behavioral and Cognitive Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisite: course M175A (or Neuroscience M101A or Physiological Science M180A or Psychology M117A; Neuroscience majors must have grade of C- or better) or Physiological Science 111A or Psychology 115. Neural mechanisms underlying motivation, learning, and cognition. P/NP or letter grading.

180A. Scientific Analysis and Communication I. (2) Seminar, two hours. Enforced corequisite: course 196A. Students read and discuss scientific articles and give presentations, introducing research topics using relevant primary literature. Critical aspects of research process, including record keeping, ethics, laboratory safety and citizenry, mechanics of scientific writing, diverse approaches to research, and project responsibilities and ownership. Acquisition of in-depth and broad knowledge about student research projects, improvement of oral and written communication skills, and full appreciation of process of doing good science and becoming skilled researchers. Letter grading.

180B. Scientific Analysis and Communication II. (2) Seminar, two hours. Enforced requisites: courses 180A, 196A. Enforced corequisite: course 196B. Students give presentations similar to laboratory meeting or research symposium talk in which speakers discuss project goals, methodological approaches, results, and conclusions. How to write research papers as well as prepare and present scientific posters. Production of deliverables that demonstrate research achievements and creation of sense of pride for work accomplished as skilled researchers. Letter grading.

M181. Biological Bases of Psychiatric Disorders. (4) (Same as Neuroscience M130, Physiological Science M181, Psychiatry M181, and Psychology M117J.) Lecture, three hours. Requisite: course M175A (or Neuroscience M101A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115. Underlying brain systems involved in psychiatric symptoms and neurological disorders, including schizophrenia, depression, bipolar disorder, obsessive-compulsive disorder. Provides basic understanding of brain dysfunctions that contribute to disorders and rationales for pharmacological treatments. P/NP or letter grading.

187AL. Research Immersion Laboratory in Genomic Biology. (5) Lecture, one hour; laboratory, six hours; research group meeting, two hours. Enforced requisites: Life Sciences 4, 23L. Course 187AL is enforced requisite to 187BL. Limited to Molecular, Cell, and Developmental Biology and Microbiology, Immunology, and Molecular Genetics majors. Introduction to cutting-edge genomic technologies and bioinformatics methods and resources for genome annotation. Students propose original research projects related to gene annotation and drive their projects using bioinformatics tools. Latest assembly of DNA and RNA from *Cyclotella Cryptica*, algae organism that has limited genome annotation information available, to be provided. May not be repeated for credit. Letter grading.

187BL. Advanced Research Analysis in Genomic Biology. (4) Laboratory, six hours. Enforced requisite: course 187AL. Limited to Molecular, Cell, and Developmental Biology and Microbiology, Immunology, and Molecular Genetics majors. Continuation, completion, and refinement of research on annotation of sequenced eukaryotic genome of unicellular green alga *Chlamydomonas reinhardtii*. Investigation to be primarily computational in nature whereby students use bioinformatics or mathematical modeling software to interpret, expand, or refine datasets. Use of graphics software to prepare figures and illustrations for presentations, posters, reports, and websites (database

entries). Research accomplishments discussed in weekly seminar-style meetings in which student groups create PowerPoint slides and formally present results to class. Final report describing entire research project required. Letter grading.

188. Special Courses in Molecular, Cell, and Developmental Biology. (2) (Formerly numbered 188A.) Seminar, two hours. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. Letter grading.

190A-190B-190C. Joint Research Colloquia. (1-1) Seminar, two hours. Corequisite: course 198A or 198B or 198C or 199 or 199A or 199B. Limited to juniors/seniors. Designed to bring together students undertaking supervised tutorial research in model systems in joint laboratory meeting/seminar setting with one or more departmental faculty members whose laboratories are working on same or related model systems. Discussion and presentation of student work or related work in discipline to encourage more sophisticated understanding of most current topics in research fields of students or fields using related model organisms. P/NP or letter grading. **190A. Plant Model Systems; 190B. Invertebrate Model Systems; 190C. Vertebrate Model Systems.**

191. Variable Topics Research Seminars: Molecular, Cell, and Developmental Biology. (2) Seminar, two hours. Designed for junior/senior departmental majors. Intended for students with strong commitment to pursue graduate studies in molecular, biochemical, physiological, and biomedical fields. Weekly variable topics course with reading, discussion, and presentation of paper selected from current literature. May be repeated once for credit. P/NP or letter grading.

192A. Undergraduate Practicum in Molecular, Cell, and Developmental Biology. (4) Seminar, three hours. Limited to junior/senior Molecular, Cell, and Developmental Biology majors. Training and supervised practicum for advanced undergraduate students. Students assist in preparation of materials and development of innovative programs under guidance of faculty members in small course settings. Consult Undergraduate Office for further information. May not be applied toward course requirements for Molecular, Cell, and Developmental Biology major. May be repeated once for credit. P/NP or letter grading.

192B. Undergraduate Practicum: CityLab. (2) Seminar, two hours. Limited to juniors/seniors in any life sciences major. CityLab training and supervised practicum for advanced undergraduate students. Students assist in preparation of materials and development of innovative programs under guidance of faculty members in small course settings. May not be applied toward course requirements for Molecular, Cell, and Developmental Biology major. May be repeated once for credit. P/NP or letter grading.

193. Journal Club Seminars: Molecular, Cell, and Developmental Biology. (1) Seminar, two hours. Corequisite: course 198A or 198B or 198C or 199 or 199A or 199B or 199C. Limited to juniors/seniors. Development of in-depth understanding of and ability to discuss current literature in field of students' own research. May be repeated for credit. P/NP grading.

194A. Research Group Seminars: Molecular, Cell, and Developmental Biology. (1) Seminar, two hours. Corequisite: course 198A or 198B or 198C or 199 or 199A or 199B or 199C. Limited to juniors/seniors. Involvement in laboratory's weekly research group meeting to encourage student participation in research and to stimulate progress in specific research areas. Discussion of use of specific research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP or letter grading.

194B. Research Group Seminars: Current Topics in Biomedical Sciences. (2) Seminar, two hours. Limited to juniors/seniors in research traineeships or those who have strong commitment to pursue graduate studies in molecular, biochemical, physiological,

or biomedical fields. Weekly presentation and discussion of paper selected from current literature. May be repeated for credit. Letter grading.

196A. Research Apprenticeship I in Molecular, Cell, and Developmental Biology. (4) Tutorial, 12 hours. Enforced requisites: Life Sciences 3, 4, 3.0 premajor and/or major grade-point average, and at least one term of prior experience in same laboratory in which 196A research is to be conducted. Enforced corequisite: course 180A. Course 196A is enforced requisite to 196B. Designed for undergraduate students who are interested in pursuing inquiry-based and hypothesis-driven research experience in laboratory of departmental or preapproved faculty mentor. Guided research course to be taken in conjunction with course 180A, followed by continuation research course 196B. Technical aspects vary depending on specific laboratory; however, all students learn how to apply scientific method: propose hypothesis, identify experiments to address hypothesis, perform experiments, and analyze results. How to record information from experimental activities into laboratory notebooks and to write research proposals. Letter grading.

196B. Research Apprenticeship II in Molecular, Cell, and Developmental Biology. (4) Tutorial, 12 hours. Enforced requisites: courses 180A, 196A. Enforced corequisite: course 180B. Technical aspects vary depending on specific laboratory; however, all students use scientific method learned in course 196A and continue same experimental scope proposed, but with additional degree of independence in technical and intellectual aspects of research. Letter grading.

198A-198D. Honors Research in Molecular, Cell, and Developmental Biology. (4 each) Tutorial, 12 hours. Requisites: Life Sciences 3, 4. Course 198A is requisite to 198B, which is requisite to 198C. Limited to junior/senior Molecular, Cell, and Developmental Biology majors. Development and completion of comprehensive research project and honors thesis under direct supervision of approved faculty member to broaden and deepen students' knowledge of some phase of molecular, cell, and developmental biology. Must be taken for at least three terms and for total of 12 units. Individual contract required. In Progress (198A) and letter (198B) grading. Report on progress must be presented to undergraduate adviser each term 198 course is taken. Letter (198C, 198D) grading.

199. Special Studies Directed Research in Molecular, Cell, and Developmental Biology. (4) Tutorial, 12 hours. Preparation: submission of written proposal to department for approval by appropriate term deadline. Proposal to be developed in consultation with instructor, outlining research study to be undertaken. Requisites: Life Sciences 3, 4. Limited to juniors/seniors. Department majors may enroll with sponsorship from department faculty members or preapproved outside faculty members. Other junior/senior life sciences majors may enroll only with department faculty sponsors. Supervised individual research under guidance of faculty mentor. Studies to involve laboratory research, not literature surveys or library research. At end of term culminating paper describing progress of project and signed by student and instructor must be presented to department. May be repeated for credit. Individual contract required. Letter grading.

199A-199D. Directed Research in Molecular, Cell, and Developmental Biology. (4 each) Tutorial, 12 hours. Preparation: minimum 3.0 grade-point average in major. Requisites: Life Sciences 3, 4. Course 199A is requisite to 199B, which is requisite to 199C, which is requisite to 199D. Limited to juniors/seniors. Department majors may enroll with sponsorship from department faculty members or preapproved outside faculty members. Other junior/senior life sciences majors may enroll only for research projects in laboratories with department faculty sponsors. Supervised individual research under guidance of faculty mentor. Culminating research project designed to broaden and deepen students' knowledge of some phase of molecular, cell, and developmental biology. Must be taken for at least two terms and for total of at least 8 units. Individual contract required. In Progress (199A)

and letter (199B) grading. Students may elect to enroll in additional research through courses 199C and 199D (letter grading). Report on progress must be presented to department each term 199A through 199D course is taken.

Graduate Courses

M220. Cell, Developmental, and Molecular Neurobiology. (6) (Same as Neurobiology M200B and Neuroscience M201.) Lecture, six hours. Fundamental topics concerning cellular, developmental, and molecular neurobiology, including intracellular signaling, cell-cell communication, neurogenesis and migration, synapse formation and elimination, programmed neuronal death, and neurotropic factors. Letter grading.

C222A-C222D. Advanced Topics in Cell and Molecular Biology. (2 each) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Recent developments in fields of molecular, cell, and developmental biology. Concurrently scheduled with courses C174A-C174D. Letter grading:

C222A. Molecular Evolution. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Current developments in field of molecular evolution. Constructing evolutionary trees at molecular level; formal testing of evolutionary hypotheses using sequencing data. Original research proposal required. Letter grading.

C222B. Molecular Biology of Cell Nucleus. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Animal cell nucleus regulation of cell metabolism. Structure/function relationships; nuclear-cytoplasmic exchange, DNA replication and gene expression. Original research proposal required. Letter grading.

C222D. Molecular Biology of Extracellular Matrix. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Recommended: course 138. Synthesis of key extracellular matrix proteins and their assembly into supramolecular structures. Interactions of matrix proteins with cells and their influence on tissue formation. Original research proposal required. Letter grading.

224. Molecular Basis of Vascular Biology. (4) Lecture, four hours. Requisites: Life Sciences 3, 4. Developmental and pathological aspects of vascular biology. Presentation and discussion of key questions of vascular biology with mechanistic viewpoint. Major emphasis on experimental approaches and current research in field. Introduction to several model systems along with presentation of specific topic. Basic information provided as to how this knowledge is obtained in laboratory using variety of experimental approaches and model organisms. Letter grading.

228. Prokaryotic and Eukaryotic Gene Systems. (2) Lecture, two hours. Presentations concerning current experimental approaches in study of DNA replication, organization, transcription, and translation. S/U or letter grading.

M230B. Structural Molecular Biology. (4) (Same as Chemistry M230B.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 3C, Physics 6C. Selected topics from principles of biological structure; structures of globular proteins and RNAs; structures of fibrous proteins, nucleic acids, and polysaccharides; harmonic analysis and Fourier transforms; principles of electron, neutron, and X-ray diffraction; optical and computer filtering; three-dimensional reconstruction. S/U or letter grading.

M230D. Structural Molecular Biology Laboratory. (2) (Same as Chemistry M230D.) Laboratory, 10 hours. Corequisite: course M230B. Methods in structural molecular biology, including experiments utilizing single crystal X-ray diffraction, low angle X-ray diffraction, electron diffraction, optical diffraction, optical filtering, three-dimensional reconstruction from electron micrographs, and model building. S/U or letter grading.

M234. Genetic Control of Development. (4) (Same as Biological Chemistry M234.) Lecture, four hours. Topics at forefront of molecular developmental biology, including problems in oogenesis and early em-

bryogenesis, pattern formation, axis determination, nervous system development, cellular morphogenesis, and cell-cell and cell-matrix interactions. S/U or letter grading.

C239. Molecular Basis of Plant Differentiation and Development. (5) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 3, 4, 23L. In-depth study of basic processes of growth differentiation and development in plants and molecular mechanisms underlying these processes. Discussion of variety of plant systems, with focus on developing critical understanding of current experimental basis of research in this field. Concurrently scheduled with course C141. Preparation and presentation of term paper, in addition to other coursework, required of graduate students. Letter grading.

242. Topics in Neurobiology. (4) Lecture, three hours. Requisite: course 171. Selected current problems in neurobiology discussed in depth, with emphasis on analysis of original papers. May be repeated for credit. Letter grading.

C250. Plant Communication. (4) Lecture, three hours; discussion, one hour. Enforced requisites: Life Sciences 3, 4. Most people think of plants as static organisms, yet they live in world of symbiosis and community. Plants change atmosphere, enrich soil, and communicate with insects, bacteria, and each other—Earth's ultimate symbiote. Just as science has revealed over time misconceptions about how things work at deeper level, scientists and economists now recognize that beyond obvious need to grow above-ground biomass for fuel production, we must better understand how to make that biomass in sustainable manner. Introductory course in chemical ecology and how natural compounds affect gene expression. Emphasis on role of natural compounds in plant/microbe, plant/plant, and plant/herbivore. Interactions; synopsis of principles of plant defense mechanisms and responses to microbial infections. Concurrently scheduled with course C150. S/U or letter grading.

254. Seminar: Plant Morphogenesis. (2) Seminar, two hours. S/U or letter grading.

255. RNA Editing. (4) Lecture, two hours; discussion, one hour. Preparation: knowledge of molecular biology and molecular genetics. Discussion of diverse set of novel RNA modification phenomena known as RNA editing. Topics include U insertion/deletion type of editing in trypanosome mitochondria, C to U substitution editing in apo B mRNA and plant mitochondria, C insertion editing in Physarum mitochondria, etc. Discussion of mechanism, function, and evolution of these phenomena. S/U grading.

CM256. Human Genetics and Genomics. (5) (Same as Microbiology CM256.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4, 23L. Application of genetic principles in human populations, with emphasis on genomics, family studies, positional cloning, Mendelian and common diseases, cancer genetics, animal models, cytogenetics, pharmacogenetics, population genetics, and genetic counseling. Lectures and readings in literature, with focus on current questions in fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM156. Independent research project required of graduate students. Letter grading.

266A-266B-266C. Seminars: Development, Stem Cells, and Disease Mechanisms. (2-2-2) Seminar, two hours. Limited to graduate students. Advanced courses based on research papers on fundamental cellular mechanisms governing development and disease. Disease results from genetically determined or acquired deficits in cell and molecular processes; analysis of these processes in context of normal development indicates ways of dealing with corresponding disease. S/U grading.

M272. Stem Cell Biology and Regenerative Medicine. (4) (Same as Pathology M272.) Lecture, two hours; discussion, two hours. Designed for graduate students. Presentation of current knowledge of embryonic and adult stem cells and factors that regulate their growth and development. Major emphasis on how advances in cell and molecular biology and

tissue engineering can be applied to use of stem cells in regenerative medicine. Bioethical and legal issues related to stem cell research. S/U or letter grading.

276. Seminar: Molecular Genetics. (2) Seminar, two hours. Topics vary each term. S/U or letter grading.

277. Seminar: Genetics. (2) Seminar, two hours. S/U or letter grading.

278. Seminar: Molecular Genetics of Development. (2) Seminar, two hours. Designed for graduate students. Topics vary from year to year, with focus on establishment of position and pattern during embryogenesis by interaction of signal transduction systems and transcription factors. S/U or letter grading.

281. Seminar: Molecular Biology. (2) Seminar, two hours. S/U or letter grading.

283. Seminar: Topics in Cell Biology. (2) Seminar, two hours. Discussion of various topics on biology of eukaryotic cells. Topics vary from year to year and include bioenergetics, motility, organelle DNA, membrane structure and function, oncogenic transformation, nuclear organization and function. S/U or letter grading.

284. Seminar: Structural Macromolecules. (2) Seminar, one hour; discussion, three hours. Presentation and discussion of current topics in extracellular active structural macromolecules—their synthesis, structure, and roles in cell and developmental biology. Letter grading.

286. Seminar: Plant Development. (2) Seminar, one hour; discussion, two hours. Preparation: one plant physiology course and at least one advanced undergraduate or graduate plant development or biochemistry course. Seminar on specific topics in plant development. Content varies each term. S/U grading.

289. Current Topics in Plant Molecular Biology. (2) Discussion, one hour. Recent research developments in field of plant molecular biology. Opportunities for graduate students to discuss individual research work. S/U grading.

292. Seminar: Molecular Evolution. (2) Seminar, three hours. Detailed analysis of current understanding of evolution of molecular sequences and structures. Letter grading.

295. Seminar: Molecular, Cell, and Developmental Biology. (2) Seminar, two hours. In-depth surveys of recent developments in molecular, cell, and developmental biology research. Reading and presentation of primary research articles to learn to critically evaluate research papers and to organize and present seminars on specific research topics. S/U or letter grading.

296. Advanced Topics in Molecular, Cellular, and Developmental Biology. (2) Discussion, three hours. Advanced study and analysis of current topics in cell, molecular, and developmental biology. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

297. Advances in Molecular Analysis of Plant Development and Plant/Microbe Interactions. (2) Discussion, two hours. Recent advances in plant molecular biology, with emphasis on control of gene expression both during plant development and in plant/microbe interactions. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Preparation for Teaching Molecular, Cell, and Developmental Biology in Higher Education. (2) Seminar, two hours. Designed for graduate students. Study of problems and methodologies in teaching molecular, cell, and developmental biology, including workshops, seminars, apprentice teaching, and peer observation. S/U grading.

596. Directed Individual (or Tutorial) Studies. (2 to 12) Tutorial, to be arranged. S/U grading.

597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations. (2 to 12) Tutorial, to be arranged. May not be applied toward MA or PhD course requirements. S/U grading.

598. MA Thesis Research and Writing. (2 to 12) Tutorial, to be arranged. S/U grading.

599. PhD Dissertation Research and Writing. (2 to 12) Tutorial, to be arranged. S/U grading.

MOLECULAR, CELLULAR, AND INTEGRATIVE PHYSIOLOGY

Interdepartmental Program

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David Geffen School of Medicine*

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David L. Glanzman, PhD (*Integrative Biology and
Physiology, Neurobiology*)
Thomas J. O'Dell, PhD (*Physiology*)
James G. Tidball, PhD (*Integrative Biology and
Physiology*)
Yibin Wang, PhD (*Anesthesiology and Perioperative
Medicine, Physiology*)
Xia Yang, PhD (*Integrative Biology and Physiology*)

Scope and Objectives

Physiology is the study of the functional processes that collectively constitute life. The studies usually employ quantitative analyses of normal life processes, of pathological defects in normal life processes, of model systems to clarify and test basic physiological principles, and of functional specializations of organisms that have evolved under the influence of differing selective forces. Thus, physiology contributes importantly to advances in knowledge both in the basic biological sciences and in biomedical sciences and provides an essential foundation for the practice of medicine.

The primary objective of the interdepartmental Molecular, Cellular, and Integrative Physiology Program is to train a new generation of physiologists who apply modern knowledge in molecular and cellular biology and systems physiology to important questions in organismic function. Students learn to conceptualize physiological questions across several levels of organization and to understand how research strategies incorporating each of the levels of analysis can be formulated. This approach to physiology education is responsive to the need for physiologists who can intellectually and technically span disciplines related to physiology that are typically separated.

Coursework consists of formal instruction in the most current information in molecular biology, cell biology, and the molecular and cellular foundations of physiology. In addition, students identify an area of emphasis in biophysics, cellular and molecular biology, or integrative/comparative physiology in which additional studies are pursued. The heart of the program, however, is the research that leads to the dissertation, which is performed under the guidance of a faculty mentor. The program faculty includes more than 90 professors in the Geffen School of Medicine and College of Letters and Science. Collectively they have been recently ranked by the National Research Council in the top five in the U.S. for their quality as an academic faculty.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Molecular, Cellular, and Integrative Physiology Program offers the Doctor of Philosophy (PhD) degree in Molecular, Cellular, and Integrative Physiology.

Molecular, Cellular, and Integrative Physiology

Graduate Courses

M200G. Biology of Learning and Memory. (4) (Same as Neurobiology M200G, Neuroscience M220, and Psychology M208.) Lecture, four hours. Molecular, cellular, circuit, systems, neuroanatomy, theory, and models of learning and memory. Cross-disciplinary focus on learning and memory to provide integrative view of subject that emphasizes emerging findings that take advantage of novel groundbreaking models. Letter grading.

214. Research Grant Writing in Biomedical Sciences. (4) Lecture, three hours. Designed for Molecular, Cellular, and Integrative Physiology program students. Training in designing, writing, and evaluating research project and fellowship grants. How grant applications are structured and what features contribute to grant application success. How individual research project grants (R01) and exploratory/development research grants (R21) to National Institutes of Health (NIH) are structured and differ. How applications for predoctoral fellowships from NIH (F31) and American Heart Association (AHA) are organized. Development and writing of students' own R01, R21, F31, or AHA grant application. Letter grading.

M215. Molecular and Cellular Foundations of Physiology. (5) (Same as Physiological Science M215.) Lecture, three hours; discussion, two hours. Application of molecular and cellular approaches to systems level questions. Basic foundation for study of major physiological systems, with emphasis on levels of organization from molecular to macroscopic. Letter grading.

248. Seminar: Molecular Basis of Physiological Function. (2) Seminar, two hours. Application of molecular approaches in investigation of physiological processes of biological systems. Critical thinking and

experimental design strategies learned through primary literature review and in-class presentation/discussion. Letter grading.

249. Seminar: Pathogenic Mechanisms in Muscle Disease. (2) Seminar, two hours. Recent advances have been made in genetic identification of molecular basis of muscle disease, and some mechanisms involved have been elucidated. Focus on muscle diseases in which substantial mechanistic information has been obtained, including particular cellular locations and diseases associated with those locations. Topics include Duchenne muscular dystrophy, congenital muscular dystrophy, limb girdle dystrophy, Ullrich myopathy, and other forms of genetically inherited muscle disease. S/U grading.

250. Current Topics in Molecular, Cellular, and Integrative Physiology. (2) Seminar, two hours. Designed for molecular, cellular, and integrative physiology students. Reading, analysis, critique, and discussion of current research literature in field of molecular, cellular, and integrative physiology. Student presentation of assigned paper. Variable topics. May be repeated for credit. S/U grading.

251. Integrative Genomics for Studying Complex Diseases. (3) Seminar, two hours. Enforced requisite: course M252A. Lectures and supervised student presentations to offer graduate students opportunity to acquire deep understanding of advanced integrative genomic approaches and how these approaches can be applied to help understand molecular basis of diverse complex diseases. Topics include transcriptomics, genetics, functional genomics, network biology, and high-level integration. Letter grading.

M252A. Molecular Mechanisms of Human Diseases I. (4) (Same as Pharmacology M252A.) Lecture, four hours. Preparation: prior satisfactory molecular biology coursework. Corequisite: course M252B. Fundamental concepts and methodologies in modern biology, with emphasis on implications and relevance to human disease and integration of biology with mechanisms underlying disease development and applications in therapy as they apply to cancer biology, infectious disease, and modern biological approaches. Letter grading.

M252B. Seminar: Molecular Mechanisms of Human Diseases I. (2) (Same as Pharmacology M252B.) Seminar, two hours. Corequisite: course M252A. Reading, review, and discussion of primary research literature addressing fundamental concepts and methodologies in modern biology, with particular emphasis on implications and relevance to human diseases of topics presented in course M252A. Letter grading.

M262A. Molecular Mechanisms of Human Diseases II. (4) (Same as Pharmacology M262A.) Lecture, four hours. Preparation: prior satisfactory molecular biology coursework. Corequisite: course M262B. Fundamental concepts and methodologies in modern biology, with emphasis on implications and relevance to human disease and integration of biology with mechanisms underlying disease development and applications in therapy as they apply to neurological, cardiovascular, and metabolic diseases. Letter grading.

M262B. Seminar: Molecular Mechanisms of Human Diseases II. (2) (Same as Pharmacology M262B.) Seminar, two hours. Corequisite: course M262A. Reading, review, and discussion of primary research literature addressing fundamental concepts and methodologies in modern biology, with particular emphasis on implications and relevance to human diseases of topics presented in course M262A. Letter grading.

M286. Neurophysics: Brain-Mind Problem. (4) (Same as Physics CM286.) Lecture, three hours; discussion, one hour. Requisites: Chemistry 14A or 20A, Mathematics 3A, 3B, 3C, 31A, 32A, 32B, 33A, Physics 1A, 1B, 1C, 4AL, 4BL, 6A, 6B, 6C. How does mind emerge from brain? Provides summary of basic biophysics of neurons, synapses, and plasticity. Introduction to commonly used experimental and theoretical techniques of measuring, quantifying, and modeling neural activity, and their relative strengths and

weakness and use of them to understand link between neural circuits, their emergent neural dynamics, and behavior in example model systems. Discussion of mechanisms of interaction between neural circuits and their role in cognition, learning, and sleep. Computer laboratory component where students learn to write simple codes to quantify neural activity patterns. S/U or letter grading.

290A-290B-290C. Tutorials. (4-4-4) Tutorial, two hours. Discussion, analysis, and critique of original research literature. Letter grading. **290A.** Cellular and Molecular Physiology; **290B.** Biophysics; **290C.** Integrative and Comparative Physiology.

296. Research Seminar. (2) Seminar, to be arranged. Review of literature, discussion of original research, and analysis of current topics in molecular, cellular, and integrative physiology. May not be applied toward PhD course requirements. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May not be applied toward PhD course requirements. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 10) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Preparation for PhD Qualifying Examinations. (2 to 10) Tutorial, to be arranged. May not be applied toward PhD course requirements. May be repeated for credit. S/U grading.

599. Research for PhD Dissertation. (2 to 10) Tutorial, to be arranged. May not be applied toward PhD course requirements. May be repeated for credit. S/U grading.

administered through the Fielding School of Public Health.

Specialties within the program include, but are not limited to, neurotoxicology, nanotoxicology, developmental toxicology, genetic toxicology, and carcinogenesis. There is a particular emphasis on mechanisms of toxicity, since it is now widely accepted that understanding mechanisms will provide the means for accurately determining risk.

New chemicals have been the basis for most of the technological developments during the past century, and there is no question that society has reaped enormous benefits from the creation and growth of the chemical industry. However, major health and environmental problems have also been the legacy of the synthesis of new chemical species. The discipline of toxicology, which seeks to characterize and elucidate the mechanisms of the problems related to exposure of chemical agents, has also developed from a purely descriptive to a mechanistic science whose objective is to understand the basis of toxin action, predict the toxicity of new chemical entities, and protect organisms from them. Toxicology has used the basic disciplines of chemistry, biochemistry, and cell biology to advance understanding of toxicological phenomena, and the growth of the sophistication of toxicology has paralleled the increase in knowledge derived from the basic chemical and biological sciences.

nity (students, postdoctoral fellows, and faculty) and deals with topics relevant to molecular toxicology. In Progress (211A, 211B) and S/U (211C) grading.

M241. Introduction to Chemical Pharmacology and Toxicology. (6) (Same as Pharmacology M241.) Lecture, six hours. Preparation: organic and biological chemistry. Designed for molecular and medical pharmacology students. Introduction to general principles of pharmacology. Role of chemical properties of drugs in their distribution, metabolism, excretion, and modes of action. S/U or letter grading.

M242. Toxicodynamics. (2) (Same as Environmental Health Sciences M242.) Lecture, one hour; discussion, one hour. Preparation: undergraduate biology and chemistry courses. Requisite: Environmental Health Sciences C240. Examination of recent literature on mechanisms of toxicity or toxicodynamics. Student presentation of papers selected by instructor on various aspects of toxic mechanisms, including free radical mechanisms, mechanisms of cell death, metal toxicity/ion homeostasis, intracellular pH and calcium regulation, stress and adaptive pathways, DNA repair/mutagenesis, carcinogenesis, and teratogenesis. Discussion of various papers. S/U or letter grading.

M245. Laboratory in Toxicological Methods. (2) (Same as Environmental Health Sciences M245 and Pharmacology M234C.) Lecture, one hour; laboratory, four to five hours. Survey of experimental techniques used in study of toxic substances. Experiments conducted within known toxin to demonstrate its effects at molecular, cellular, and tissue levels. Presentation of principles of techniques and methods of data analysis at discussion session prior to laboratory. Letter grading.

M246. Molecular Toxicology. (4) (Same as Environmental Health Sciences M246.) Lecture, four hours. Enforced requisite: Environmental Health Sciences C240. Fundamental aspects of toxicology required for deep understanding of toxicological processes, with research-oriented outlook. Dissemination of information about important molecular toxicological topics to make students think about them from research perspective. Students learn about cutting-edge research areas of molecular toxicology, how to most optimally extract important information from research papers, how to critique papers, how to formulate alternative hypotheses for data in papers, how to formulate ideas for future research, and how to express their ideas effectively in oral settings. Letter grading.

M247. Advanced Concepts in Gene-Environment Interactions. (4) (Same as Environmental Health Sciences M241.) Lecture, three hours; discussion, one hour. Comprehensive and practical examination of emerging science of gene-environment interaction. Discussion of primary components of field, including role of metabolic pathways in modifying environmental responses and importance of environmental influences in human disease. Exploration of selected hot topics in field, such as importance of epigenetics and of microbiome. S/U or letter grading.

296A-296G. Research Topics in Molecular Toxicology. (2 each) Research group meeting, two hours. Advanced study and analysis of current topics in molecular toxicology. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading:

296A. Chemical Toxicology.

296B. Molecular Carcinogenesis.

296C. Teratogenesis.

296D. Molecular Topics in Boron Biology.

296E. Germ Cell Cytogenetic/Genetic Biomarkers.

296F. Genetic Toxicology.

296G. Laboratory Analysis.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

MOLECULAR TOXICOLOGY

Interdepartmental Program
School of Public Health

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Oliver Hankinson, PhD, Chair

Faculty Committee

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Michael D. Collins, PhD (Environmental Health Sciences)
Oliver Hankinson, PhD (Environmental Health Sciences, Pathology and Laboratory Medicine)
David E. Krantz, MD, PhD (Psychiatry and Biobehavioral Sciences)
Robert H. Schiestl, PhD (Environmental Health Sciences, Pathology and Laboratory Medicine)

Scope and Objectives

Faculty from 15 departments and schools at UCLA, including Chemistry and Biochemistry, Environmental Health Sciences, Epidemiology, Medicine, Molecular and Medical Pharmacology, and Pathology and Laboratory Medicine, have joined forces to create an interdisciplinary PhD program in Molecular Toxicology that is

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Molecular Toxicology Program offers the Doctor of Philosophy (PhD) degree in Molecular Toxicology.

Molecular Toxicology

Upper Division Courses

M110A. Drugs: Mechanisms, Uses, and Misuse. (4) (Same as Pharmacology M110A.) Lecture, four hours (seven weeks); discussion, four hours (three weeks). Requisites: Life Sciences 2, 3. Introduction to pharmacology and toxicology for undergraduate students, emphasizing drug development and mechanisms of action of drugs and toxic agents. Letter grading.

197. Individual Studies in Molecular Toxicology. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

211A-211B-211C. Molecular Toxicology Seminars. (1-1-1) Seminar, one hour twice per month. Seminar series which alternately features outside speakers and members of UCLA molecular toxicology commu-

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. Individual guided studies under direct faculty supervision. May not be applied toward degree course requirements. May be repeated for credit. S/U or letter grading.

597. Preparation for PhD Qualifying Examinations. (2 to 12) Tutorial, four hours. May not be applied toward degree course requirements. May be repeated for credit. S/U grading.

599. PhD Dissertation Research. (8 to 12) Tutorial, to be arranged. May not be applied toward degree course requirements. May be repeated for credit. S/U grading.

MUSIC

Herb Alpert School of Music

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Neal H. Stulberg, MA, Chair

Professors

James K. Bass, DMA
Kenneth E. Burrell, BA
Lily Chen-Haftek, PhD
Vladimir Chernov, MM
Michael E. Dean, MM
Juliana K. Gondek, MM
Gary G. Gray, MM
Gordon Henderson, MME
Peter D. Kazaras, JD
Ian Krouse, DMA
Elisabeth C. Le Guin, PhD
Jens H. Lindemann, MM
Antonio Lysy
Movses Pogossian, DMA
Walter Ponc , DMA
Neal H. Stulberg, MA
Guillaume B. Sutre, MM
Robert S. Winter, PhD (*Presidential Professor of Music and Interactive Arts*)

Professors Emeriti

Elaine R. Barkin, PhD
Roger Bourland, PhD
Paul S. Chihara, PhD
Maurice Gerow, PhD
Frederick F. Hammond, PhD
Thomas F. Harmon, PhD
Mark Kaplan, BA
D. Thomas Lee, DMA
Susan K. McClary, PhD
Donald Neuen, MA
Paul V. Reale, PhD
Jon Robertson, DMA
Roy E. Travis, MA
Robert Walser, PhD

Associate Professors

Travis J. Cross, DMA
Inna Faliks, DMA
Frank Heuser, PhD
David S. Lefkowitz, PhD

Assistant Professor

Jocelyn Ho, DMA

Senior Lecturer S.O.E.

Sheridan W. Stokes, *Emeritus*

Lecturer S.O.E.

Maureen D. Hooper, Edd, *Emerita*

Senior Lecturer

John L. Hall, MM, *Emeritus*

Lecturers

David A. Brennan, DMA
Bruce H. Broughton
Raynor O. Carroll
Gloria C. Cheng
Richard Danielpour, DMA
Jonathan D. Davis, DMA
Theresa A. Dimond, DMA
Margaret M. Flanagan Lysy
Aubrey D. Foard, MM
Peter R. Golub, PhD
Rakefet R. Hak, MM
Jeff J. Kryka, PhD
James D. Lent, DMA
Noah G. Meites, DMA
James T. Miller, MM
Lou Anne Neill, MA
Hitomi M. Oba, MA
Benjamin J. Phelps, PhD
Jean-Louis Rodrigue
Peter Rutenberg
Amy M. Sanchez, MM
David A. Schnurr, PhD
John A. Steinmetz, MA

Adjunct Professors

Christoph Bull, DMA
Mark C. Carlson, PhD
Herbert J. Hancock
Christopher Hanulik, BM
Jennifer Judkins, PhD
Douglas H. Masek, DMA
Wayne Shorter

Adjunct Associate Professor

Peter F. Yates, DMA

Scope and Objectives

The Department of Music provides undergraduate and graduate training in Western classical music, with concentrations in composition, music education, and performance. Jazz performance is also offered at the graduate level. The department is aligned with the Departments of Ethnomusicology and Musicology and aspires to promote productive collaboration between performance and scholarship, a cross-cultural global understanding of the art of music, and preparatory training for a broad range of careers in music after students graduate.

The four-year Bachelor of Arts curriculum in Music is a classically oriented, balanced program of practical, theoretical, and historical studies, with related performance and academic studies in non-Western music. The major, designed for students who want to combine fine musicianship with academic excellence, is based on a core curriculum of theory, history, analysis, and individual and group performance. Given in the context of a liberal education, this provides a foundation for an academic or professional career and affords valuable cultural background.

At the graduate level, specialized studies leading to the degrees of Master of Arts and Doctor of Philosophy are offered in composition; specialized studies leading to the degrees of Master of Music and Doctor of Musical Arts are offered in all classical solo instruments, voice, collaborative piano, and conducting. Jazz performance is offered at the master's degree level.

Students interested in a concentration in music history and literature should consider the majors in Music History and Musicology and those

interested in a concentration in world music should consider the major in Ethnomusicology.

Undergraduate Study

The Music major is a designated capstone major. Students learn about the real world with respect to putting on concerts. Through preparation for and execution of their senior recitals, students demonstrate a level of proficiency appropriate for their role in the recitals and their understanding of performance practices appropriate to the repertory being performed, as acquired in previous coursework and through research. Students also display their ability to assemble an effective program in terms of pacing and variety and demonstrate requisite stage presence along with an ability to communicate with their audience in performance.

Music BA

Capstone Major

Admission

For new and change of major applicants, each concentration within the department has its own specific requirements for admission. Applicants to the composition concentration must submit a portfolio of compositions prior to the required audition and interview with the composition theory faculty. Applicants to the music education concentration are required to audition in their primary performance medium and interview with the music education faculty. Applicants to the performance concentration are required to audition in their principal performing medium with members of the performance faculty. Admission to the theory concentration is open only to junior/senior Music majors on the basis of an interview with the composition theory faculty.

Preparation for the Major

All entering freshmen are required to take the Music Theory Assessment Examination either during New Student Orientation or during zero week of fall quarter. The examination score is used to determine eligibility and placement in first-year music core courses (Music M6A, M6B, M6C and 20A, 20B, 20C). Examination results may require enrollment in Music 3 as a requisite to both courses M6A and 20A. Entering transfer students with fewer than 15 units of prior music theory must take the Music Theory Assessment Examination.

Composition: Music M6A, M6B, M6C, with grades of C- or better, 20A, 20B, 20C, with grades of C or better, 12 units from courses 60A through 65, 6 units from course 66, and two years (12 units) of performance organizations utilizing students' major instruments (courses C90A through 90N and C90Q through 90S), as assigned by the chair or designated faculty member. In addition, students are required to take one college year—or at least one course at level three—of French, German, Italian, or Spanish, which may be used to fulfill the school language requirement.

Music Education: Music M6A, M6B, M6C, with grades of C- or better, 20A, 20B, 20C, with grades of C or better, 12 units from courses

60A through 65, and three years (18 units) of performance organizations utilizing students' major instruments (courses C90A through 90N and C90Q through 90S), as assigned by the chair or designated faculty member. In addition, students are required to take one college year—or at least one course at level three—of French, German, Italian, or Spanish, which may be used to fulfill the school language requirement.

Performance: Music M6A, M6B, M6C, with grades of C– or better, 20A, 20B, 20C, with grades of C or better, 12 units from courses 60A through 65, and two years (12 units) of performance organizations utilizing students' major instruments (courses C90A through 90N and C90Q through 90S), as assigned by the chair or designated faculty member. Voice students are also required to complete courses 74A, 74B, and 74C (6 units). In addition, students are required to take one college year—or at least one course at level three—of French, German, Italian, or Spanish, which may be used to fulfill the school language requirement.

The Major

Required (for all concentrations): Music 120A, 120B, 120C, 140A, 140B, 140C, with grades of C or better, and courses selected from one of the concentrations listed below.

Composition: A minimum of 41 upper division units, including Music 104A or 104B, 106A, 106B, 116, 166 (12 units), C176, and at least 8 elective units selected from any upper division ethnomusicology, music, or music history courses. A capstone senior recital, to be preceded by one capstone scoring course (Music 124A or 124B or 124C) and to include at least 30 minutes of original music, is also required (exceptions by petition only).

Music Education: A minimum of 41 upper division units, including Music 110A through 110D, 114A, 114B, 115A, 115B, 116, 117, 119A, 119B, 119C, and three courses from 160A through 165. During each term in which students take private lessons, they must participate in a performance organization for a letter grade, utilizing their major instruments (courses C90A through 90N and C90Q through 90S), as assigned by the chair or designated faculty member. A capstone senior recital, that may be held as early as fall quarter of the junior year, is also required.

Performance: Twelve units in performance instruction from Music 160A through 165 (including junior and senior recital requirements), 4 units of chamber ensembles (course C175) for instrumental performance students, 4 units of course C158 for vocal performance students, and 8 elective units selected from any upper division ethnomusicology, music, or music history courses. During each term in which students take private lessons, they must participate in a performance organization for a letter grade, utilizing their major instruments (courses C90A through 90N and C90Q through 90S), as assigned by the chair or designated faculty member.

Theory: Six courses selected in consultation with a faculty adviser.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Music offers the Master of Music (MM) degree, Doctor of Musical Arts (DMA) degree, and Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Music.

Music

Lower Division Courses

1A-1B. Fundamentals of Music. (4-4) Lecture, three hours; discussion, two hours. Designed for nonmusic majors. P/NP or letter grading. **1A.** Introduction to elements of music: pitch and rhythm symbols, meter and time signatures, notation, scales, intervals, and chord structure. **1B.** Requisite: course 1A. Diatonic harmony; four-part writing, including inversions, sevenths, secondary dominants, and modulation; organization of melody and accompaniment; simple analysis; sight-singing and ear training.

3. Preparatory Music Theory. (4) Lecture, four hours; laboratory, one hour. Course in music fundamentals, including musicianship, theory, and terminology. Letter grading.

4A-4B-4C. Basic Musicianship. (2-2-2) Studio, three hours. Class instruction in elementary ear training and keyboard skills. P/NP or letter grading.

5. Beginning Voice Class. (2) Studio, four hours; outside practice and preparation, two hours. Not open to voice majors. Correct singing techniques, including vocal mechanism, posture and breathing, musical warm-ups, optimal vocal production, diction, and performance delivery to be put into practice in classroom study, vocal exercises, and performances. Final recital with piano accompaniment required. May be repeated for maximum of 12 units with a grade of C in each course. Letter grading.

M6A-M6B-M6C. Introduction to Musicianship. (2-2-2) (Same as Ethnomusicology M6A-M6B-M6C and Music History M6A-M6B-M6C.) Laboratory, four hours. Preparation: placement examination. Course M6A is enforced requisite to M6B, which is enforced requisite to M6C. Students must receive grade of C– or better to proceed to next course in sequence. Introduction to musicianship through in-depth exploration of basic common musical elements and training in aural recognition, sight singing, dictation, and keyboard skills. Focus on topics such as tonal and modal harmony, rhythm, improvisation, composition, notation, and ear training to prepare students for later theory courses, participation in music ensembles, advanced study in music, and professional careers. Letter grading.

7. Understanding Movie Music. (4) Lecture, four hours; outside study, eight hours. Musical experience helpful, but not required. Brief historical survey of film music, with strong emphasis on recent development: Japanese animation, advertising, and MTV, as well as computer tools and digital scoring methods. Designed to inspire and inform those interested in movie music. Offered in summer only. P/NP or letter grading.

8G. Graduate Piano Sight-Reading. (2) Studio, two hours. Limited to graduate students. Designed to help entering graduate students remedy entrance deficiencies, to be cleared by examination. May be repeated. S/U grading.

M10A-M10B-M10C. Introduction to Music: History, Culture, Creativity. (4-4-4) (Same as Ethnomusicology M7A-M7B-M7C and Music History M10A-M10B-M10C.) Lecture, two hours; laboratory, four hours. Preparation: placement examination. Course M10A is enforced requisite to M10B, which is enforced requisite to M10C. Students must receive grade of C– or better to proceed to next course in sequence. Introduction to study of music from three complimentary perspectives: its history, relation to culture, and creative structuring. Lectures from musicologists, ethnomusicologists, and composers/theorists combined with small sections in which students develop wide range of musicianship skills. Organized around broad ideas (performance, simultaneity, time, place, and more) where creative and cultural implications are explored through analysis and discussion of broad repertoire of musical works spanning historical eras and global cultures. Compositional exercises, production of short compositions, and short papers dealing with historical and cultural issues required. Letter grading.

15. Art of Listening. (5) Lecture, three hours; discussion, one hour; outside study, 11 hours. Acquisition of listening skills through direct interaction with live performance, performers, and composers. Relationship of listening to theoretical, analytical, historical, and cultural frameworks. Music as aesthetic experience and cultural practice. P/NP or letter grading.

16. Hollywood Musical and American Dream. (4) Lecture, three hours; discussion, one hour. Examination of composers, writers, and filmmakers whose creative efforts changed how world came to view American dream. Full features and music clips illustrate American life as seen through Hollywood musicals. P/NP or letter grading.

20A. Music Theory I. (3) Lecture, four hours. Preparation: passing score on departmental examination. Course 20A is enforced requisite to 20B, which is enforced requisite to 20C. Students must receive grade of C or better to proceed to next course in sequence. Theory: species counterpoint through fifth species; description of triads and inversions. P/NP or letter grading.

20B. Music Theory II. (3) Lecture, four hours. Enforced requisite: course 20A with grade of C or better. Theory: diatonic harmony through secondary dominants and diminished sevenths; modulations to dominant and relative keys; writing of four-part chorales; style composition in baroque dance forms; introduction to figured bass notation. P/NP or letter grading.

20C. Music Theory III. (3) Lecture, four hours. Enforced requisite: course 20B with grade of C or better. Theory: chromatic harmony including development of tonality, 1800 to 1850; appropriate analysis and style composition. P/NP or letter grading.

30A-30B. History, Listening, and Survey of Piano Literature I, II. (2-2) Seminar, two hours. Strongly recommended for undergraduate piano and music education majors with piano as their main instrument. Survey course covering standard piano literature and composers through listening and reading. Letter grading. **30A.** Baroque and Classical; **30B.** Romantic, Impressionistic, 20th-Century, and Contemporary.

60A-65. Undergraduate Instruction in Performance. (2 each) Studio, one hour. Limited to Music majors (all freshman/sophomore majors, and junior/senior majors not in performance specialization). Individual instruction. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for credit. P/NP or letter grading. **60A.** Violin; **60B.** Viola; **60C.** Cello; **60D.** String Bass; **60E.** Harp; **60F.** Classical Guitar; **60G.** Viola da gamba; **60K.** Lute; **61A.** Flute; **61B.** Oboe; **61C.** Clarinet; **61D.** Bassoon; **61E.** Saxophone; **62A.** Trumpet; **62B.** French Horn; **62C.** Trombone; **62D.** Tuba; **63.** Percussion. **64A.** Piano; **64B.** Organ; **64C.** Harpsichord; **65.** Voice.

66. Undergraduate Instruction for Composition Specialists. (2) Studio, one hour per week to be arranged with instructor; outside study, five hours. Enforced requisites: courses 20A, 20B, 20C. Limited to

music composition students and designed for sophomores. One-on-one composition lessons with assignments and compositions tailored to student progress and level of achievement. Lessons address counterpoint, voice-leading, harmonic and melodic construction, orchestration, form, texture, style, notation, and performance feasibility. P/NP or letter grading.

74A-74B-74C. Introduction to Singing Diction. (2-2) Studio/demonstration/performance, 90 minutes; outside study, four to five hours. Course 74A is enforced requisite to 74B, which is enforced requisite to 74C. Development of International Phonetic Alphabet (IPA) transcription skills, along with addressing issues of translation. Exploration of variety of vocal repertoire, including opera, art songs, early music, recitative, and folk songs. Transcription, translation, speaking, and singing of texts from pieces assigned in course, as well as from repertoire being prepared for juries. P/NP or letter grading. **74A.** English and Italian. Introduction to basics of singing diction and development of English and Italian skills for beginning students. **74B.** German. Enforced requisite: course 74A. Introduction to basics of singing diction and development of German skills for beginning students. **74C.** French. Enforced requisite: course 74B. Introduction to basics of singing diction and development of French skills for beginning students.

80A. Beginning Keyboard. (4) Laboratory, five hours; preparation/practice, seven hours. Simple keyboard skills together with basic aspects of music theory and its practical application to keyboard: sight-reading, tonality, chords, scales, cadences, simple compositions, and improvisations. May be repeated for credit without limitation. Offered in summer only. P/NP or letter grading.

80B. Intermediate Keyboard. (4) Laboratory, five hours; preparation/practice, seven hours. Enforced requisite: course 80A. Review of basic keyboard concepts, with focus on developing comprehensive keyboard musicianship ranging from music theory, sight-reading, composing, improvising, analysis of form, study of musical terms and notations, chords, scales, cadences, transposing, and ear training. Offered in summer only. P/NP or letter grading.

80F. Beginning Guitar Class. (4) Laboratory, five hours; preparation/practice, seven hours. Introduction to guitar techniques, accompanying, and arranging for guitar; coverage of note reading and tablature. May be repeated for credit without limitation. Offered in summer only. P/NP or letter grading.

80V. Vocal Technique for Beginners. (4) Laboratory, six hours; preparation/practice, six hours. Voice instruction for singers at beginning to intermediate level. Exploration of fundamentals of vocal technique, including overview of basics of proper breath control, resonance, care of voice, diction, and interpretation. Beginning vocal repertoire used as vehicle for understanding these concepts. May be repeated for credit without limitation. Offered in summer only. P/NP or letter grading.

80W. Woodwind Technique for Beginners. (4) Laboratory, six hours; preparation/practice, six hours. Woodwind instruction designed to give students knowledge of fundamental concepts and techniques of saxophone, clarinet, oboe, bassoon, and flute. Offered in summer only. P/NP or letter grading.

M87. Special Courses in Music. (5) (Same as Ethnomusicology M87 and Music History M87.) Lecture, four hours; discussion, four hours. Limited to undergraduate Ethnomusicology, Music, and Music History majors. Study and analysis of current and/or special topics in ethnomusicology, music, and music history taught by resident and visiting faculty members. May be repeated for credit with topic and instructor change. Letter grading.

C90A. UCLA Chorale. (2) Activity, four hours. Preparation: audition. Select mixed ensemble of 100 voices performing choral music appropriate for concert choral ensemble, with emphasis on music after 1700. May be repeated for credit without limitation. May be concurrently scheduled with course C480. P/NP or letter grading.

90B. University Chorus. (2) Activity, two hours. Preparation: audition. Mixed chorus of 100 voices performing medium- and concert-length choral works from baroque to present. May be repeated for credit without limitation. P/NP or letter grading.

90C. Chamber Singers. (2) Activity, three hours. Preparation: audition. Select mixed ensemble of 16 to 20 voices performing chamber choral music of all periods, with emphasis on Renaissance and baroque music. May be repeated for credit without limitation. P/NP or letter grading.

90D. Opera Workshop. (2) Activity, six hours. Preparation: audition. Rehearsal and performance of scenes and complete operas, as well as repertoire, stage movement, and foreign language diction coaching. May be repeated for credit without limitation. P/NP or letter grading.

C90E. Symphony Orchestra. (2) Activity, four hours. Preparation: audition. Group performance of symphonic literature, as well as orchestral accompaniment for operatic and major choral works. May be repeated for credit without limitation. May be concurrently scheduled with course C481. P/NP or letter grading.

90F. Symphonic Band. (2) Activity, two hours. Preparation: audition. Group performance of instrumental music scored for band. May be repeated for credit without limitation. P/NP or letter grading.

C90G. Wind Ensemble. (2) Activity, six hours. Preparation: audition. Group performance of concert literature for wind ensemble. May be repeated for credit without limitation. May be concurrently scheduled with course C482. P/NP or letter grading.

90L. Music Theater Workshop. (2) Activity, six hours. Preparation: audition. Rehearsal and performance of scenes and complete musical theater productions, including repertoire and stage movement coaching. May be repeated for credit without limitation. P/NP or letter grading.

90M. Marching and Varsity Bands. (2) Activity, four hours. Preparation: audition. Group performance of special band arrangements for football and basketball games as well as special events. May be repeated for credit without limitation. P/NP or letter grading.

90N. Jazz Ensemble. (2) Activity, three hours. Preparation: audition. Group performance of jazz and popular music in ensembles of 20 to 30 instruments. May be repeated for credit without limitation. P/NP or letter grading.

90P. Alexander Technique. (2) Lecture, four hours; outside preparation and practice, two hours. Limited to Ethnomusicology, Music, Music History, and Musicology majors. Introduction to principles of Alexander technique. Study of musician's postural attitude at instrument, including physical movement as application of theory. Designed to help instrumentalists and vocalists prevent injuries and performance anxiety. May be repeated with consent of instructor. Letter grading.

C90Q. Piano/Keyboard Accompanying. (2) Activity, four hours; outside study, two hours. Collaboration with large ensembles, instrumentalists, and/or vocalists in role of accompanists. Performance includes, but is not limited to, lessons, rehearsals, special studio performance projects, master classes, concerts, auditions, juries, and recitals. May be repeated for maximum of 12 units. Concurrently scheduled with course C484. P/NP or letter grading.

90R. Guitar Accompanying. (2) Activity, four hours; outside study, two hours. Collaboration with instrumentalists and/or vocalists in role of accompanists. Performance includes, but is not limited to, lessons, rehearsals, special studio performance projects, master classes, concerts, auditions, juries, and recitals. May be repeated for credit without limitation. P/NP or letter grading.

90S. Harp Accompanying. (2) Activity, four hours; outside study, two hours. Collaboration with instrumentalists and/or vocalists in role of accompanists. Performance includes, but is not limited to, lessons, rehearsals, special studio performance projects,

master classes, concerts, auditions, juries, and recitals. May be repeated for credit without limitation. P/NP or letter grading.

M90T. Early Music Ensemble. (4) (Same as Music History CM90T.) Activity, four hours. Preparation: audition. Group performance of Western vocal and instrumental music from historical periods prior to 1800. Early instruments may be used at instructor's discretion. May be repeated for credit without limitation. P/NP or letter grading.

Upper Division Courses

100A-100B-100C. Music in American Education. (4-4-4) Lecture, four hours; laboratory, one hour. Requisites: courses 20A, 20B, 20C, 116, 120A, 120B, 120C. Critical study and analysis of philosophy, history, organization, curriculum, and literature of music programs for elementary and secondary schools in American education. Each course may be taken independently for credit. Letter grading. **100A.** General Music; **100B.** Choral Music; **100C.** Instrumental Music.

104A. Modal Counterpoint. (3) Lecture, three hours. Requisite: course 120C (accelerated section). In-depth exploration of styles and techniques of counterpoint of 15th and 16th centuries through writing and analysis of important forms of period, including species, canon, free counterpoint, cantus, firmus, point of imitation, motet, ricercare, etc. Letter grading.

104B. Special Topics in Counterpoint. (3) Lecture, three hours. Requisite: course 120C (accelerated section). In-depth exploration of polyphonic styles and textures since 1750, with emphasis on late-19th- and 20th-century modes of expression, through writing and analysis. Letter grading.

106A. Orchestration I. (4) Discussion, three hours. Requisites: courses 120C (accelerated section), 123C. Ranges and characteristics of instruments, with exercises in scoring. P/NP or letter grading.

106B. Orchestration II. (4) Discussion, three hours. Requisites: courses 106A, 120C (accelerated section), 123C. Scoring and analysis for ensembles and full orchestra. P/NP or letter grading.

110A. Learning Approaches in Music Education. (4) (Formerly numbered 110.) Lecture, two hours; activity, two hours; outside study, eight hours. Enforced requisite: course 20A. Introduction to music education by development of concepts, attitudes, and skills necessary to teach music and philosophical, historical, cultural, and psychological foundations of music education, with emphasis on learning theories and psychology of music learning. Contextualization of concepts by engaging in nonnotational modes of music learning, including systematic aural transmission and informal learning. Letter grading.

110B. Musicality and Creativity in Childhood. (4) Lecture, two hours; activity, two hours; outside study, eight hours. Enforced requisites: courses 20A, 20B, 20C, 110A, 120A, 120B, 120C. Preparation of music education students for teaching music at preschool and elementary school levels. Development of understanding of developmental characteristics, diverse cultures, and learning needs of children and design of effective instructional strategies that are age-appropriate and responsive to children's background. Focus on practice of student-centered curriculum where students are active learners and teachers are facilitators to become proficient in providing children with music learning environment that is conducive to optimal growth in their musicality and creativity. Letter grading.

110C. Comparative Study of Choral Music Education. (4) Lecture, two hours; activity, one hour; fieldwork, one hour; outside study, eight hours. Enforced requisites: courses 20A, 20B, 20C, 110A, 119A, 120A, 120B, 120C. Preparation of students for teaching choral music at middle and high school levels. Development of understanding of developmental characteristics, diverse cultures, and learning needs of adolescents and design of effective instructional strategies that are age-appropriate and responsive to students' background. Diverse practices and learning

processes in choral music of American and world serve as basis of comparative study, with emphasis on comprehensive music education through performance. Letter grading.

110D. Comparative Study of Instrumental Music Education. (4) Lecture, two hours; activity, one hour; fieldwork, one hour; outside study, eight hours. Enforced requisites: courses 20A, 20B, 20C, 110A, 120A, 120B, 120C. Critical study and analysis of philosophy, history, organization, curriculum, and literature of music programs for elementary and secondary instrumental music instruction in traditional and non-traditional settings. Development of strategies and techniques to teach music in group settings. Letter grading.

111A. Technology in Music Education I. (1) Laboratory, three hours. Requisite or corequisite: course 20A. Provides music educators with tools and knowledge necessary to use appropriate computer hardware and software for purposes of music sequencing, arranging, and scoring, with emphasis on applications that are appropriate for use in public and/or private schools for levels K-12 and higher education. Activities include familiarization with computer systems and software, computer-assisted music notation and publication, and development of basis sequencing techniques. Letter grading.

111B. Technology in Music Education II. (1) Laboratory, three hours. Requisite: course 111A. Introduction to instructional uses of computers in music classrooms, with emphasis on practical information necessary to intelligently purchase and implement microcomputers in schools, including training in arranging, multimedia production, and classroom instruction techniques. Additional topics include teacher-based administrative functions (grading, communications, research, databases, financial management). Letter grading.

112. Guided Field Experiences in Music Education. (1) Field studies, three hours. Initial field experiences for students preparing to teach and earn single subject certification in music. Novice teachers work under direct guidance of UCLA music education faculty members and practicing public school instructor to develop and deliver instruction in K-12 settings. P/NP grading.

114A-114I. Study of Instrumental and Vocal Techniques. (1 each) Studio, three hours. Requisite or corequisite: course 20A. Applied studies in basic performance techniques and tutorial materials. Each of courses 114A through 114I may be repeated once for credit. Letter grading. **114A.** High Strings; **114B.** Low Strings; **114C.** Flute and Saxophone; **114D.** Double Reeds; **114E.** Trumpet and Trombone; **114F.** Horn and Tuba; **114G.** Snare Drum; **114H.** Other Percussion; **114I.** Voice.

114J. Piano Skill in Classroom. (1) Activity, two hours. Designed for undergraduate Music majors concentrating in music education. Not open to students enrolled in piano lessons. Development of piano skills and competencies that enable students to function successfully in general music, instrumental ensemble, and choral ensemble classrooms. Letter grading.

115A-115B. Study of Instrumental Techniques. (2-2) Studio, four hours; outside study, two hours. Applied studies in basic performance techniques and tutorial materials designed to give music education students knowledge to teach basic instrument concepts. Letter grading. **115A.** Woodwinds; **115B.** Brass.

116. Introduction to Conducting. (2) Lecture, three hours. Requisites: courses 20A, 20B, 20C, 120A. Fundamentals of conducting, including basic skills, techniques, analysis, and repertoire. P/NP or letter grading.

117. Study and Conducting of Instrumental and Choral Literature. (2) Lecture, three hours. Requisite: course 116. Study and practice of conducting both instrumental and choral repertoire. In addition to further development of conducting gestures, focus on score study techniques, rehearsal techniques, style, and interpretation as applied to choral and instrumental repertoire. Letter grading.

C118A. Advanced Choral Conducting. (2) Lecture, one hour; studio, two hours. Requisites: courses 116, 117. Conducting basics, baton technique, beat patterns, dynamics, score preparation and analysis. May be repeated once for credit. Concurrently scheduled with course C218A. P/NP or letter grading.

C118B. Choral Techniques and Methods. (2) Lecture, one hour; studio, two hours. Requisites: courses 116, 117, C118A. Vocal and choral pedagogy, vocalizing and warm-up techniques, diction, and rehearsals and audition techniques. May be repeated once for credit. Concurrently scheduled with course C218B. P/NP or letter grading.

119A. Vocal Techniques for Music Education. (3) (Formerly numbered 119.) Lecture, two hours; activity, two hours; outside study, five hours. Introduction to art of teaching voice, including anatomy of singing instrument, biomechanics of singing, diagnosis and correction of faults, health and care of voice, and instructional techniques. Application of vocal techniques to choral music teaching at middle and high school levels. Letter grading.

119B. Western and World Percussion Pedagogy. (3) Lecture, two hours; activity, two hours; outside study, five hours. Enforced requisites: courses 20A, 20B, 20C, 110A. Applied studies in basic performance techniques and tutorial materials designed to give music education students knowledge to teach essential instrument concepts. Topics include snare drum technique, mallets, timpani, accessories, percussion ensembles, introduction to drum set and world percussion. Letter grading.

119C. Jazz and Technology Pedagogy. (3) Lecture, two hours; activity, two hours; outside study, five hours. Enforced requisites: courses 20A, 20B, 20C, 110A, 120A, 120B, 120C. Foundations for teaching jazz by development of understanding of curriculum, rehearsal techniques, improvisation, and uses of technology in jazz education. Technology understanding includes basic concepts of sequencing, composition, ensemble performance, and creation of multimedia presentations using tablet (iPad) technology. Letter grading.

120A. Music Theory IV. (4) Lecture, four hours; discussion, four hours. Preparation: passing score on departmental first-year examination. Requisite: course 20C with grade of C (2.0) or better. Theory: baroque counterpoint including chorale prelude; two-part invention; exposition and first modulation of three-part invention; canonic principles; analysis of inventions, canons, and fugues. Musicianship: sight-singing of extended chromatic melodies; advanced harmonic dictation (diatonic and chromatic); keyboard harmonization of modulating melodies; elementary score reading. P/NP or letter grading.

120B. Music Theory V. (4) Lecture, four hours; discussion, four hours. Requisite: course 120A with grade of C (2.0) or better. Theory: advanced chromatic harmony including development of harmony from 1850; analytical projects; style composition. Musicianship: advanced score reading; advanced harmonic dictation; preparation for departmental examination. P/NP or letter grading.

120C. Music Theory VI. (4) Lecture, four hours; discussion, two hours; listening, two hours. Requisite: course 120B with grade of C (2.0) or better. 20th-century harmonic language, including nonfunctional harmony, polytonality, free atonality, serialism, and minimalism. P/NP or letter grading.

121. Special Topics in 20th-Century Music. (4) Lecture, three hours. Requisites: courses 20A, 20B, 20C, 120A, 120B, 120C. In-depth study of certain aspects of 20th-century music ranging from individual composers and schools to ideological or stylistic concerns. May be repeated once for credit. P/NP or letter grading.

C122. Speculative Music Theory. (4) Discussion, three hours. Requisites: courses 20A, 20B, 20C, 120A, 120B, 120C. Techniques of tonal coherence studied through analysis and compositional exercises in styles of given periods. May be repeated once for credit. May be concurrently scheduled with course C222. P/NP or letter grading.

123A-123B-123C. Composition. (4-4-4) Lecture, three hours. Requisites: courses 20A, 20B, 20C, 120A, 120B, 120C. Course 123A is requisite to 123B, which is requisite to 123C. Designed for composition students. Vocal and instrumental composition in smaller forms, including style composition and 20th-century techniques. Each course may be repeated once for credit, but first year must be taken in sequence. P/NP or letter grading.

124A. Scoring for Symphony Orchestra. (4) Discussion, three hours. Requisites: courses 106B, 120C (accelerated section), 123C. Practical applications in scoring for symphony orchestra. Preparation and production of parts and full scores. At least one reading by UCLA Philharmonia Orchestra scheduled. Letter grading.

124B. Scoring for Wind Ensemble. (4) Discussion, three hours. Requisites: courses 106B, 120C (accelerated section), 123C. Practical applications in scoring for large wind ensembles. Preparation and production of score and parts. May include percussion. At least one reading by UCLA Wind Ensemble scheduled. Letter grading.

124C. Scoring and Arranging for Choral Ensemble. (4) Discussion, three hours. Requisites: 106B, 120C (accelerated section), 123C. Practical applications in scoring and arranging for choral ensembles, including a cappella as well as chorus with instruments. Preparation and production of score and parts. At least one reading by UCLA Chorale or other choral group scheduled. Letter grading.

M131. Development of Latin Jazz. (4) (Same as Ethnomusicology M131.) Lecture, four hours; discussion, one hour. Survey of historical and stylistic development of musical style referred to today as Latin jazz. P/NP or letter grading.

M134. Introduction to Armenian Music. (4) (Same as Armenian M134 and Ethnomusicology M134.) Lecture, three hours. Some amount of formal music study and experience as vocalist or instrumentalist desirable but not essential. Introduction to history, tradition, and scope of music of Armenia. Focus on number of different genres and approaches, and interactions between music and culture, society, and history. P/NP or letter grading.

136A-136B-136C. Historical Survey of Music Theater. (4-4-4) Lecture, four hours; discussion, one hour. Historical survey of major works from music theater, tracing development of art form from its European beginning to American music theater of today. P/NP or letter grading. **136A.** Early Forms to 1900; **136B.** 1900 to 1945; **136C.** 1945 to 1975.

140A-140B-140C. History and Analysis of Western Music. (5-5-5) Lecture, four hours; discussion, one hour. Survey of Western music; examination of representative compositions within their cultural contexts and development of analytical methods appropriate to each repertory. Letter grading. **140A.** To 1700. Enforced requisite: course M10C or M87. Students must receive grade of C or better to proceed to next course in sequence. **140B.** 1700 to 1890. Enforced requisite: course 140A with grade of C or better. **140C.** 1890 to Present. Enforced requisite: course 140B with grade of C or better.

C150. Keyboard Skills for Pianists. (2) Activity, two hours; outside study, four hours. Applied music course with focus on necessary skills for piano performance. Areas include sight playing, score reading, transposition, figured bass, harmonization, improvisation, score reduction, and ensemble issues. Concurrently scheduled with course C450. P/NP or letter grading.

C155. Instrumental and Piano Duo Repertoire. (2) Activity, two hours; outside study, four hours. Performance-based course that develops repertoire and experience in collaborative performance for pianists and instrumentalists. Activities include weekly score preparation, weekly rehearsals, regular coaching, and performances for lessons, juries, recitals, master classes, auditions, and other related activities. Regular coaching with faculty members, weekly performance workshop, and rehearsals. Concurrently scheduled with course C455. P/NP or letter grading.

C158. Vocal Repertoire Interpretation. (2) Activity, two hours; outside study, four hours. Performance-based course that develops repertoire and experience in collaborative performance for pianists and vocalists. Activities include text and score preparation, dictation, weekly rehearsals, regular coaching, and performances for lessons, juries, recitals, master classes, auditions, and other related activities. Intensive dictation study incorporated. Regular coaching with faculty members, weekly performance class, and rehearsals. Concurrently scheduled with course C458. P/NP or letter grading.

160A-165. Undergraduate Instruction in Performance for Performance Specialist. (2 each) Studio, one hour. Limited to junior/senior Music majors who have been accepted by audition into performance specialization. Individual instruction. Students must perform in noon concert once during their junior year and must present full recital in their senior year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for credit. P/NP or letter grading. **160A.** Violin; **160B.** Viola; **160C.** Cello; **160D.** String Bass; **160E.** Harp; **160F.** Classical Guitar; **160G.** Viola da gamba; **160K.** Lute; **161A.** Flute; **161B.** Oboe; **161C.** Clarinet; **161D.** Bassoon; **161E.** Saxophone; **162A.** Trumpet; **162B.** French Horn; **162C.** Trombone; **162D.** Tuba; **163.** Percussion; **164A.** Piano; **164B.** Organ; **164C.** Harpsichord; **165.** Voice.

166. Advanced Undergraduate Instruction for Composition Specialists. (2) Studio, one hour per week to be arranged with instructor; outside study, five hours. Enforced requisite: course 66 (6 units). Limited to junior/senior music composition students. One-on-one composition lessons with assignments and compositions tailored to student progress and level of achievement. Lessons address counterpoint, voice-leading, harmonic and melodic construction, orchestration, form, texture, style, notation, and performance feasibility. May be repeated for credit. P/NP or letter grading.

C167. Selected Topics in Keyboard Literature. (2) Lecture, two hours. Enforced corequisite: one course from 64A, 64B, 64C, 164A, 164B, or 164C. In-depth study of selected topics in keyboard literature, concentrating on problems of performance through analysis, historical and comparative studies, and actual performances by participants. May be concurrently scheduled with course C267. P/NP or letter grading.

174. Vocal Diction. (2) Lecture, two hours; outside study, four hours. Designed for Music majors. Sounds of language as applied to singing, including use of International Phonetic Alphabet, translation of art song texts, and application to student's current vocal repertoire. Background in each language encouraged. P/NP or letter grading.

C175. Chamber Ensembles. (2) Activity, two to four hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Students may enroll in two sections per term; total of 12 units may be applied toward degree requirements. May be concurrently scheduled with course C485. P/NP or letter grading.

C176. Electronic Music Composition. (4) Lecture, three hours; laboratory, three hours. Preparation: advanced experience and accomplishment in serious composition (art music), two years of music theory. Limited to music composition majors. Exercises in electroacoustic orchestration, meta-pitch composition, notation software (Sibelius), sequencing and film scoring software (Logic), text collages (ProTools), and final project. May be concurrently scheduled with course C226. P/NP or letter grading.

C177. Gluck Chamber Ensembles. (2) Studio, two hours. Preparation: audition. Advanced chamber ensembles who, after rehearsing and being coached on core amount of repertoire, play in outreach settings around Los Angeles community. May be repeated for credit without limitation. Concurrently scheduled with course C477. P/NP grading.

CM182. Music Industry. (4) (Same as Ethnomusicology CM182, Music History CM186, and Music Industry M182.) Lecture, four hours; discussion, one hour; outside study, seven hours. Limited to Ethnomusicology, Music, and Music History majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course CM282. Letter grading.

C185. Historical and Philosophical Foundations of Music Education. (4) Lecture, three hours. Preparation: completion of undergraduate music education specialization. Development of music education in U.S. according to established schools of thought. May be concurrently scheduled with course C225. P/NP or letter grading.

188. Special Courses in Music. (4) Lecture, three hours; outside study, nine hours. Special topics in music for undergraduate students taught on experimental or temporary basis. May be repeated for credit. P/NP or letter grading.

195. Community or Corporate Internships in Music. (2 to 4) Tutorial, six hours. Limited to juniors/seiors. Internship in supervised setting in community agency or business. Students meet on regular basis with supervising instructor and submit periodic reports of their work experiences. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP grading.

197. Individual Studies in Music. (2 or 4) Tutorial, one hour. Preparation: 3.0 grade-point average. Limited to seniors. Individual intensive study in music, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter (research project) required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

Graduate Courses

M201. Repertory and Analysis. (2) (Same as Musicology M201.) Seminar, two hours. Requisite or corequisite: Musicology 200A. Exploration of defined repertory through readings and analysis. Specific topics vary. May be repeated for credit. S/U grading.

202. Analysis for Performers. (4) Lecture, three hours; outside study, nine hours. Designed for graduate students. Survey of analytical techniques and approaches required for professional performers, including phrase structure, harmonic rhythm and prolongation, small and large forms, theories of musical coherence, and understanding of styles. Letter grading.

203. Notation and Performance. (4) Lecture, three hours; outside study, nine hours. Designed for graduate music students. Survey analysis of evidence performers use to make their interpretive decisions in performance of vocal and instrumental music of European tradition. Topics include editions, treatises, tempo indications, expressive notation, use and influence of recordings, composer-performer relationship, and nonstandard notation. Letter grading.

204. Music Bibliography for Performers. (4) Lecture, three hours; outside study, nine hours. Designed for graduate music performance students. Survey of general bibliographic techniques in music, with emphasis on materials for performing musicians. Letter grading.

C218A. Advanced Choral Conducting. (2) Lecture, one hour; studio, two hours. Requisites: courses 116, 117. Conducting basics, baton technique, beat patterns, dynamics, score preparation and analysis. May be repeated once for credit. Concurrently scheduled with course C118A. Letter grading.

C218B. Choral Techniques and Methods. (2) Lecture, one hour; studio, two hours. Requisites: courses 116, 117, C218A. Vocal and choral pedagogy, vocalizing and warm-up techniques, diction, and rehearsal

and audition techniques. May be repeated once for credit. Concurrently scheduled with course C118B. Letter grading.

C222. Speculative Music Theory. (4) Discussion, three hours. Designed for graduate music students. Techniques of tonal coherence studied through analysis and compositional exercises in styles of given periods. May be repeated once for credit. May be concurrently scheduled with course C122. S/U or letter grading.

C225. Historical and Philosophical Foundations of Music Education. (4) Lecture, three hours. Designed for graduate students. Development of music education in U.S. according to established schools of thought. May be concurrently scheduled with course C185. Additional assignments, as well as evidence of greater depth of study, required of graduate students. S/U or letter grading.

C226. Electronic Music Composition. (4) Lecture, three hours; laboratory, three hours. Preparation: advanced experience and accomplishment in serious composition (art music), two years of music theory. Designed for graduate students. Limited enrollment. Exercises in electroacoustic orchestration, meta-pitch composition, notation software (Sibelius), sequencing and film scoring software (Logic), text collages (ProTools), and final project. May be concurrently scheduled with course C176. S/U or letter grading.

251. Seminar: Orchestration. (4) Seminar, three hours. Advanced orchestration for large ensembles; analysis of orchestral literature. Letter grading.

252. Seminar: Composition. (4) Seminar, three hours. Compositional projects for varying acoustic instrumental and vocal ensembles. Students expected to perform their compositions from sketches at piano or present notation files of work-in-progress with playback file, where appropriate. Performance of completed works in graduate composition concerts by UCLA student performers. S/U or letter grading.

253. Seminar: Special Topics in Composition and Theory. (4) Seminar, three hours. Intensive exploration of specialized aspects of composition. May be repeated for credit. S/U or letter grading.

254. Advanced Music Analysis: Pre-Tonal Music. (4) Seminar, three hours. Designed to provide graduate composition students with in-depth exposure to complex and rich works of late Middle Ages through dawn of baroque era. Exploration of analytical techniques and methods not commonly used in analysis of works of tonal and post-tonal periods, and approaches to musical structures used by composers before modern tonal harmonic syntax had fully developed. Letter grading.

255. Advanced Music Analysis: Tonal Music. (4) Seminar, three hours. Discussion of theoretic approaches to and analysis of selected works of common practice era. Analysis of assigned pieces using various theoretic approaches discussed and presentation of analyses in class. Letter grading.

256. Advanced Music Analysis: Post-Tonal Music. (4) Seminar, three hours. Designed for graduate music students. Discussion of theoretic approaches to and analysis of selected works of 20th or 21st century. Analysis of assigned pieces using various theoretic approaches discussed and presentation of analyses in class. Letter grading.

260A. Seminar: Composition for Motion Pictures and Television. (6) Seminar, three hours; laboratory, three hours. Practical experience in composing for commercial movies. Difference between underscore and source music and discussion of surrealistic effect when they merge, as in MTV, dream sequences, or montages. Study of three principal areas of filmmaking—preproduction, production (shooting), and postproduction. Examples from classic movies and discussion of their scores. Composition of actual cues for acoustic instruments coordinated to picture to be term project. Separate cues involve dialogue, melodrama, comedy, chase, memory montage, and tension. Letter grading.

260B. Seminar: Composition for Motion Pictures and Television. (6) Seminar, three hours; laboratory, three hours. Focus on task of completing one entire score for television episode or original student film. Discussion of recent television shows. Composition of one original title song and short cues to someone else's song required. Term assignment involves student orchestra recording to picture, designed to approximate actual conditions of completing professional Hollywood assignment, from spotting to scoring. Letter grading.

261A-261J. Problems in Performance Practices. (4 each) Seminar, three hours; outside study, nine hours. Limited to graduate performance students. Investigation of primary source readings in performance practices as related to period; analytical reports and practical applications in class demonstrations. May be repeated for credit. Letter grading. **261A.** Medieval; **261B.** Renaissance; **261C.** Baroque; **261D.** Classical; **261E.** Romantic; **261F.** Contemporary; **261J.** Jazz.

266. Graduate Instruction for Composition Specialists. (4) Studio, one hour arranged with instructor; outside study, 11 hours. Limited to graduate composition students. One-on-one composition lessons, with assignments and compositions tailored to each student's progress and level of achievement, addressing counterpoint, voice-leading, harmonic and melodic construction, orchestration, form, texture, style, notation, and performance feasibility of compositions worked on at advanced level. Presentation of at least one composition composed during course in graduate composition concert during academic year. May be repeated for credit without limitation. S/U or letter grading.

C267. Selected Topics in Keyboard Literature. (2) Lecture, two hours. Enforced corequisite: course 464A or 464B or 464C. In-depth study of selected topics in keyboard literature, concentrating on problems of performance through analysis, historical and comparative studies, and actual performances by participants. May be concurrently scheduled with course C167. S/U or letter grading.

270A-270G. Seminars: Music Education. (6 each) Seminar, three hours. May be repeated for credit without limitation. S/U or letter grading. **270A.** History; **270B.** Non-Western Musics; **270C.** Curriculum Innovations; **270D.** Tests and Measurements; **270E.** Choral Literature; **270F.** Instrumental Literature; **270G.** General Topics.

CM282. Music Industry. (4) (Same as Ethnomusicology CM288 and Musicology CM288.) Lecture, four hours; discussion, one hour; outside study, seven hours. Limited to Ethnomusicology, Music, and Musicology majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course CM182. Letter grading.

290. Composition Forum. (2) Seminar, two hours. Weekly forum to present professional composers of range of mediums, including large ensemble vocal and/or instrumental works, chamber music, electronic music, and film/television, as guest lecturers. Letter grading.

292. Seminar: Special Topics in Music. (4) Seminar, three hours. Exploration of topics in music through variety of approaches that may include projects, performances, readings, discussions, research papers, and oral presentations. Topics announced in advance. May be repeated for credit. S/U or letter grading.

330. Introduction to Orff Schulwerk. (2) Lecture, 10 hours; discussion, five hours; laboratory, 15 hours. Intended for teachers of music, church musicians, and music therapists who have had little or no previous experience with Orff Schulwerk. Introduction to Orff Schulwerk, including history, philosophy, and teaching processes of this approach to music instruction for children. Offered in summer only. S/U or letter grading.

S331A-S331B-S331C. Orff Schulwerk Training Courses. (4-4-4) Lecture, 10 hours; discussion, five hours; laboratory, 15 hours. Requisite: course 330. Course S331A is requisite to S331B, which is requisite to S331C. In-depth courses in teaching of Orff Schulwerk approach to music instruction for children. Students who successfully complete each course are eligible for certification at that level through American Orff Schulwerk Association. Offered in summer only. S/U or letter grading. **S331A.** Level I (Beginning); **S331B.** Level II (Intermediate); **S331C.** Level III (Advanced).

S341. Conducting for High School and College Band/Wind Ensemble Teachers. (2) Lecture, 25 hours. Comprehensive view of current trends in band/wind ensemble programs, including nonverbal communication, conducting, and rehearsal techniques. Study of new and recently published literature and discussions of administration of band/wind ensemble programs. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

S342. Contemporary Marching Band. (1) Lecture, 12 hours. Innovative approaches to marching band programs for high school and college teachers, including creative approaches to charging and drill design and use of microcomputers. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

343. Effective and Creative String Teaching. (2) Lecture, 24 hours. Comprehensive course for teachers of string classes and string orchestras at elementary, junior high, and high school levels. Topics include development of instructional techniques for violin, viola, cello, and bass; critical examination of current pedagogical materials; and reading sessions of recently published music for string orchestra. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

343L. Effective and Creative String Teaching Laboratory. (1) Laboratory, 12 hours. Exploration of string orchestra, ensemble, and chamber music literature appropriate for elementary, junior high, and high schools. Examination of this literature in reading and discussion sessions. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

S345. Symposium on Art of Choral Music. (2) Lecture, 25 hours. Symposium for college, high school, and junior high school choral directors on development of practical techniques for solving real challenges in choral conducting and teaching. Topics include innovative choral methods, choral conducting, vocal pedagogy, voice classification, and survey of standard and current choral literature. Offered in summer only. S/U or letter grading.

350A. Introduction to Computer-Assisted Instruction of Music. (2) Lecture, three hours; laboratory, two hours. Introduction to instructional uses of computers in music classroom, with emphasis on practical information necessary to intelligently purchase and implement microcomputers in schools. Courseware to be experienced and reviewed, jargon defined and illustrated, and practical hands-on experience obtained. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

350B. Exploration of MIDI Computer Resources: Keyboards and Synthesizers. (2) Lecture, two hours; laboratory, three hours. Creative use of MIDI-based synthesizers under computer control. Exploration of available hardware resources allied with various software sequencing packages. Use of software for computer-based music printing. Hands-on experience. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

371. Marching Band in Secondary Education. (2) Lecture, two hours. Study of contemporary marching band as component of music curriculum in secondary education, including current approaches, practices, and problems associated with marching bands, as well as historical perspective. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate,

or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

401. New Music Forum. (2) Tutorial/laboratory, two hours. Preparation: one year of graduate study in music at UCLA. Interactive course in preparation and performance of premiere work especially composed for graduate performer or performers by graduate composer at UCLA. Letter grading.

C450. Keyboard Skills for Pianists. (2) Activity, two hours; outside study, four hours. Applied music course with focus on necessary skills for piano performance. Areas include sight playing, score reading, transposition, figured bass, harmonization, improvisation, score reduction, and ensemble issues. Concurrently scheduled with course C150. Letter grading.

C455. Instrumental and Piano Duo Repertoire. (2) Activity, two hours; outside study, four hours. Performance-based course that develops repertoire and experience in collaborative performance for pianists and instrumentalists. Activities include weekly score preparation, weekly rehearsals, regular coaching, and performances for lessons, juries, recitals, master classes, auditions, and other related activities. Regular coaching with faculty members, weekly performance workshop, and rehearsals. Concurrently scheduled with course C155. Letter grading.

C458. Vocal Repertoire Interpretation. (2) Activity, two hours; outside study, four hours. Performance-based course that develops repertoire and experience in collaborative performance for pianists and vocalists. Activities include text and score preparation, dictation, weekly rehearsals, regular coaching, and performances for lessons, juries, recitals, master classes, auditions, and other related activities. Intensive dictation study incorporated. Regular coaching with faculty members, weekly performance class, and rehearsals. Concurrently scheduled with course C158. Letter grading.

460A-466. Graduate Instruction in Performance. (6 each) Studio, one hour; performance laboratory/outside study, 17 hours. Limited to graduate performance students. Individual instruction. Intensive study and preparation of musical literature in area of specialization. May be repeated for credit. Letter grading. **460A.** Violin; **460B.** Viola; **460C.** Cello; **460D.** String Bass; **460E.** Harp; **460F.** Classical Guitar; **460G.** Viola da gamba; **460K.** Lute; **461A.** Flute; **461B.** Oboe; **461C.** Clarinet; **461D.** Bassoon; **461E.** Saxophone; **462A.** Trumpet; **462B.** French Horn; **462C.** Trombone; **462D.** Tuba; **463.** Percussion; **464A.** Piano; **464B.** Organ; **464C.** Harpsichord; **464D.** Fortepiano; **465.** Voice; **466.** Jazz.

469. Instrumental Pedagogy. (4) Lecture, three hours; outside study and preparation, nine hours. Preparation: advanced proficiency on one musical instrument. Designed for graduate music students. Study of art of teaching musical instruments, including discussions of philosophy of teaching, learning process itself, and teaching of musical interpretation. Individualized study of various considerations, such as physical/technical aspects and pedagogical repertoire, peculiar to teaching student's primary instrument. Letter grading.

470. Opera Studio for Graduate Students. (4) Laboratory, six hours. Designed for graduate students. Performance techniques and repertoire for graduate students in opera. S/U or letter grading.

471. Vocal Pedagogy. (4) Lecture, three hours; discussion, one hour. Preparation: advanced proficiency in voice. Designed for graduate music students. Study of teaching techniques for voice, including thorough investigation of vocal mechanism and its use, plus study of noted teachers of past and present. Further emphasis on practical teaching experience in class. Letter grading.

472. Master Class in Opera. (6) Studio, three hours; outside study, 15 hours. Limited to graduate performance students. Intensive study and preparation of opera literature. May be repeated for credit. S/U or letter grading.

475. Master Class in Conducting. (6) Studio, three hours; outside study, 15 hours. Limited to graduate performance students. Intensive study and preparation of musical literature in specialized field of conducting. May be repeated for credit. S/U or letter grading.

C477. Gluck Chamber Ensembles. (2) Studio, two hours. Preparation: audition. Advanced chamber ensembles who, after rehearsing and being coached on core amount of repertoire, play in outreach settings around Los Angeles community. May be repeated for credit without limitation. Concurrently scheduled with course C177. S/U grading.

C480. UCLA Chorale. (2) Activity, four hours. Preparation: audition. Designed for M.M. and D.MA students. Select mixed ensemble of 100 voices performing choral music appropriate for concert choral ensemble, with emphasis on music after 1700. May be repeated for credit without limitation. May be concurrently scheduled with course C90A. Letter grading.

C481. Symphony Orchestra. (2) Activity, four hours. Preparation: audition. Group performance of symphonic literature, as well as orchestral accompaniment for operatic and major choral works. May be repeated for credit without limitation. May be concurrently scheduled with course C90E. Letter grading.

C482. Wind Ensemble. (2) Activity, six hours. Preparation: audition. Designed for MM and DMA students. Group performance of concert literature for wind ensemble. May be repeated for credit without limitation. May be concurrently scheduled with course C90G. Letter grading.

C484. Piano/Keyboard Accompanying. (2) Activity, four hours; outside study, two hours. Collaboration with large ensembles, instrumentalists, and/or vocalists in role of accompanists. Performance includes, but is not limited to, lessons, rehearsals, special studio performance projects, master classes, concerts, auditions, juries, and recitals. May be repeated for maximum of 12 units. Concurrently scheduled with course C90Q. Letter grading.

C485. Chamber Ensembles. (2) Activity, two to four hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Students may enroll in two sections per term; total of 12 units may be applied toward degree requirements. May be concurrently scheduled with course C175. Letter grading.

486. Jazz Ensemble. (2) Studio, six hours. Designed for M.M. students in jazz performance area of study. Group performance of jazz repertoire. May be repeated for credit without limitation. Letter grading.

495. Introductory Practicum for Teaching Apprentices in Music. (2) Eight weekly two-hour seminar sessions, plus intensive training session during Fall Quarter registration week. Preparation: appointment as teaching apprentice in Music Department. Required of all new teaching apprentices. Special course dealing with problems and practices of teaching music at college level. May not be applied toward degree requirements. S/U grading.

496. Technology Seminar. (2) Seminar, two hours; laboratory, one hour; outside study, three hours. Introduction to departmental and campuswide technology resources, exploration of applications of technology in education, and development of means of using technology to assess and document teaching competence. S/U grading.

595A. Preparation of Master's Recital. (6) Tutorial, three hours. Limited to graduate master's program in performance students. Intensive study and preparation of final master's recital, normally taken in lieu of 400-level lessons during final recital term. S/U grading.

595B. Preparation of Final Doctoral Recital. (6) Tutorial, three hours. Preparation: advancement to candidacy for DMA degree. Intensive study and preparation of final DMA recital, normally taken in lieu of 400-level lessons during final recital term. S/U grading.

596A. Directed Individual Studies in Orchestration and Composition. (2, 4, or 6) Tutorial, to be arranged. Only 4 units may be applied toward MA or MM degree requirements. May be repeated for credit. S/U or letter grading.

596C. Directed Individual Studies in Music Education. (2, 4, or 6) Tutorial, to be arranged. Only 4 units may be applied toward MA or MM degree requirements. May be repeated for credit. S/U or letter grading.

596D. Directed Individual Studies in Performance Practices. (2 to 12) Tutorial, to be arranged. Only 4 units may be applied toward MA or MM degree requirements. May be repeated for credit. S/U or letter grading.

597. Preparation for Master's Comprehensive Examination or PhD Qualifying Examinations. (2 or 4) Tutorial, to be arranged. S/U grading.

598. Guidance of MA Thesis. (4, 8, or 12) Tutorial, to be arranged. Only 4 units may be applied toward degree requirements. May be repeated for credit. S/U grading.

599. Guidance of PhD or DMA Dissertation. (4, 8, or 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

for students to work with practitioners on real-world projects in the music industry.

To apply to the minor, transfer students must have completed a minimum of one term of residency at UCLA, and students admitted as freshman must have completed a minimum of three terms of residency at UCLA. Students must be in good academic standing with an overall grade-point average of at least 2.0.

In addition, students who are not Ethnomusicology, Music, or Music History majors must complete at least one lower division performance or ensemble course selected from Ethnomusicology 91A through 91Z, Music C90A through 90N, or C90Q through M90T prior to application to the minor. The performance requirement may also be fulfilled through successful completion of Music Industry 111 or through an equivalent music industry course by petition.

Required Upper Division Courses (28 units): Music Industry 101, 195 (8 units), and five additional courses (20 units) selected from Ethnomusicology C100, 105, M110B, 117, C169, 172A, C184, Film and Television 122B, Music C176, Music History 140, 164, 185, Music Industry 102 through 112, M182, 188, 195, 197.

In addition, students who are not Ethnomusicology, Music, or Music History majors must demonstrate music theory proficiency by either passing the Music Theory Assessment Examination, completing Music 3 with a minimum grade of C+, or completing an equivalent course in consultation with the minor chair.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

With the exception of Music Industry 195 (mandatory P/NP grading), each minor course must be taken for a letter grade. Successful completion of the minor is indicated on the transcript and diploma.

MUSIC INDUSTRY

*Interdisciplinary Minor
Herb Alpert School of Music*

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Robert W. Fink, PhD, Chair

Faculty Committee

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Nina S. Eidsheim, PhD (Musicology)
Robert W. Fink, PhD (Musicology)
Juliana K. Gondek, MM (Music)
Steven J. Loza, PhD (Ethnomusicology)
James W. Newton, BM (Ethnomusicology)

Scope and Objectives

The Music Industry minor is an interdisciplinary and interdepartmental series of courses designed to (1) introduce students to a critical perspective on the formative effects of the music industry and music technology has had on musical practices around the world, (2) prepare students for employment in the music industry, including marketing and sales, recording production, intellectual property, sound recording, and arranging, and (3) contribute to improved communication and interaction between the University, the music industry, and the musical life of Los Angeles.

Undergraduate Study

Music Industry Minor

The Music Industry minor is intended to provide students with an introduction to the history, theory, and practice of music as a calling and a business and to provide opportunities

Music Industry

Upper Division Courses

101. Seminar: Music Industry, Technology, and Science. (4) Seminar, four hours; outside study, eight hours. Required of Music Industry minors. Introduction to intellectual and theoretical frameworks that form Music Industry minor and that scholars of music and music industries have developed to analyze, understand, and perhaps judge what happens out there, including how music business works in financial, legal, global, and artistic terms, how music technologies of recording, reproduction, and consumption operate, and how basic music science from acoustics to brain biology to music perception affects how music is produced and heard. Letter grading.

102. Internet Marketing and Branding for Musicians. (4) Seminar, four hours; outside study, eight hours. Digital world for musicians has changed dramatically. Musicians not only have ability to self-market and create communities directly with listeners, but also can thrive in online communities with influencers and other musicians around world. Digital has transformed not just way musicians get word out, but also how they create. Internet marketing has morphed into Internet community crowdsourcing—very dif-

ferent world for musicians and musical organizations. Study driven by project-based work of current online environments for musicians, organizations, and venues. Students dive into best practices around world, growing brand, finding target market online, and engaging with right communities of practice to build their own connections and online portfolio of collaborators. Letter grading.

103. Music and Brain. (4) Seminar, four hours; outside study, eight hours. Multidisciplinary approach to understanding brain mechanisms mediating music perception, performance, and cognition. Students' natural interest in music serves as springboard for learning basic concepts about how brain works. Focus on specific themes such as harmony perception, rhythm perception, emotion and meaning in music, and creativity. Designed to help students understand methodologies currently used to investigate brain-behavior correlates. Broad understanding of research topics in cognitive neuroscience, one of three main subdisciplines of neuroscience; introduction to fundamental principles in neurophysiology, psychophysiology, and neuroanatomy, whose basics form foundation for brain imaging, forensic practice, social psychology research, and marketing research; and specific knowledge about brain mechanisms mediating music-related cognitive and emotional functions. Letter grading.

104A. Music and Law. (4) (Formerly numbered 104.) Seminar, three hours; outside study, nine hours. Fundamentals of American law as it applies to entertainment business, with special attention to music and its use in film, television, and new media. Legal relationships in entertainment business and basic business practices. Exploration of legal aspects of process of producing works in entertainment field, from acquisition of rights and talent through production and distribution. Letter grading.

104B. Legal and Business Aspects of Sound Recordings. (4) Seminar, three hours; outside study and research, nine hours. Exploration of legal and business aspects of production and distribution of sound recordings. More detailed practical focus on legal aspects of recording process itself, from initial assembly of material to final distribution and collection of royalties, with material covered also relevant to audio-visual recordings. Introductory presentation on contract, copyright, and trademark law as background to step-by-step process of securing agreements necessary for production and commercial distribution of recordings. Letter grading.

105. Songwriters on Songwriting. (4) Lecture, three hours; outside study, nine hours. With special focus on songwriting renaissance of rock era, examination of work of greatest songwriters of post-World War II generation (circa 1952 to 1994) and those they have influenced through creative as well as practical industry guidance from current and noteworthy practitioners. Coverage of songwriting, arrangement and record production, music publishing, and record business in 20th and 21st centuries. Guest music industry professionals to demonstrate individual creative processes and discuss their paths to songwriting and their place in world of music. Course is not workshop or tutorial on how to write songs. Letter grading.

106. Stardom Strategies for Musicians. (4) Lecture, four hours; outside study, eight hours. Help for students to determine what music career best serves their own lives and gives them tools that help them be successful in their lives and careers. Guest speakers, including top music agents, managers, publicists, and performers, to be featured. Letter grading.

107A. Audio Technology for Musicians I. (4) (Formerly numbered 107.) Studio, four hours; outside study, eight hours. Limited to Ethnomusicology, Music, and Music History majors. Equally for singers using microphones or beat makers using samplers, electronic equipment and procedures permeate music making, and ability to understand their logic is key for any musician today. Practical technical aspects and procedures of equipment and software (sequencers, recorders, mixers, microphones, and so on) most commonly used in contemporary music making. Main sound processing types (equalizers, compressors, reverb).

Fundamental aspects of most widespread music production software and hardware. P/NP or letter grading.

107B. Audio Technology for Musicians II. (4) Studio, four hours; outside study, eight hours. Enforced requisite: course 107A. As audio technology becomes more ingrained and pervasive in creative life of musicians, it is more important than ever to obtain deep understanding of technological music and audio tools, and concepts behind them, that are available. Examination of certain technological elements in greater depth than in course 107A, while applying established concepts to broad range of creative scenarios and applications. Basic familiarity with standard audio workstation software in use in music industry and introduction to foundational theoretical concepts in audio engineering, psychoacoustics, mixing, mastering, and sound recording. Development of critical listening skills through in-class and assigned listening. Letter grading.

108. Founding and Sustaining Performing Arts Organizations. (4) Seminar, four hours. Examination of process of founding performing arts organizations, beginning with inspiration to do so, clarifying organization mission, and mechanics of becoming nonprofit corporations; issues of funding, press relations, finding appropriate venues, developing audience; mechanics, legal and routine, of running arts businesses; establishing relationships with other organizations in field; issues of making and distributing recordings. Students create on paper one performing arts organization, including developing mission statement, preparing bylaws, and writing sample grant proposals. Letter grading.

109. Docs that Rock, Docs that Matter. (4) Seminar, three hours. Close look at various genres of rock documentaries and goals, methods, and challenges inherent in making them, with award-winning documentary writer/director. What makes for successful (or unsuccessful) music documentary? Viewed through very specific focus of story and storytelling. P/NP or letter grading.

110. Music Business Now. (4) Seminar, three hours. Hands-on introduction to business of music, with emphasis on marketing and media. P/NP or letter grading.

111. Musicianship through Repertoire in Studio. (4) Studio, three hours. Performance-based introduction to popular music styles, forms, and competencies through immersion in studio techniques. P/NP or letter grading.

112. Comprehensive Songwriting. (4) Seminar, four hours; outside study, eight hours. Learning and employment of craft of songwriting. Examination, analysis, and implementation of song structure, lyrics and melody writing, arranging, orchestrating, and modern (and primitive) recording techniques. How songwriting has evolved in modern society (since advent of phonograph player/radio), how songs and society affect and reflect one another, and how this informs songs and songwriters. Letter grading.

113. Music Supervision. (4) Seminar, three hours. Introduction to role of music supervisor and creative, logistical, and budget considerations of music supervision. Development of theoretical and practical knowledge, interaction with professionals in field, and practice negotiating music requests and clearances. Letter grading.

M182. Music Industry. (4) (Same as Ethnomusicology CM182, Music CM182, and Music History CM186.) Lecture, four hours; discussion, one hour; outside study, seven hours. Limited to Ethnomusicology, Music, and Music History majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Letter grading.

188. Special Courses in Music Industry. (4) Seminar, four hours; outside study, eight hours. Special topics in music industry for undergraduate students taught on experimental or temporary basis. May be repeated for credit with topic change. Letter grading.

195. Community or Corporate Internships in Music Industry and Technology. (4) Tutorial, eight hours. Limited to juniors/seniors in Music Industry minor with minimum cumulative 3.0 grade-point average. Internship in supervised setting in community agency or private business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP grading.

197. Individual Studies in Music Industry and Technology. (2 to 4) Tutorial, six to 12 hours. Limited to juniors/seniors in Music Industry minor with minimum cumulative 3.0 grade-point average. Individual intensive study in music industry and technology, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter resulting in research project/paper required. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. Letter grading.

MUSICOLOGY

Herb Alpert School of Music

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Murray C. Bradshaw, PhD
Malcolm S. Cole, PhD
Frank A. D'Accone, PhD
Marie Louise Göllner, PhD
Richard A. Hudson, PhD

Associate Professors

Olivia A. Bloechl, PhD
Elizabeth Randell Upton, PhD

Assistant Professors

Nina S. Eidsheim, PhD
Jessica A. Schwartz, PhD

Scope and Objectives

The Department of Musicology provides students with a broad understanding of the history and culture of music. Courses cover virtually every period, style, and genre, including jazz and other popular musics. The department is aligned with the Departments of Ethnomusicology and Music and aspires to promote productive collaboration between performance and scholarship, a cross-cultural global understanding of the art of music, and preparatory training for a broad range of careers in music after students graduate.

Music history appeals to undergraduate students with musical backgrounds whose interests and principal career goals lie in areas other than professional performance. The undergraduate program prepares students for graduate programs in music and related fields and offers training within the broader context of the humanities.

The graduate program offers courses leading to the MA and PhD degrees. It is designed to equip students to pursue careers not only in teaching but also in other areas that require bibliographical skills and training in research methodologies. The department provides teaching and research assistantships each year for qualified students.

Undergraduate Study

The Music History major is a designated capstone major. Undergraduate students who are not pursuing departmental honors must complete a senior thesis that demonstrates the skills and expertise they have acquired in earlier coursework. Students are expected to conceive and execute a project that identifies and engages with a problem within a specialized topic, identify and analyze appropriate primary sources both textual and musical, and have a working knowledge of scholarly discourse relative to a specialized topic. While an extended essay is the default expectation for a completed project, students are encouraged to seek alternative formats, such as a lecture-recital, set of lesson plans, or video/audio presentation. Students discuss and critique the work of their peers and present their work to other students and, if they choose, to the public as part of a student-organized conference.

Music History BA

Capstone Major

Admission

The Music History program assumes that students have some musical background before entering UCLA. Although auditions are not required, prospective majors should be sufficiently competent on an instrument or in voice to participate in a performance group, as required by the program.

Preparation for the Major

Required: Music History M6A, M6B, M6C, 12W, Music 20A, 20B, 20C, and 6 units (three terms) of performance organizations selected from Ethnomusicology 91A through 91Z, Music C90A through 90M, Music History 28A through 28C, or CM90T. Enrollment in Music History M6A, M6B, M6C and Music 20A, 20B, 20C requires taking the Music Theory Placement Examination administered by the Music Department.

Transfer Students

Transfer applicants to the Music History major with 90 or more units must complete one year of music theory prior to admission to UCLA. Experience in music performance is strongly recommended. Transfer students are required to take Music History 12W at UCLA.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Music History 125A through 125F, 187; one course from 160 through 185 or from 191A through 191P; one additional 4- to 5-unit upper division elective course in ethnomusicology, music, or music history (enrollment may be limited; check with the department or instructor); and one capstone research colloquium (course 190) and one capstone seminar (course 191T). Students may enroll in lessons from the Music Department, if instructors are available.

Each course applied toward the major must be taken for a letter grade (courses offered only on a P/NP grading basis are acceptable).

Honors Program

The honors program is designed for Music History majors who wish to carry out an extended independent research project that culminates in a departmental honors thesis of approximately 30 pages. The program gives qualified students the opportunity to work closely with individual professors on an in-depth supervised research and writing project.

All junior and senior Music History majors who have completed a minimum of four upper division music history courses with a departmental grade-point average of 3.7 or better and an overall GPA of 3.0 or better are eligible to apply. Normally, the thesis must be completed during fall quarter of the senior year.

To qualify for graduation with departmental honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average of 3.7 or better in upper division courses in the department and an overall GPA of 3.0 or better, and (3) complete at least one term of Music History 198 (2 units) with a grade of A- or better on the resulting thesis.

To qualify for graduation with departmental highest honors, students must (1) complete all requirements for the major, (2) have a cumulative GPA of 3.9 or better in upper division courses in the department and an overall GPA of 3.65 or better, and (3) complete at least one term of Music History 198 (2 units) with a grade of A or better on the resulting thesis.

Music History Minor

The Music History minor provides undergraduates with an overview of music history and the study of music. Students may select from a wide variety of undergraduate courses that range through the history of European and American music.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition with the department in 2443 Schoenberg Music Building. For further information, contact the department at 310-206-5187.

Required Lower Division Courses (10 units): Two music history courses with grades of C or better.

Required Upper Division Courses (21 to 25 units): Music History 101, one seminar course from 160 through 185 or 191A through 191P, one additional upper division music history course, and two additional upper division ethnomusicology, music, music history, or music industry courses (minimum 8 units). Enrollment in some courses may be limited; check with the department or instructor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade (courses offered only on a P/NP grading basis are acceptable), and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Musicology offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Musicology.

Music History

Lower Division Courses

3. Introduction to Classical Music. (5) Lecture, four hours; discussion, one hour. Survey of music of Western classical tradition, with emphasis on historical context, musical meanings, and creation of tradition itself. P/NP or letter grading.

5. History of Rock and Roll. (5) Lecture, four hours; discussion, one hour. Analysis of forms, practices, and meanings of rock and roll music, broadly conceived, from its origin to present. Emphasis on how this music has reflected and influenced changes in sexual, racial, and class identities and attitudes. Credit for both courses 5 and 185 not allowed. Letter grading.

M6A-M6B-M6C. Introduction to Musicianship. (2-2) (Same as Ethnomusicology M6A-M6B-M6C and Music M6A-M6B-M6C.) Laboratory, four hours. Preparation: placement examination. Course M6A is enforced requisite to M6B, which is enforced requisite to M6C. Students must receive grade of C- or better to proceed to next course in sequence. Introduction to musicianship through in-depth exploration of basic common musical elements and training in aural recognition, sight singing, dictation, and keyboard skills. Focus on topics such as tonal and modal harmony, rhythm, improvisation, composition, notation, and ear training to prepare students for later theory courses, participation in music ensembles, advanced study in music, and professional careers. Letter grading.

7. Film and Music. (5) Lecture, four hours; discussion, one hour. History of music and cinema, particularly ways music is used to produce meanings in conjunction with visual image. Credit for both courses 7 and 177 not allowed. P/NP or letter grading.

8. History of Electronic Dance Music. (5) Lecture, four hours; discussion, one hour. Survey of groove-based electrified dance music from its origins in 1960s pop and soul to present, covering disco, house, techno, ambient, rave, and jungle. Emphasis on interaction of technology, musical structures, psychoactive drugs, and club cultures to induce altered states of musical consciousness; promise (versus reality of) political and spiritual transformation; electronic dance music as new art music. P/NP or letter grading.

9. American Popular Song. (5) Lecture, four hours; discussion, one hour. American popular music before advent of rock and roll in 1950s, with special emphasis on song tradition of Tin Pan Alley. P/NP or letter grading.

M10A-M10B-M10C. Introduction to Music: History, Culture, Creativity. (4-4-4) (Same as Ethnomusicology M7A-M7B-M7C and Music M10A-M10B-M10C.) Lecture, two hours; laboratory, four hours. Preparation: placement examination. Course M10A is enforced requisite to M10B, which is enforced requisite to M10C. Students must receive grade of C- or better to proceed to next course in sequence. Introduction to study of music from three complimentary perspectives: its history, relation to culture, and creative structuring. Lectures from musicologists, ethnomusicologists, and composers/theorists combined with small sections in which students develop wide range of musicianship skills. Organized around broad ideas (performance, simultaneity, time, place, and more) where creative and cultural implications are explored through analysis and discussion of broad repertoire of musical works spanning historical eras and global cultures. Compositional exercises, production of short compositions, and short papers dealing with historical and cultural issues required. Letter grading.

12W. Writing about Music. (5) Lecture, four hours; laboratory, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Emphasis on learning specific skills, incorporating technical description, historical contextualization, subjective reaction, and certain stylistic conventions necessary in writing about music. Satisfies Writing II requirement. Letter grading.

13. Punk: Music, History, Subculture. (5) Lecture, four hours; discussion, one hour. Developments in punk music in their historical and subcultural contexts. Survey of prepunk and musical antecedents in 1960s, rise of punk in 1970s, and tracing of its expressive trajectories to present day. P/NP or letter grading.

28A-28B-28C. Collegium Musicum. (2-2-2) Lecture, three hours. Preparation: ability to read music. Group performance of Western vocal and instrumental music. P/NP or letter grading. **28A.** Medieval Period; **28B.** Renaissance Period; **28C.** 17th and 18th Centuries.

35. Introduction to Opera. (5) Lecture, four hours; discussion, one hour. Exploration of history of opera from its origins in Florentine Camerata in Italy in early 17th century, through ages of Enlightenment and Romanticism, and ending with modern era of early 20th century. History of opera, biography of composers and singers, operatic conventions, dramaturgy, plot, stagings, hermeneutics of opera, and musical style, with focus on learning appreciation of music of opera within rich context of its compelling history. P/NP or letter grading.

60. American Musical. (5) Lecture, four hours; discussion, 90 minutes. Survey of American musical in 20th century, beginning with its roots in operetta, vaudeville, and Gilbert and Sullivan, and focusing on its connections to politics, technology, film, opera, and variety of popular musical styles, including Tin Pan Alley, jazz, and rock. Credit for both courses 60 and 160 not allowed. P/NP or letter grading.

61. Music in Los Angeles. (5) Lecture, four hours; discussion, one hour. Exploration of history of music in Los Angeles. From Spanish missions and history of Los Angeles to greater emphasis on music in 20th century, with special focus on European émigrés, internment and postwar history of Japanese American community, Chicano and Mexican American music to present, African American traditions including jazz on Central Avenue, 1960s Laurel Canyon and rock scene, and more recent history that includes developments in punk and hip-hop. P/NP or letter grading.

62. Mozart. (5) Lecture, four hours; discussion, one hour. Designed for students who do not read music. Life, works, and mythology of Wolfgang Amadeus Mozart, in context of both his age and our own. Credit for both courses 62 and 162 not allowed. P/NP or letter grading.

63. Bach. (5) Lecture, four hours; discussion, one hour. Designed for undergraduate students. Life and works of Johann Sebastian Bach. Credit for both courses 63 and 163 not allowed. P/NP or letter grading.

64. Motown and Soul: African American Popular Music of 1960s. (5) Lecture, four hours; discussion, one hour. Survey of developments in post-World War II African American popular music, with special attention to musical achievements of Motown Records, Stax, and other rhythm and blues, funk, and soul music centers of production. Relationships between musical forms and cultural issues of 1960s, including Civil Rights Movement, counterculture, black nationalism, capitalism, and separatism, and larger dimensions of African American experience as mediated through groove-based music. Credit for both courses 64 and 164 not allowed. P/NP or letter grading.

65. Blues in American Music. (5) Lecture, four hours; discussion, one hour. History of blues, both as specific genre and as range of techniques and approaches that have been at center of American music and culture, from 19th-century roots to present. Exploration of commonly accepted blues mainstream exemplified by figures like Bessie Smith, Robert Johnson, and B.B. King, but also central role blues has played in jazz, folk, country, gospel, rock, soul, and rap. While following evolution of music through 20th century, examination of how blues has served as metaphor for African American culture as it permeates American traditions. Credit for both courses 65 and 165 not allowed. P/NP or letter grading.

66. Getting Medieval. (5) Lecture, four hours; discussion, one hour. Exploration of idea of medievalism in music and culture from Wagner to video games. Music covered includes film scores, opera, Gregorian chant, early music revival, folk songs, progressive rock, and Goth. Credit for both courses 66 and 166 not allowed. Letter grading.

M67. Popular Jewish and Israeli Music. (5) (Formerly numbered 67.) (Same as Jewish Studies M67.) Lecture, four hours; discussion, one hour. Music of Jews is diverse. With history of several thousand years and series of developments in modernity, music in Jewish life covers variety of styles found in many contexts. Exploration of music of Jews within last 100 years, with focus on popular music of Jews in America and Israel. Examination of music in Israel, with focus on songs of land of Israel, Israeli rock, and Muzika Mizrachit (Middle Eastern popular music). P/NP or letter grading.

68. Beatles. (5) Lecture, four hours; discussion, one hour. Examination of life and music of Beatles within social and historical context of 1960s. Credit for both courses 68 and 168 not allowed. P/NP or letter grading.

70. Beethoven. (5) Lecture, four hours; discussion, one hour. Designed for undergraduate students. Life and works of Ludwig van Beethoven. Credit for both courses 70 and 170 not allowed. P/NP or letter grading.

71. Listening. (5) Lecture, four hours; discussion, one hour. Introduction to humanistic study of listening, as perceptual modality for engaging others and world, with focus on experience, history, politics, and ethics of listening. Hearing is shared perceptive faculty

among able-bodied people, but listening practices are shaped by history, society, and culture. Hearing people listen differently depending on when, where, and how they live, as well as who they are as individuals. P/NP or letter grading.

72. Sacred Music. (5) Lecture, four hours; discussion, one hour. Study of forms and liturgies of Western church music. Credit for both courses 72 and 172 not allowed. P/NP or letter grading.

75. History of Jazz. (5) Lecture, four hours; discussion, one hour. History and analysis of variety of jazz styles, from late 19th-century forerunners to present, with emphasis on social meanings of musical practices. Letter grading.

79. Dancehall, Rap, Reggaeton: Beats, Rhymes, and Routes in African Diaspora. (5) Lecture, four hours; discussion, one hour. Survey of histories of three closely connected music genres: Jamaican dancehall, U.S. rap, and Puerto Rican/Panamanian reggaeton. Introduction to major performers in each genre, comparison of stylistic traits associated with each music, and exploration of technologies associated with contemporary music production. P/NP or letter grading.

M87. Special Courses in Music. (5) (Same as Ethnomusicology M87 and Music M87.) Lecture, four hours; discussion, four hours. Limited to undergraduate Ethnomusicology, Music, and Music History majors. Study and analysis of current and/or special topics in ethnomusicology, music, and music history taught by resident and visiting faculty members. May be repeated for credit with topic and instructor change. Letter grading.

88. Sophomore Seminars: Music History. (2) Seminar, two hours. Designed for sophomore Music History majors or students interested in pursuing Music History major. Introduction to music history as academic discipline, with particular emphasis on musicology at UCLA. Study of music and its history and consideration of theoretical issues central to musicology as it is practiced today, including gender and sexuality, music and politics, race, popular music studies, and jazz studies. Letter grading.

CM90T. Early Music Ensemble. (4) (Same as Music M90T.) Activity, four hours. Preparation: audition. Group performance of Western vocal and instrumental music from historical periods prior to 1800. Early instruments may be used at instructor's discretion. May be repeated for credit without limitation. May be concurrently scheduled with Musicology C490T. P/NP or letter grading.

94. Music and Internet. (5) Lecture, four hours; discussion, one hour. Survey of changes undergone by music in digital environment. As music becomes increasingly pervasive—found everywhere, yet living nowhere special—what social, economic, political, and aesthetic forces are determining centers of attention? Examination of formative force of Internet on sounds themselves. What kinds of noises develop logically within digital context, where creative freedoms and public disinterest are equally apparent? What does Internet sound like? P/NP or letter grading.

Upper Division Courses

101. Issues and Methods in Musicology. (4) Seminar, three hours. Introduction for music history minors to practical aspects and fundamental issues of musicology as academic discipline. How musicologists go about establishing, editing, performing, analyzing, and interpreting musical texts. Exposure to kinds of activities, philosophies, and styles of scholarship that continue to shape field of musicology. Letter grading.

125A-125F. Music, History, and Culture. (5 each) Lecture, four hours; discussion, one hour. Course 125A is requisite to 125B, which is requisite to 125C; course 125D is requisite to 125E, which is requisite to 125F. Students must receive grade of C or better to proceed to next course in sequence. Introduction to history, culture, and structure of Western music through selected topics, repertoires, and analytical techniques. Vernacular and cultivated styles from

early Middle Ages to present. Letter grading. **125A.** To 1500. Requisite or corequisite: course M10A. **125B.** 1500 to 1700. Requisites: courses M10B (may be taken concurrently), 125A. **125C.** 1700 to 1800. Requisites: courses M10C (may be taken concurrently), 125B. **125D.** 1800 to 1900. Requisite or corequisite: course M10A. **125E.** 1900 to 1945. Requisites: courses M10B (may be taken concurrently), 125D. **125F.** 1945 to Present. Requisites: courses M10C (may be taken concurrently), 125E.

135A-135B-135C. History of Opera. (5-5-5) Lecture, four hours; discussion, one hour. Designed for undergraduate students. P/NP or letter grading. **135A.** Baroque and Classical Periods; **135B.** Romantic Period; **135C.** 20th Century.

M136. Music and Gender. (5) (Same as Gender Studies M136.) Lecture, four hours; discussion, one hour. Analysis of gender ideologies in several musical cultures; representations of gender, body, and sexuality by both male and female musicians; contributions of women to Western art and popular musics; methods in feminist and gay/lesbian theory and criticism. Letter grading.

M137. Lesbian, Gay, Bisexual, Transgender, and Queer Perspectives in Pop Music. (5) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M137.) Lecture, four hours; discussion, one hour. Survey of English-language popular music in 20th century, with focus on lesbians, gay men, and members of other sexual minorities as creators, performers, and audience members. Letter grading.

140. Music, Media, and Consumer Society. (4) Lecture, four hours. Consideration of impact of recording technologies (gramophone, tape recorder, Walkman, sampler), broadcast media (radio, television, MTV, Internet), and global capitalism (record labels, advertising, Muzak) on way we consume and are consumed by music. How music functions and malfunctions on records, under movies, behind ads, and in semiotic fabric of everyday life. Letter grading.

160. Selected Topics in American Musical. (5) Seminar, 90 minutes. Enforced corequisite: attendance, but not enrollment, in course 60 lecture. Exploration of connections and disconnects between American musical on stage and American film musicals. Credit for both courses 60 and 160 not allowed. Letter grading.

162. Selected Topics in Music of Mozart. (5) Seminar, two hours. Preparation: ability to read music and engage in melodic, harmonic, and formal analysis. Enforced corequisite: attendance, but not enrollment, in course 62 lecture. Limited to Music History majors and minors. Intensive discussion of selected pieces by Mozart and of certain topics important to fuller understanding of his contributions to musical culture of Enlightenment, as well as to contemporary culture. Credit for both courses 62 and 162 not allowed. Letter grading.

163. Bach: Study of Selected Works. (5) Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 63 lecture. Limited to Music History majors and minors. Examination of Bach's music in greater depth. Credit for both courses 63 and 163 not allowed. Letter grading.

164. Selected Topics in African American Popular Music of 1960s. (5) Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 64 lecture. Intensive discussion of developments in post-World War II African American popular music, with special attention to musical achievements of Motown Records, Stax, and other rhythm and blues, funk, and soul music centers of production. Relationships between musical forms and cultural issues of 1960s, including Civil Rights Movement, counterculture, black nationalism, capitalism, and separatism, and larger dimensions of African American experience as mediated through groove-based music. Credit for both courses 64 and 164 not allowed. Letter grading.

165. Blues and Individual Expression. (5) Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 65 lecture. Limited to Music History majors and minors. In-depth look at specific blues artists, with special attention to issues of au-

thenticity, biography, personal and group identity, commercialism, musical style, and evolving history of American music and culture in 20th century. Credit for both courses 65 and 165 not allowed. Letter grading.

166. Medievalism and Music History. (5) Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 66 lecture. Exploration of ways in which specific approaches and attitudes to past shape music history, composition, and performance, with special focus on folk music and early music revivals. Credit for both courses 66 and 166 not allowed. Letter grading.

168. Selected Topics on Beatles. (5) Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 68 lecture. Intensive discussion in seminar setting of selected topics associated with Beatles. Credit for both courses 68 and 168 not allowed. Letter grading.

170. Beethoven: Study of Selected Works. (5) Seminar, 90 minutes. Corequisite: attendance, but not enrollment, in course 70 lecture. Designed to meet needs of students who read music and wish to examine Beethoven's music in greater depth. Credit for both courses 70 and 170 not allowed. Letter grading.

172. Selected Topics in Sacred Music. (5) Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 72 lecture. Introduction to some ways that music has been held to embody, support, and enact sacredness, including experience of god(s), sense of transcendental, work of liturgy, and intersections of music, politics, and religion. Credit for both courses 72 and 172 not allowed. Letter grading.

177. Selected Topics in Film and Music. Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 7 lecture. Limited to Music History majors and minors. In-depth exploration of issues in analysis and criticism of music in film. Credit for both courses 7 and 177 not allowed. Letter grading.

185. Selected Topics in Rock and Roll. (5) Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 5 lecture. Intensive discussion in seminar setting of selected topics in rock and roll. Credit for both courses 5 and 185 not allowed. Letter grading.

CM186. Music Industry. (4) (Same as Ethnomusicology CM182, Music CM182, and Music Industry M182.) Lecture, four hours; discussion, one hour; outside study, seven hours. Limited to Ethnomusicology, Music, and Music History majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with Musicology CM288. Letter grading.

187. Precapstone Course for Music History Majors. (2) Seminar, two hours. Limited to Music History majors. Student preparation for completing capstone course during Winter Quarter of senior year. Topics include research methods, engagement with music in culture, critical evaluation and use of scholarly resources, development of bibliographies, formulation of theses, and writing about music. Taken in fall quarter of senior year. Letter grading.

188. Special Courses in Music History. (4) Lecture, four hours. Special topics in music history for undergraduate students taught on temporary basis. Consult Schedule of Classes for topics and instructors. May be repeated for credit. P/NP or letter grading.

190. Research Colloquia in Music History. (2) Seminar, two hours. Designed for senior Music History majors. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to complete their capstone projects and share their work with their peers, as well as act as interlocutors for other course members. Students expected to present their work and to discuss and help critique work of others at similar stage of development. They may elect to showcase their work before academic publics (e.g., through organizing one conference or one special publication). Letter grading.

191A-191P. Junior Variable Topics Research Seminars: History of Music. (4 each) Seminar, three hours. Designed for junior Music History majors. Special aspects of music of each period studied in depth. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading. **191A.** Middle Ages; **191B.** Renaissance; **191C.** Baroque; **191D.** Classic; **191E.** Romantic; **191F.** 20th Century; **191G.** Other Topics; **191P.** Performance Practice. Practical issues in performance practice, specific questions of how musical performance intersects with cultural and political performance, and/or general issues of theory of performance in Western musics; proportion of each to be determined by repertory and historical context selected by instructor.

191T. Capstone Seminar: Music History. (4) Seminar, three hours. Limited to Music History majors. Supported by discussion and oral presentation, students formulate and draft their senior theses. Normally taken in winter quarter of senior year. Letter grading.

193C. Music History Journal Club Seminars for Majors. (2) Seminar, two hours. Limited to Music History majors. Introduction to discipline through discussion of readings and lectures on current topics in field, with focus especially on its practice at UCLA, and addressing research methodologies and development of bibliographic control. Normally taken in junior year. P/NP grading.

193D. Music History Performance/Analysis Seminars for Majors. (2) Seminar, two hours. Recommended requisite: course 193C. Limited to Music History majors. Introduction to how music historians engage with issues of musical performance, and of how historical concerns, theoretical issues, and methodologies can inform music as practice, especially as it is performed, recorded, listened to, danced to, and otherwise consumed. Continued attention to issues of bibliographic control. Normally taken in senior year. P/NP grading.

195. Community Internships in Music. (2 to 4) Tutorial, one hour; fieldwork, 10 hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business related to music or music history. Students meet on regular basis with instructor and provide periodic reports of their experiences and final project. May be repeated for credit. Individual contract with supervising faculty member required. P/NP grading.

197. Individual Studies in Music History. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198. Honors Research in Music History. (2 to 4) Tutorial, two hours. Preparation: completion of minimum of four upper division music history courses with departmental grade-point average of 3.5 or better and overall GPA of 3.0. Limited to junior/senior Music History majors. One- to two-term independent research study project under supervision of appropriate faculty member, culminating in department honors thesis of approximately 25 pages. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research in Music History. (1 to 4) Tutorial, one hour. Preparation: 3.0 grade-point average. Limited to junior/senior Music History majors. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

Musicology

Graduate Courses

200A. Introduction to Music Scholarship. (6) Seminar, three hours. Designed for graduate musicology, ethnomusicology, and music students. Introduction to history of different fields of music scholarship (with

strong focus on musicology) and to selected debates in those fields. Practical tools for research, logic and structure of arguments, evidence, critical thinking and critique, historiography, rhetoric and voice, and archival and ethnographic research. Introduction to practical written forms such as abstract, grant proposal, paper/book proposal, and review. Letter grading.

200B. Critical, Cultural, and Social Theory. (6) Seminar, three hours. Designed for graduate musicology, ethnomusicology, and music students. Introduction to issues surrounding music as social, cultural, and historical practice, with strong emphasis on critical, cultural, and social theory. May include introduction to social theory, materialist theories of culture, postcolonialism, critical theory, or overview of cultural theory or of group of theories selected by instructor, including feminism, performance studies, sociology, historiography, urban studies, anthropology, philosophy, psychoanalysis, poststructuralism, gender, race, and sexuality studies, lesbian, gay, bisexual, transgender, and queer studies, disability studies, and so on. Introduction to set body of theory in its relation to study of music. Letter grading.

200C. Music Aesthetics, Analysis, and Philosophy. (6) Seminar, three hours. Designed for graduate musicology, ethnomusicology, and music students. Exploration of selected philosophical, aesthetic, and/or analytical perspectives on music to gain insight into selected analytical and philosophical approaches to phenomenon of music and to acquire skills in analyzing and interpreting variety of repertoires. Letter grading.

M201. Repertory and Analysis. (2) (Same as Music M201.) Seminar, two hours. Requisite or corequisite: course 200A. Exploration of defined repertory through readings and analysis. Specific topics vary. May be repeated for credit. S/U grading.

245. Seminar: Analytical/Repertoire Topics. (4) Seminar, three hours. Designed for graduate musicology students. Coverage of analytical topics that vary from year to year. May be repeated for credit. Meets with course 246; concurrent enrollment in both courses not allowed. Letter grading.

246. Audit Seminar: Analytical/Repertoire Topics. (2) Seminar, three hours. Requisite or corequisite: course 200A. Specific topics vary from year to year. May not be applied toward MA or PhD degree requirements. May be repeated for credit. Meets with course 245; concurrent enrollment in both courses not allowed. S/U grading.

248. Seminar: Special Topics in Musicology. (4) Seminar, three hours. Exploration of topics in musicology through variety of approaches that may include historical, theoretical, or analytical approaches to subjects within musicology. Topics announced in advance. May be repeated for credit. Letter grading.

250. Seminar: Theoretical Topics. (4) Seminar, three hours. Designed for graduate musicology students. Coverage of theoretical topics that vary from year to year. May be repeated for credit. Meets with course 251; concurrent enrollment in both courses not allowed. Letter grading.

251. Audit Seminar: Theoretical Topics. (2) Seminar, three hours. Requisite or corequisite: course 200A. Specific topics vary from year to year. May not be applied toward MA or PhD degree requirements. May be repeated for credit. Meets with course 250; concurrent enrollment in both courses not allowed. S/U grading.

255. Seminar: Historical Topics. (4) Seminar, three hours. Designed for graduate musicology students. Coverage of historical topics that vary from year to year. May be repeated for credit. Meets with course 256; concurrent enrollment in both courses not allowed. Letter grading.

256. Audit Seminar: Historical Topics. (2) Seminar, three hours. Requisite or corequisite: course 200A. Specific topics vary from year to year. May not be applied toward MA or PhD degree requirements. May be repeated for credit. Meets with course 255; concurrent enrollment in both courses not allowed. S/U grading.

259. Audit Seminar: Mapping Sonic Urban Geography of Los Angeles in 1940s. (2) Seminar, three hours. Limited to departmental graduate students and those in Urban Humanities Certificate Program. Exploration of methodologies and conceptual frameworks for mapping sonic urban geography of Los Angeles in 1940s. In-depth critical discussion of current theories of music and space and of most recently developed methodologies for undertaking ethnographic or anthropological study of sound, including recording and mapping soundscapes. May not be applied toward MA or PhD degree requirements. May be repeated for credit. Meets with course 260; concurrent enrollment in both courses not allowed. S/U grading.

260. Mapping Sonic Urban Geography of Los Angeles in 1940s. (4) Seminar, three hours. Limited to departmental graduate students and those in Urban Humanities Certificate Program. Exploration of methodologies and conceptual frameworks for mapping sonic urban geography of Los Angeles in 1940s. In-depth critical discussion of current theories of music and space and of most recently developed methodologies for undertaking ethnographic or anthropological study of sound, including recording and mapping soundscapes. Letter grading.

261. Topics in Performance Practice. (4) Seminar, three hours. Designed for graduate students. Investigation of primary source readings in performance practices across history of Western music; analytical reports and practical applications in class demonstrations. May be repeated for credit. Letter grading.

CM288. Music Industry. (4) (Same as Ethnomusicology CM288 and Music CM282.) Lecture, four hours; discussion, one hour; outside study, seven hours. Limited to Ethnomusicology, Music, and Musicology majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with Music History CM186. Letter grading.

291. Teaching Western Musical Canon. (1) Seminar, three hours. Workshop series designed to prepare graduate musicology students to teach Western musical canon at undergraduate level. May be repeated for credit. S/U grading.

296. Research Topics in Musicology. (2 to 4) Seminar, two to four hours. Preparation: consultation with instructor. Designed for graduate musicology students. Advanced study and analysis of current topics in musicology. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

298. Seminar: Research Methods. (2) Seminar, two hours. Limited to second-year graduate musicology students and students with master's degrees. Development of advanced knowledge and bibliographic control in three historically separate areas of musical specialization. May be repeated for credit. S/U grading.

299. Dissertation Research Colloquium. (2) Seminar, two hours. Preparation: advancement to PhD candidacy. Presentation of ongoing dissertation research. Analysis and discussion of presentations. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

C490T. Early Music Ensemble. (4) Activity, four hours. Preparation: audition. Group performance of Western vocal and instrumental music from historical periods prior to 1800. Early instruments may be used at instructor's discretion. May be repeated for credit without limitation. May be concurrently scheduled with Music History CM90T. S/U or letter grading.

495. Introductory Practicum for Teaching Apprentices in Musicology. (4) Seminar, three hours. Preparation: appointment as teaching apprentice in Music or Musicology Department. Required of all new teaching apprentices. Special course dealing with problems and practices of teaching music at college level. May not be applied toward degree requirements. S/U grading.

596. Directed Individual Studies in Musicology. (2, 4, or 6) Tutorial, to be arranged. Limited to graduate students. S/U or letter grading.

597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations. (2 or 4) Tutorial, to be arranged. Preparation: completion of all MA or PhD course and language requirements. Limited to graduate students. S/U grading.

599. Guidance of PhD Dissertation. (4, 8, or 12) Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Limited to graduate students. May be repeated for credit. S/U grading.

NEAR EASTERN LANGUAGES AND CULTURES

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Elizabeth F. Carter, PhD
Michael D. Cooperson, PhD
S. Peter Cowe, PhD (*Narekatsi Professor of Armenian Studies*)
Robert K. Englund, PhD
Lev Hakak, PhD
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Jacco Dieleman, PhD
Nouri Gana, PhD
Asma Sayeed, PhD

Assistant Professor

Domenico Ingentio, PhD

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Latifeh E. Hagigi, MA
Anahid Keshishian, PhD
Hagop Kouloujian, MBA

Abeer T. Mohamed-Hamza, PhD
Jeremy D. Smoak, PhD

Adjunct Professor

Nader Saiedi, PhD

Adjunct Assistant Professor

Hans Barnard, MD, PhD

Scope and Objectives

The mission of the Department of Near Eastern Languages and Cultures is the discovery, interpretation, dissemination, and preservation of human values created over a period of five or more thousand years in an area that was the cradle of all civilization.

The department offers instruction in the major modern and ancient languages of the Near East: Akkadian, ancient Egyptian, Arabic, Armenian, Berber, Coptic, Hebrew, Persian, and Turkic. To meet increasing demands for a knowledge of this area and its past and present, it treats each language in a wide perspective—as a means of communication, as a vehicle of a cultural heritage, as a research tool for the area, and as an object of research itself.

Undergraduate majors may be taken in Ancient Near East and Egyptology, Arabic, Iranian Studies, Jewish Studies, and Middle Eastern Studies. MA and PhD programs are offered in Ancient Near Eastern Civilizations, Arabic, Armenian, Hebrew, Iranian, Islamic Studies, Semitics, and Turkic.

Courses in the department prepare students for careers in government, foreign trade, teaching abroad, journalism abroad, archaeology, and further academic work involving the area.

Undergraduate Study

The department offers the Bachelor of Arts degree in five fields: (1) Ancient Near East and Egyptology, (2) Arabic, (3) Iranian Studies, (4) Jewish Studies, and (5) Middle Eastern Studies. In each of these fields students must meet the requisites and take the courses prescribed. Their adviser assists in selecting a plan of study developed around their interests.

Students may combine their major with one in another department (double major) to enhance their educational opportunities. Due to the number of additional courses required, they are advised to consider this option early in their academic career and in consultation with program advisers in both majors.

Ancient Near East and Egyptology BA

Preparation for the Major

Required: Three courses selected from Ancient Near East 10W, 15, Middle Eastern Studies M50A, M50B, Near Eastern Languages M20. Each course must be taken for a letter grade.

Transfer Students

Transfer applicants to the Ancient Near East and Egyptology major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one civilization course on Mesopotamia, Egypt, Near

Eastern archaeology, or Middle Eastern cultures.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Students must complete 10 courses as follows:

Required Core Courses: One course selected from four of the following five areas (total of four courses):

Archaeology and Art: Ancient Near East CM101A, CM101B, M101C, 160, 161, 162, CM163, C165, 166, or CM169.

History: Ancient Near East M103A through M104D, M110A, or Jewish Studies M182A.

Languages: Ancient Near East 120A, 120B, 120C, 140A, 140B, 140C, M168, Hebrew 110A, 110B, 110C, Semitics 140A, or 140B.

Literature: Ancient Near East 150A, 150B, Jewish Studies M150A, or 170.

Religion: Ancient Near East M130, M135, M167, M185D, Iranian 170, or Jewish Studies M155.

Required Elective Courses: Any six courses (no more than three may be from Anthropology) selected from the categories above or from Ancient Near East 121A, 121B, 121C, C123A, C123B, 124, 125A, M125B, M125C, C177, Anthropology 110P, CM110Q, 111, 119P, 130, 150, English 111A, 111B, 111C, Greek 130, Hebrew 125, 130, 135, 188FL, Study of Religion M186A, M186B, M186C, Semitics 130, 141, 142.

A maximum of 8 units of special studies courses (197, 198, 199) approved by the department may be applied toward the major. Each course must be taken for a letter grade.

Study Abroad

Students are encouraged to spend time abroad either to (1) study with an education abroad program or (2) work on a UCLA-affiliated archaeological excavation in the broader Middle East. For information on studying abroad, contact the Education Abroad Program, 1332 Murphy Hall, 310-825-4995; for UCLA-affiliated excavations, contact the departmental academic counselor at 310-825-4165.

Arabic BA

Preparation for the Major

Required: Arabic 1A, 1B, 1C, and History 9D or Middle Eastern Studies 50C.

Transfer Students

Transfer applicants to the Arabic major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of Arabic.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven courses, including (1) Arabic 102A and 102B and 102C or 108, 150 or

M151, Islamic Studies M110 and (2) six courses from Anthropology M171P, Arabic 103A, 103B, 103C, 105, M106, M107, M110, 111A, 111B, 111C, 112A, 112B, 112C, 115, 116A, 116B, 116C, 120, M123, 130, 132, C141, 142, M148, 150 or M151 (unless taken under item 1), M155, M171, 180, 181, Art History 119A, 119B, C120, Comparative Literature 100, History 105A, 105B, 105C, M106, 108B, 111A, 111B, 111C, Islamic Studies 130, 151, Political Science 132A, M132B, 157, 165. No more than one course may be credited through a proficiency test administered by the department. No more than two upper division 4-unit independent study or directed research courses (197, 199) may be applied toward the major. Other courses, including extra-departmental courses, may be applied with consent of the adviser.

Iranian Studies BA

Students majoring in Iranian Studies may combine the major with specialization in other fields to enhance their career opportunities. Due to the number of additional courses required, they are advised to consider this option early in their academic career.

Preparation for the Major

Required: Iranian 1A, 1B, 1C, or equivalent.

Transfer Students

Transfer applicants to the Iranian Studies major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of Persian.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven courses, including seven in Iranian language and civilization selected from Ancient Near East CM163, Iranian 102A, 102B, 102C, 103A, 103B, 103C, M110A, M110B, M110C, 120, 140, 141, 142, 161A, 161B, 161C, 170 (at least three of the seven must be selected from Iranian 102A, 102B, 102C, 103A, 103B, 103C, 120, 140, 141, 142) and four elective courses from the department or from Art History 119A, 119B, C120, History 105A, 105B, 105C, Political Science 157. A maximum of two Iranian 197 or 199 courses (8 units total) may be applied toward the major.

Jewish Studies BA

Preparation for the Major

Required: Jewish Studies M10 or two courses selected from Ancient Near East 10W, Middle Eastern Studies M50A, M50B, 50C and demonstrated proficiency equivalent to level 3 at UCLA in one foreign language (Arabic, Armenian, Hebrew) in consultation with the department.

Transfer Students

Transfer applicants to the Jewish Studies major with 90 or more units must complete the following introductory course prior to admis-

sion to UCLA: one social, cultural, and religious institutions of Judaism course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven courses, including (1) three selected from Hebrew 102A, 102B, 102C, 103A, 103B, 103C, 110A, 110B, 111A, 111B, 111C, 120, 125, 130, 135, C140—students may substitute another upper division language (Judeo-Arabic, Judeo-Persian, Ladino, Yiddish) if they can demonstrate its integral role in their specific course of study, (2) two courses selected from Jewish Studies M182A, M182B, M182C, M184A, and (3) six elective courses selected from Hebrew or Jewish studies or from Ancient Near East M135, 162, English 111A, 111C, German 109, History 191F, Iranian 130, 131, Political Science 121A, 132A, M132B, Semitics 130, Study of Religion 120, Yiddish 101A, 101B, 101C, 102A, 102B, 102C, 121A, 121B, 121C, 130, 131A, 131B, 131C.

Students are encouraged to take a research tutorial within Jewish Studies 197 or 199. A maximum of two 197 or 199 courses (8 units total) may be applied toward the major.

Study in Israel

Students are encouraged to spend up to one year in Israel either to (1) study with an education abroad program or (2) study at an Israeli university. For information on studying in Israel, contact the Education Abroad Program, 1332 Murphy Hall, 310-825-4889.

Middle Eastern Studies BA

Preparation for the Major

Required: Two courses selected from Ancient Near East 10W, History 9D, Middle Eastern Studies M50A, M50B, 50C and demonstrated proficiency equivalent to level 3 at UCLA in one modern Middle Eastern language (Arabic, Armenian, Hebrew, Persian, Turkish) or through a departmental language placement examination. Students selecting ancient languages (including Akkadian, Aramaic, Coptic, Egyptian, Old or Middle Iranian, Sumerian, Syriac) are not required to take a modern elementary Middle Eastern language.

Transfer Students

Transfer applicants to the Middle Eastern Studies major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of Arabic, Armenian, Hebrew, Persian, Turkish, or another modern middle Eastern language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Students must complete 11 courses as follows:

Required Core Courses: A total of six courses, including at least two from three of the following four areas:

History: Ancient Near East M103A, M103B, M104A, M110A, M110B, M110C, Anthropology 171, Armenian 130, 131, History 105A, 105B, 105C, M108C, Iranian M110A, M110B, M110C, Jewish Studies M182A, M182B, M182C.

Language: Ancient Near East (Egyptian) 120A, 120B, 120C, Ancient Near East (Coptic) C123A, C123B, Ancient Near East (Sumerian) 140A, 140B, 140C, Ancient Near East (Hittite) M168, Arabic 103A, 103B, 103C, 112A, 112B, 112C, Armenian 103A, 103B, 103C, 106A, 106B, 106C, Hebrew 103A, 103B, 103C, 110A, 110B, Iranian 103A, 103B, 103C, 161A, 161B, 161C, Semitics (Aramaic) 110, 130, Semitics (Syriac) 115, Semitics (Akkadian) 141, Turkic Languages 102A, 102B, 102C (Turkish), 112A, 112B, 112C (Uzbek), 116A, 116B, 116C (Azeri).

Literature: Ancient Near East 150A, 150B, Arabic M110, C141, M148.

Religion: Ancient Near East M130, M135, M185D, History M106, Iranian 170, Islamic Studies M110, 130, 151, Jewish Studies M155, Study of Religion 120.

Required Elective Courses: Any five courses from the department or from Anthropology M171P, 176, Art History C116A, 119A, 119B, C120, Economics 111, 112, Ethnomusicology 161L, 161N, French 121, 160, History 105A, 105B, 105C, M106, 107A through 107D, 108A, 108B, 109B, M110B, 111A, 111B, 111C, 116A, 116B, 164B, 167A, M184D, M185F, M185G, M185I, Philosophy 104, Political Science 132A, M132B, 157, 165, Study of Religion 120.

Students may petition to substitute a core or elective course with a departmental independent study/directed research course (197, 198, or 199) as long as it covers a topic relevant to Middle Eastern studies. No more than two 197, 198, or 199 courses (8 to 10 units) may be applied toward the major.

Study Abroad

Students are encouraged to spend time abroad either to (1) study with an education abroad program or (2) work on a UCLA-affiliated archaeological excavation in the broader Middle East. For information on studying abroad, contact the Education Abroad Program, 1332 Murphy Hall, 310-825-4889; for UCLA-affiliated excavations, contact the departmental academic counselor at 310-825-4165.

Ancient Near East and Egyptology Minor

To enter the Ancient Near East and Egyptology minor, students must have an overall grade-point average of 2.0 or better and file a petition in 378 Humanities Building, 310-825-4165.

Required Lower Division Courses (10 units): Ancient Near East 10W, 15, Middle Eastern Studies M50A, M50B, 50C.

Required Upper Division Core Courses (12 to 15 units): Three courses selected from Ancient Near East CM101A, CM101B, M103A, M103B, M104A through M104D, M110A, 120A, 120B, 120C, M130, M135, 140A, 140B, 150A, 150B, 162, CM163, C165, M185D, Hebrew 110A,

110B, 110C, Iranian 170, Jewish Studies M150A, Semitics 140A, 140B.

Required Elective Courses (8 to 10 units): Two courses selected from Ancient Near East M101C, 121A, 121B, 121C, C123A, C123B, 125A, M125B, M125C, 166, M167, M168, CM169, C177, Anthropology 117P, 119P, 130, 150, Hebrew 110A, 110B, 110C, 188FL, Jewish Studies 150B, 170, Study of Religion M186A, M186B, M186C, Semitics 130, 141, 142.

A maximum of 4 graded units of special studies courses (197, 198, 199) approved by the adviser may be applied toward the minor. No course for the minor or preparation for the minor may be taken on a P/NP grading basis.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Arabic and Islamic Studies Minor

The Arabic and Islamic Studies minor is designed for students who wish to augment their major program with a group of related courses that provide a systematic introduction to the study of Arabic language and literature and Islam.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition in 378 Humanities Building, 310-825-4165.

Required Lower Division Courses (15 units): Arabic 1A, 1B, 1C, or equivalent.

Required Upper Division Courses (20 units): Five courses in Arabic or Islamics; 199 courses may not be applied. With consent of the undergraduate adviser, two of the five courses may be taken outside the department. Courses recommended as electives for the major in Arabic (Anthropology M171P, Art History 119A, 119B, C120, Comparative Literature 100, History 105A, 105B, 105C, M106A, M106B, 108B, 111A, 111B, 111C, Islamic Studies M110, 130, Political Science 132A, M132B, 157, 165) may be applied. Other courses, including extra-departmental courses, may be applied with consent of the adviser.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Armenian Studies Minor

The Armenian Studies minor is designed for students who wish to augment their major pro-

gram with a group of courses that provide a systematic introduction to the study of Armenian culture.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition in 378 Humanities Building, 310-825-4165.

Required Lower Division Courses (15 units): Armenian 1A, 1B, 1C, or 4A, 4B, 4C, or equivalent.

Required Upper Division Courses (20 units): Five courses from the Armenian section of the department; 199 courses may not be applied. With consent of the undergraduate adviser, two of the five courses may be taken outside the department. Ordinarily, the following courses may be applied: History 107A through 107E, Indo-European Studies M150.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Hebrew and Jewish Studies Minor

To enter the Hebrew and Jewish Studies minor, students must have an overall grade-point average of 2.0 or better and file a petition in 378 Humanities Building, 310-825-4165.

Required Lower Division Courses (15 units): Hebrew 1A, 1B, 1C, or 8, or equivalent.

Required Upper Division Courses (20 units): Five courses from the Hebrew or Jewish studies section of the department; 199 courses may not be applied. With consent of the undergraduate adviser and based on course content, two of the five courses may be taken outside the department.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Iranian Studies Minor

To enter the Iranian Studies minor, students must have an overall grade-point average of 2.0 or better and file a petition in 378 Humanities Building, 310-825-4165.

Required Lower Division Courses (10 to 11 units): Iranian 1C or 20C or equivalent and one course from Middle Eastern Studies M50A, M50B, or 50C.

Required Upper Division Courses (20 to 23 units): (1) Three language and civilization courses from Iranian 102A, 102B, 102C, 103A, 103B, 103C, M110A, M110B, M110C, 120, 140,

141, 142, 161A, 161B, 161C, 170 and (2) two elective courses from Iranian M105A, M105B, M105C, M115A, M115B, M115C, 131, 132, 187.

A maximum of 4 units of special studies courses (197, 198, 199) approved by the adviser may be applied toward the minor. No course for the minor may be taken on a P/NP grading basis.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Israel Studies Minor

The Israel Studies minor is designed for students interested in adding a particular focus on Israel to their major. Comprised of coursework that serves to create a broad introductory foundation of familiarity with Israeli history, society, politics, and culture, the minor is appropriate for students from a wide range of majors, including Art, Comparative Literature, Film and Television, History, Jewish Studies, Middle Eastern Studies, Political Science, and Study of Religion.

To enter the minor, students must have an overall grade-point average of 2.0 or better, completed Middle Eastern Studies 50C or equivalent, and file a petition in 378 Humanities Building, 310-825-4165.

Required Upper Division Courses (28 to 33 units): Jewish Studies M142, M144, and five courses from at least two of the following categories: (1) *language*—Arabic 103A, 103B, 103C, Hebrew 103A, 103B, 103C, 111A, 112, (2) *literature, arts, and culture*—Arabic 120, M123, 130, M148, Hebrew M113, C140, Jewish Studies M150A, 150B, 151B, M162, 175, Middle Eastern Studies C122, (3) *politics*—Political Science 120B, 132A, M132B, 157, (4) *regional and historical setting*—History 105A, 105B, 105C, Study of Religion 110, 120.

A maximum of 4 graded units of special studies courses (197, 198, 199) approved by the department may be applied toward the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Middle Eastern Studies Minor

The Middle Eastern Studies minor is designed for students who wish to augment their major program in the College of Letters and Science with a group of related courses from various linguistic, literary, archaeological, and historical disciplines of the Near East, from ancient

Egypt, Mesopotamia, and biblical studies to the modern Arabic, Armenian, Iranian, Jewish, and Turkish world.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition in 378 Humanities Building, 310-825-4165.

Required Lower Division Courses (9 to 10 units): Two courses selected from Ancient Near East 10W, History 9D, Middle Eastern Studies M50A, M50B, 50C.

Required Upper Division Courses (20 units): A total of five courses, including at least three from one of the following four areas:

History: Ancient Near East M103A, M103B, M104A, M110A, M110B, M110C, Anthropology 171, Armenian 130, 131, History 105A, 105B, 105C, M108C, Iranian M110A, M110B, M110C, Jewish Studies M182A, M182B, M182C.

Language: Ancient Near East (Egyptian) 120A, 120B, 120C, Ancient Near East (Coptic) C123A, C123B, Ancient Near East (Sumerian) 140A, 140B, 140C, Ancient Near East (Hittite) M168, Arabic 103A, 103B, 103C, 112A, 112B, 112C, Armenian 103A, 103B, 103C, 106A, 106B, 106C, Hebrew 103A, 103B, 103C, 110A, 110B, 106C, Hebrew 103A, 103B, 103C, 161A, 161B, 161C, Semitics (Aramaic) 110, 130, Semitics (Syriac) 115, Semitics (Akkadian) 141, Turkic Languages 102A, 102B, 102C (Turkish), 112A, 112B, 112C (Uzbek), 116A, 116B, 116C (Azeri).

Literature: Ancient Near East 150A, 150B, Arabic M110, C141, M148.

Religion: Ancient Near East M130, M135, M185D, History M106, Iranian 170, Islamic Studies M110, 130, 151, Jewish Studies M155, Study of Religion 120.

Required Elective Courses: Any five courses from the department or from Anthropology M171P, 176, Art History C116A, 119A, 119B, C120, Economics 111, 112, Ethnomusicology 161L, 161N, French 121, 160, History 105A, 105B, 105C, M106, 107A through 107D, 108A, 108B, 109B, M110B, 111A, 111B, 111C, 116A, 116B, 164B, 167A, M184D, M185F, M185G, M185I, Philosophy 104, Political Science 132A, M132B, 157, 165, Study of Religion 120.

Students may not substitute a core or elective course with a departmental independent study/directed research course (197, 198, or 199).

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be out-

lined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Near Eastern Languages and Cultures offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Islamic Studies and in Near Eastern Languages and Cultures.

Ancient Near East

(Akkadian, Aramaic, Phoenician, Syriac, and Ugaritic are listed under Semitics.)

Lower Division Courses

10W. Jerusalem: Holy City. (5) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3. Not open for credit to students with credit for course 12W. Survey of religious, political, and cultural history of Jerusalem over three millennia as symbolic focus of three faiths: Judaism, Christianity, and Islam. Transformation of sacred space as reflected by literary and archaeological evidence through examination of testimony of artifacts, architecture, and iconography in relation to written word. Study of creation of mythic Jerusalem through event and experience. Satisfies Writing II requirement. Letter grading.

12W. Jerusalem: Holy City. (5) Seminar, four hours. Enforced requisite: English Composition 3. Not open for credit to students with credit for course 10W. Survey of religious, political, and cultural history of Jerusalem over three millennia as symbolic focus of three faiths: Judaism, Christianity, and Islam. Transformation of sacred space as reflected by literary and archaeological evidence through examination of testimony of artifacts, architectural monuments, and iconography in relation to written sources. Study of creation of mythic Jerusalem through event and experience. Development of advanced writing skills and critical thinking. Satisfies Writing II requirement. Letter grading.

15. Women and Power in Ancient World. (5) Lecture, four hours; discussion, one hour. Examination of how feminine power confronts masculine dominance within complex social systems in ancient world. To gain political power, some female rulers used their sexuality to gain access to important men. Other women gained their position as regents and helpers of masculine kings who were too young to rule. Others denied their femininity in dress and manner, effectively androgynizing themselves or pretending to be men so that their femininity would not be obstacle to political rule. Many women only gained throne at end of dynasties after male line had run out entirely, or in midst of civil war when patrilineal successions were in disarray. Women were sometimes only effective leaders left in drawn-out battles against imperial aggression. No women were able to gain reigns of power through their bloodlines alone. Women's power was compromised from outset. Examination of root causes and results of this political inequality. P/NP or letter grading.

M50A. First Civilizations. (5) (Same as Middle Eastern Studies M50A.) Lecture, three hours; discussion, one hour. Survey of great civilizations of ancient Near East—Egypt, Israel, and Mesopotamia—with attention to emergence of writing, monotheism, and urban societies. Letter grading.

M50B. Origins of Judaism, Christianity, and Islam. (5) (Same as Middle Eastern Studies M50B and Religion M50.) Lecture, three hours; discussion, one hour. Examination of three major monotheisms of Western cultures—Judaism, Christianity, and Islam—historically and comparatively. Development, teachings, and ritual practices of each tradition up to and including medieval period. Composition and development of various sacred texts, highlighting key themes and ideas within different historical and literary strata of

traditions, such as mechanisms of revelation, struggle for religious authority, and common theological issues such as origin of evil and status of nonbelievers. Letter grading.

Upper Division Courses

CM101A. Art and Architecture of Ancient Egypt, Predynastic Period to New Kingdom. (4) (Same as Art History M110A.) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts during Predynastic period and Old Kingdom. May be repeated for credit with consent of instructor. Concurrently scheduled with course C267A. P/NP or letter grading.

CM101B. Art and Architecture of Ancient Egypt, New Kingdom to Greco-Roman Period. (4) (Same as Art History M110B.) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts from New Kingdom to Greco-Roman period. Concurrently scheduled with course C267B. P/NP or letter grading.

M101C. Ancient Egyptian Temple and City of Thebes. (4) (Same as Art History M110C.) Lecture, four hours; fieldwork, one hour. Focus on ancient temples of city of Thebes (modern day Luxor). Theban temples are some of best-preserved cult buildings in all of Egypt, and their study illuminates traditions of artistic representation, architectural development, and social and political transformations echoed throughout all of ancient Egypt. Investigation of ritual linking of temples on Nile's eastern and western banks through festival processions, chronological changes in function and form of Theban temples through time, and statutory program of individual temples. P/NP or letter grading.

M103A-M103B. Ancient Egyptian Civilization. (4-4) (Same as History M103A-M103B.) Lecture, three hours; discussion, one hour (when scheduled). Course M103A is not requisite to M103B. Designed for juniors/seniors. Political and cultural institutions of ancient Egypt and ideas on which they were based. P/NP or letter grading. **M103A.** Chronological discussion of Prehistory, Old and Middle Kingdom. **M103B.** New Kingdom and Late period until 332 B.C.

M104A. History of Ancient Mesopotamia and Syria. (4) (Same as History M104A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political and cultural development of Fertile Crescent, including Palestine, from Late Uruk to neo-Babylonian period. P/NP or letter grading.

M104B. Sumerians. (4) (Same as History M104B.) Lecture, three hours. Overview of Sumer and related cultures of Greater Mesopotamia in 4th and 3rd millennia B.C.E., with focus on rich cultural history of region and integration of archaeological, art historical, and written records. P/NP or letter grading.

M104C. Babylonians. (4) (Same as History M104C.) Lecture, three hours. Overview of Babylonia and cultural history of region from late 3rd millennium B.C.E. to invasion of Cyrus in 539 B.C.E., with focus on history and archaeology of region, urban structure, literature, and legal practices. P/NP or letter grading.

M104D. Assyrians. (4) (Same as History M104D.) Lecture, three hours. Overview of Assyrian cultural history from its origins to end of Neo-Assyrian period (circa 612 B.C.E.), with focus on rise, mechanics, and decline of Neo-Assyrian Empire, which at its peak ruled ancient Near East from Zagros to Egypt. P/NP or letter grading.

M105. Archaeology of Egypt and Sudan. (4) (Same as Anthropology M119E.) Lecture, two hours; laboratory, three hours. Ancient Egypt is well known for iconic archaeological sites such as Giza Pyramids and Tomb of Tutankhamun. From these and thousands of less well-known sites, enormous variety of archaeological information can be gained. Through discussion of particular archaeological themes, regions, or sites, examination of methods of prehistoric and historic archaeology and how archaeological information contributes to understanding of social, political, and religious history. Background provided for development of group research projects—finding resources, data gathering, analysis, interpretation, presentation, and training on how to embark on research

in this field. Computer laboratory component included in which student research is performed and presented in time map. P/NP or letter grading.

M110A-M110B-M110C. Iranian Civilization. (4-4-4) (Same as History M110A-M110B-M110C and Iranian M110A-M110B-M110C.) Lecture, three hours; discussion, one hour (when scheduled). History of ancient Iran from rise of Elam to end of Sasanian dynasty—Elamite civilization and Mede, Achaemenid, Arsacid, and Sasanian Empires. Emphasis on ancient Iran, but may be offered for early Islamic period. P/NP or letter grading.

120A-120B-120C. Elementary Ancient Egyptian. (5-5-5) Lecture, five hours. Course 120A is requisite to 120B, which is requisite to 120C. P/NP or letter grading. **120A.** Introduction to hieroglyphic script and phonology and morphology of Middle Egyptian. Basic rules of Middle Egyptian syntax, with focus on nominal, adjectival, and adverbial sentences. **120B.** Verbal system and syntax of verbal sentences of Middle Egyptian. **120C.** Reading of authentic Egyptian texts to deepen knowledge of Egyptian grammar and to acquire familiarity with aims and methods of philology, study of ancient texts.

121A-121B-121C. Intermediate Ancient Egyptian Readings. (5-5-5) Lecture, three hours. Requisite: course 120C. Course 121A is requisite to 121B, which is requisite to 121C. Thematic readings in ancient Egyptian historical, religious, and literary texts. May be repeated for credit. P/NP or letter grading.

122. Elementary Ancient Egyptian: Intensive. (12) (Formerly numbered 8.) Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Egyptian to qualify for more advanced courses. Intensive course equivalent to courses 120A, 120B, and 120C. Introduction to hieroglyphic script and phonology and morphology of Middle Egyptian, with emphasis on verbal systems, pronunciation, reading, and grammar. Offered in summer only. P/NP or letter grading.

C123A-C123B. Coptic. (5-5) Lecture, three hours. Introduction to Coptic, final phase of Egyptian language, which is attested in writing from circa 300 to 1400 CE. Concurrently scheduled with courses C223A-C223B. P/NP or letter grading. **C123A.** Devoted to learning Coptic alphabet, grammar, and vocabulary (Sahidic dialect), with particular emphasis on historical linguistics. **C123B.** Requisite: course C123A. Introduction to variety of Coptic textual genres, from hagiographies to homilies, magical spells, private letters, legal contracts, and Gnostic Gospels found in Nag Hammadi. Readings in texts in dialects other than Sahidic (Bohairic, Fayumic, Akhmimic).

124. Middle Egyptian Technical Literature. (4) Lecture, three hours. Requisite: course 121C. Reading of Middle Egyptian technical literature in hieroglyphic transcription. Medical, veterinary, mathematical, and astronomical texts included. P/NP or letter grading.

125A. Digital Cultural Mapping Core Course A: Place, Time, and Digital World. (4) Lecture, three hours; discussion, one hour. Introduction to how emerging digital mapping technologies like geographic information systems (GIS), virtual globes, and three-dimensional modeling are being utilized as new means of inquiry in the humanities and social sciences. Provides students with critical apparatus needed to effectively, responsibly, and heuristically use technology in digital cultural mapping projects. Analysis of different forms of visual presentation, with focus on data representation through mapping, reasoning, and argumentation to learn to critically assess map-based presentations. Tracing of history of mapping and spatial representation of place to learn how mapping has always been connected with societal structures, politics, economics, and culture because maps do not merely represent reality, but also produce reality by structuring world and organizing knowledge about it. Part of Digital Cultural Mapping Project supported by W.M. Keck Foundation. P/NP or letter grading.

M125B. Digital Cultural Mapping Core Course B: Google Earth, Geographic Information Systems, Hypercities, and Timelines. (4) (Same as Architecture and Urban Design M125B.) Laboratory, three hours; discussion, one hour. Enforced requisite: course 125A. Hands-on laboratory-based investigation of emerging digital mapping technologies, including instruction in Web-based mapping applications, virtual globes, and geographic information systems (GIS). Critique and creation of maps of cultural phenomena, applying skills students learned in course 125A to real-world data sets in humanities and social sciences. By mastering emerging technologies in field of digital cultural mapping, students take part in evaluation and production of sophisticated visual representations of complex data, becoming active participants in development of this new field. How to use suite of GIS and neogeography tools. Fostering of creative approaches to and engagement with mapping technologies: What new questions can be asked and answered using these technologies? How does one reason, argue, and solve real-world problems through digital cultural mapping? Design, development, and implementation of student mapping-based research projects. Part of Digital Cultural Mapping Project supported by W.M. Keck Foundation. P/NP or letter grading.

M125C. Digital Cultural Mapping Core Course C: Summer Research. (4) (Same as Architecture and Urban Design M125C.) Laboratory, three hours; field-work, one hour. Enforced requisite: course M125B or Architecture and Urban Design M125B. Participation in collaborative geographic information systems (GIS) research project in humanities or social sciences using skills learned in courses 125A and 125B. Gathering and input of datasets from real-world sources, creating visual representations of data through production of digital maps, and performing analysis of larger dataset to answer specific research questions. Final oral presentation required that details student work and provides critical analysis of source material and technological/methodological issues inherent to type of GIS used for investigation. Part of Digital Cultural Mapping Project supported by W.M. Keck Foundation. Offered in summer only. P/NP or letter grading.

M130. Ancient Egyptian Religion. (5) (Same as Religion M132.) Lecture, three hours; discussion, one hour. Introduction to religious beliefs, practices, and sentiments of ancient Egypt to study Egyptian religion as coherent system of thought and sphere of action that once served as meaningful and relevant framework for understanding physical reality and human life for inhabitants of Nile Valley. General principles as well as developments through time (circa 3000 B.C. to 300 C.E.). Topics include mythology, temple and cult, magic, and personal piety. P/NP or letter grading.

M135. Religion in Ancient Israel. (4) (Same as Religion M135.) Lecture, three hours. Introductory survey of various ancient Israelite religious beliefs and practices, their origin, and development, with special attention to diversity of religious practice in ancient Israel and Canaan during 1st millennium B.C.E. P/NP or letter grading.

140A-140B-140C. Elementary Sumerian. (4-4-4) Lecture, three hours. Requisites: Semitics 140A, 140B. Elementary grammar and reading of royal inscriptions, letters, and administrative texts from Ur III period. P/NP or letter grading.

150A-150B. Survey of Ancient Near Eastern Literatures in English. (4-4) Lecture, three hours. Each course may be taken independently for credit. P/NP or letter grading. **150A. Mesopotamia; 150B. Egypt.** Preparation: familiarity with Egyptian history. Enforced requisites: courses M103A, M103B. Survey of 3,000 years of ancient Egyptian literature. Reading of Egyptian texts in translation to study Egypt's intellectual history and trace transformations in its construction of cultural identity. Topics include invention of writing, autobiography, wisdom texts, narratives, royal inscriptions, and hymns. Discussion of text analysis such as narratology.

160. Origins of Agriculture. (4) Lecture, three hours. Requisite: Anthropology 8. Overview of prehistory of ancient Near East, with focus on human origins, origins of agriculture, and first cities. P/NP or letter grading.

161. Archaeology of Prehistoric Mesopotamia. (4) Lecture, three hours. Survey of prehistoric archaeological periods in Mesopotamia. P/NP or letter grading.

162. Archaeology of Ancient Israel. (4) Lecture, three hours. Survey of Bronze and Iron Age archaeology of Canaan and Israel through coming of Alexander the Great, with emphasis on relationship between archaeology and historical texts. P/NP or letter grading.

CM163. Archaeology of Iran. (4) (Formerly numbered C163.) (Same as Iranian CM163.) Lecture, three hours. Designed to introduce students to Iranian archaeology from prehistoric through Achaemenid times. Concurrently scheduled with course CM259. P/NP or letter grading.

C165. Egyptian Archaeology. (4) Seminar, three hours. Opportunity to research aspects of topics in ancient Egyptian archaeology. Topics vary each year. May be repeated for credit. Concurrently scheduled with course C266. P/NP or letter grading.

166. Art and Death in Ancient Egypt. (4) Lecture, four hours. Ways of death, burial, funerary ritual, and afterlife beliefs in ancient Egypt, as well as in ancient Near East and Nubia, with focus on ancient visual materials—both objects and architecture—from Predynastic to Roman periods. P/NP or letter grading.

M167. Magic in Ancient World. (4) (Same as Classics M167.) Lecture, three hours; discussion, one hour (when scheduled). Requisite: Classics 10 or 20. Exploration of art of influencing natural course of events by occult means as practiced in ancient world at large. Coverage of beliefs in supernatural forces, rites aimed at controlling these forces effectively, and character and social roles of ritual experts in various cultures of ancient world. Source material includes types of magical spells, literary texts about magic and magicians, and artifacts such as amulets and ritual implements. P/NP or letter grading.

M168. Introductory Hittite. (4) (Same as Indo-European Studies M168.) Lecture, two hours; recitation, one hour. Recommended preparation: knowledge of language with case system. Introduction to Hittite grammar by series of graded lessons covering morphology and syntax, followed by readings of selected texts from variety of genres in transliteration. P/NP or letter grading.

CM169. Introduction to Archaeological Sciences. (4) (Same as Anthropology CM110Q.) Lecture, three hours. Basic understanding of newly introduced methods and techniques throughout field of archaeology to implement them and to appreciate and evaluate results of their use by others who have embedded them in their scholarly publications or theoretical models. Systematic instruction in digital data management and mining, scientific analysis of materials (including geological and biochemical techniques), and visual presentation of data and research results (ranging from simple graphs to virtual reality). Concurrently scheduled with course CM269. P/NP or letter grading.

M170. Introduction to Biblical Studies. (4) (Same as Religion M172.) Lecture, three hours. Knowledge of original languages not required. Bible (Old and New Testaments) as book. Canon, text, and versions. Linguistic, literary, historical, and religious approaches to Bible study. Survey of history of interpretation from antiquity to present. P/NP or letter grading.

C177. Variable Topics in Ancient Near East. (4) Lecture, three hours; discussion, one hour. Variable topics; consult Schedule of Classes for topics to be offered in specific term. Concurrently scheduled with course C277. P/NP or letter grading.

M185D. Religions of Ancient Near East. (4) (Same as History M185D and Religion M185D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Main polytheistic sys-

tems of ancient Near East, with emphasis on Mesopotamia and Syria and with reference to religion of ancient Israel: varying concepts of divinity, hierarchies of gods, prayer and cult, magics, wisdom, and moral conduct. P/NP or letter grading.

197. Individual Studies in Ancient Near East. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Ancient Near East. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M201. Archaeological Research Design. (4) (Same as Archaeology M201C.) Seminar, three hours. Requisites: Archaeology M201A, M201B. How to design archaeological projects in preparation for MA thesis or PhD phase. Students do exploratory research to select subject, then write research design that could form basis for extensive paper, grant application, or oral examination. Students work closely with faculty members and report weekly on their progress. Preparation of at least two oral progress-report presentations, one on theoretical framework and one on practical aspects of project. Final written research design that incorporates theoretical and practical aspects of research and formulates bridging arguments required. S/U or letter grading.

M208. Topics in Ancient Iranian History. (4) (Same as History M210 and Iranian M210.) Seminar, three hours. Varying topics on Elamite, Achaemenid, Ar-sacid, and Sasanian history. May be repeated for credit. S/U or letter grading.

210. Late Egyptian. (4) Lecture, three hours. Requisites: courses 121A, 121B, 121C. Late Egyptian grammar and reading of both hieroglyphic and hieratic texts. May be repeated for credit. S/U or letter grading.

211A-211B. Egyptian Texts of Greco-Roman Period. (4-4) Lecture, three hours. Introduction to grammar and orthography of hieroglyphic texts from Greco-Roman temples. Text readings and translation of various textual types. Letter grading.

215. Readings in Middle Kingdom Literature. (4) Seminar, three hours. Enforced requisites: courses 120A, 120B, 120C. Survey of Middle Kingdom literature through close readings of texts in original language and evaluation of current scholarship on these texts. Students hone their knowledge of Middle Egyptian grammar and become familiar with philological methods in study of Egyptian literature. S/U or letter grading.

220. Seminar: Ancient Egypt. (4) Seminar, three hours. May be repeated for credit. S/U or letter grading.

221A-221B. Demotic. (4-4) Lecture, three hours. Requisite: course 121C. Course 221A is requisite to 221B. Introduction to Demotic grammar and orthography. Reading of texts from various genres. May be repeated for credit with topic change. S/U or letter grading.

C223A-C223B. Coptic. (5-5) Lecture, three hours. Introduction to Coptic, final phase of Egyptian language, which is attested in writing from circa 300 to 1400 CE. Concurrently scheduled with courses C123A-C123B. S/U or letter grading. **C223A.** Devoted to learning Coptic alphabet, grammar, and vocabulary (Sahidic dialect), with particular emphasis on historical linguistics. **C223B.** Requisite: course C223A. Introduction to variety of Coptic textual genres, from hagiographies to homilies, magical spells, private letters, legal contracts, and Gnostic Gospels found in Nag Hammadi. Readings in texts in dialects other than Sahidic (Bohairic, Fayumic, Akhmimic).

230. Seminar: Ancient Syria/Palestine. (4) Seminar, three hours. Examination of selected topics on political, social, and intellectual history of ancient Israel. Exploration of how historical, social, and political contexts shaped and influenced interpretation and use of biblical texts. May be repeated for credit. S/U or letter grading.

240A-240B-240C. Seminars: Sumerian Language and Literature. (4-4-4) Seminar, two hours. Readings of texts from various Sumerian periods and literary genres; selected problems in linguistic or stylistic analysis and literary history. S/U or letter grading.

CM259. Archaeology of Iran. (4) (Formerly numbered C259.) (Same as Iranian CM259.) Lecture, three hours. Designed to introduce students to Iranian archaeology from prehistoric through Achaemenid times. Concurrently scheduled with course CM163. S/U or letter grading.

260. Seminar: Ancient Near Eastern Archaeology. (2 to 4) Seminar, two hours. May be repeated for credit. S/U or letter grading.

261. Practical Field Archaeology. (2 to 8) Fieldwork, two hours. Participation in archaeological excavations or other archaeological research in Near East under staff supervision. May be repeated for credit. S/U or letter grading.

262. Seminar: Object Archaeology. (4) Seminar, two hours; laboratory, one hour. Selected topics in analysis and interpretation of Near Eastern archaeological finds in museum collections. Students work with objects in Heeramanek Collection of Los Angeles County Museum of Art. S/U or letter grading.

263. Seminar: Egyptian Monuments. (4) Seminar, two hours. Selected monuments and sites in Egypt, including Delta, Nile Valley, desert sites, wadis, oases, and border regions. Architecture and decoration of temples and tombs, statuary and monuments, settlement and use history, text translation of appropriate documents, including stelae, monumental inscriptions, or pertinent socioeconomic texts. May be repeated. S/U or letter grading.

264. Egyptian Museum Collections. (4) Seminar, two hours; research group meeting, one hour. Ancient Egyptian museum collections around world, data sets, provenance and dating studies, collection history and agenda, museology, and exhibition history. May be repeated for credit with consent of instructor. S/U or letter grading.

M265. Depositional History and Stratigraphic Analysis. (4) (Same as Archaeology M265.) Lecture, two hours. Theoretical understanding of depositional processes ("laws") which lead to site formation and of stratigraphic procedures to be used in recovery of embedded cultural materials. Study of issues covered in literature, with specific test cases from actual excavations and site reports. Coverage of theoretical implications of such disciplines as surveying and pedology with help of specialists. S/U or letter grading.

C266. Egyptian Archaeology. (4) Seminar, three hours. Opportunity to research aspects of topics in ancient Egyptian archaeology. Topics vary each year. May be repeated for credit. Concurrently scheduled with course C165. S/U or letter grading.

C267A. Art and Architecture of Ancient Egypt, Predynastic Period to New Kingdom. (4) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts during Predynastic period and Old Kingdom. May be repeated for credit with consent of instructor. Concurrently scheduled with course CM101A. S/U or letter grading.

C267B. Art and Architecture of Ancient Egypt, New Kingdom to Greco-Roman Period. (4) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts from New Kingdom to Greco-Roman period. Concurrently scheduled with course CM101B. S/U or letter grading.

CM269. Introduction to Archaeological Sciences. (4) (Same as Anthropology CM210A.) Lecture, three hours. Basic understanding of newly introduced methods and techniques throughout field of archaeology to implement them and to appreciate and evaluate results of their use by others who have em-

bedded them in their scholarly publications or theoretical models. Systematic instruction in digital data management and mining, scientific analysis of materials (including geological and biochemical techniques), and visual presentation of data and research results (ranging from simple graphs to virtual reality). Concurrently scheduled with course CM169. S/U or letter grading.

270. Old Egyptian. (4) Seminar, three hours. Enforced requisites: courses 120A, 120B, 120C, or one year of introductory Middle Egyptian. Advanced reading class in Old Egyptian, earliest of five Egyptian language phases, to prepare students for independent research on Egyptian texts dating to Old Kingdom (circa 2800 to 2100 B.C.E.). Through close reading of texts in original language and original format, students learn grammar, orthography, and phraseology of Old Kingdom texts as well as tools and methods of epigraphy. Focus on tomb biographies, royal edicts, and Pyramid Texts. Letter grading.

C277. Variable Topics in Ancient Near East. (4) Lecture, three hours; discussion, one hour. Variable topics; consult Schedule of Classes for topics to be offered in specific term. Concurrently scheduled with course C177. S/U or letter grading.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. PhD Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

Arabic

Lower Division Courses

1A-1B-1C. Elementary Standard Arabic. (5-5-5) Lecture, six hours. Course 1A is enforced requisite to 1B, which is enforced requisite to 1C. Not open to students with prior knowledge of Arabic. Introduction to formal Arabic (modern standard Arabic), including listening, speaking, reading, and writing. P/NP or letter grading.

8. Elementary Standard Arabic: Intensive. (12) Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Arabic to qualify for more advanced courses. Intensive course equivalent to courses 1A, 1B, and 1C. Introduction to fundamentals of standard Arabic, including pronunciation, grammar, and Arabic script, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. Offered in summer only. P/NP or letter grading.

Upper Division Courses

102A-102B-102C. Intermediate Standard Arabic. (4-4-4) Lecture, four hours. Enforced requisite: course 1C or 8. Course 102A is requisite to 102B, which is requisite to 102C. Not open to students who have learned, from whatever source, enough Arabic to qualify for more advanced courses. Intermediate formal Arabic, including listening, speaking, reading, and writing. P/NP or letter grading.

103A-103B-103C. Advanced Arabic. (4-4-4) Lecture, four hours. Enforced requisites: courses 102A, 102B, 102C. Not open to students who have learned, from whatever source, enough Arabic to qualify for more advanced courses. Advanced formal Arabic, including grammar, composition, and readings from classical and modern texts. P/NP or letter grading.

105. Introduction to Qur'anic and Islamic Arabic. (4) Lecture, three hours. Requisites: courses 1A, 1B, 1C. Introduction to Arabic used in Qur'an, Hadith (traditions of Prophet Muhammad), and early Islamic literature (biographies of Prophet and historical narratives). P/NP or letter grading.

M106. Qur'an. (4) (Same as Religion M108.) Lecture, three hours. How Qur'an as scripture shapes Muslim doctrine, rituals, and culture, and how throughout his-

tory Muslims have determined interpretations and applications of Qur'anic doctrines and prescriptions. Critical evaluation and analysis of contemporary discourses on Islam. Letter grading.

M107. Islam in West. (5) (Same as Islamic Studies M107 and Religion M107.) Lecture, three hours; discussion, one hour. Acquisition of understanding of basic doctrines and practices of Islam. Survey of history of Islam in West, with focus on U.S. and France. Analysis of issues relevant to growth and development of selected Muslim communities in West. Exposure to diverse expressions of Islam through independent research on Muslim communities and institutions in U.S. Development of strong analytical writing and speaking skills. P/NP or letter grading.

108. Summer Intensive Intermediate Arabic. (12) Lecture, and discussion, 20 hours. Enforced requisite: course 1C. Not open to students who have learned, from whatever source, enough Arabic to qualify for more advanced courses. Intensive course equivalent to courses 102A, 102B, and 102C. Intermediate formal Arabic, including listening, speaking, reading, and writing. Offered in summer only. P/NP or letter grading.

M110. Thousand and One Nights/Alf Layla Wa Layla. (4) (Same as Comparative Literature M110.) Lecture, three hours. Knowledge of Arabic not required. Since its appearance in Europe in 1704, *Thousand and One Nights* is most well-known work of Arabic literature in West. Examination of cycle of tales more commonly known as *Arabian Nights*, including history of its translation, contemporary oral performances of tales in Arabic-speaking world, literary emergence of vernacular language in relation to classical Arabic, and Western appropriations of tales in music, film, and novels (Ravel, Rimsky-Korsakov, Barth, Poe, and Walt Disney). P/NP or letter grading.

111A-111B-111C. Elementary Spoken Egyptian Arabic. (4-4-4) Lecture, three hours. Enforced requisite: course 1C or 8. Course 111A is enforced requisite to 111B, which is enforced requisite to 111C. Not suitable for heritage speakers. Introduction to spoken Arabic dialect of Egypt. Training in listening, speaking, and reading. P/NP or letter grading.

111S. Summer Intensive Elementary Egyptian Arabic. (4) Lecture, three hours. Knowledge of Arabic not required; not suitable for heritage speakers. Introduction to spoken Arabic dialect of Egypt. Training in listening, speaking, and reading. P/NP or letter grading.

112A-112B-112C. Advanced Spoken Egyptian Arabic. (4-4-4) Lecture, three hours. Study of Egyptian colloquial Arabic for heritage speakers or students who have completed courses 1A, 1B, 1C. P/NP or letter grading.

115. Studies in Arabic Dialectology. (4) Lecture, three hours. Introduction to one spoken dialect of Arabic, with emphasis on speaking and listening comprehension. Dialects vary from year to year based on student interest and instructor availability and may include Iraqi, Levantine, North African, or Gulf Arabic. May be repeated for credit. P/NP or letter grading.

116A-116B-116C. Elementary Iraqi Arabic. (5-5-5) Lecture, five hours. Course 116A is requisite to 116B, which is requisite to 116C. Introduction to dialect of Arabic spoken in contemporary Iraq, with emphasis on conversational proficiency. Recognition and production of sounds of Iraqi Arabic and basic vocabulary, grammar, idiomatic expressions, and relevant cultural background through dialogues and other conversational exercises. P/NP or letter grading.

120. Islamic Texts. (4) Lecture, four hours. Requisite: course 103C. Readings from Qur'an, Tafsir, Hadith, Fiqh. May be repeated for credit. Letter grading.

M123. Oral Literature and Performance of Arab World. (4) (Same as Comparative Literature M123.) Lecture, three hours. Knowledge of Arabic not required. Introduction to study of living oral traditions of troubadours, storytellers, oral poets, and performers in Arabic-speaking Middle East. P/NP or letter grading.

130. Classical Arabic Texts. (4) Lecture, four hours. Requisite: course 103C. Readings from premodern literary texts, with grammatical and syntactical analysis. May be repeated for credit. Letter grading.

132. Philosophical and Kalami Texts. (4) Lecture, three hours. Requisite: course 120. Readings in premodern philosophy and theology. May be repeated for credit. P/NP or letter grading.

C141. Modern Arabic Literature. (4) Lecture, three hours. Requisite: course 102C. Conducted in English and Arabic, with all required readings in original Arabic only. Readings in modern Arabic literature, variably organized across or around particular trends, genres, topics, canonical authors, regional, or national literatures, mixing thematic and formal analyses of literary and critical texts and making use of film, video-clip, and song in approaching literary culture. May be repeated for credit. Concurrently scheduled with course C241. Letter grading.

142. Arabic Media. (4) Lecture, four hours. Requisite: course 103A. Development of facility with language of Arabic press and broadcasting. Activities include monitoring current materials via Internet; transcribing, translating, and summarizing; writing original reports in Arabic; and oral presentations and discussions. May be repeated for credit. P/NP or letter grading.

M148. Contemporary Arab Film and Song. (4) (Same as Comparative Literature M148.) Seminar, three hours. Exploration of conjunctions between contemporary Arab film and song and between popular cultures and cultures of commitment (*Ilta'am*), with possible focus on specific genres such as realist/neorealist Arab film; feminist Arab film or popular Arab film and song; topics such as nation, gender, and representation or democracy and human rights or censorship, reception, and resistance. Possible examination of various national cinemas such as Tunisian, Egyptian, Moroccan, Algerian, and Palestinian. Various musical genres such as Rai, Mizoued, and Hip-hop also examined in relation to emergence not only of national cinemas, national music industries, and iconic singers but also of video clip, satellite TV, star academy, and reality shows—all products of transnational and pan-Arab mass media. P/NP or letter grading.

150. Classical Arabic Literature in English. (4) Lecture, three hours. Readings in English; knowledge of Arabic not required. Survey of premodern Arabic cultural production in its political, religious, and social contexts. Coverage of pre-Islamic Arabia, rise of Islam, and major themes of Southwest Asian history, along with significant figures and moments in literature and culture of premodern period. Consideration of selected modern responses to Arabic tradition. P/NP or letter grading.

M151. Modern Arabic Literature in English. (4) (Same as Comparative Literature M167.) Lecture, three hours. Designed for upper division literature majors. Topics may include constructions of otherness in modern Arab culture; East-West debate; memory, trauma, and mourning; violence, narrative, and ethics; globalization, oil, and cultural insurgency; Arab culture in transnational context or questions of reception, exoticism, translation, and marketing. Genres may include prison narratives; novel of terror; memoirs by women and/or by refugees and exiles; 19th- and 20th-century travel narratives; Arabic romantic poetry; literature of pre-1948; rise of Arab novel. Areas may range from generic look at Arab world to narrow focus on Maghreb or one country such as Algeria, Palestine, Iraq, Lebanon, or Egypt. May also be organized around Arab literatures written in one specific language, namely English, Arabic, or French. Letter grading.

M155. Al-Andalus: Literature of Islamic Spain. (4) (Same as Comparative Literature M119.) Lecture, three hours. Study of literature of Islamic Spain to learn about interaction of Arabic and Western and Arabic and Jewish cultures and to recognize Islamic culture as vital force in European life and letters. P/NP or letter grading.

M171. Culture Area of Maghrib (North Africa). (4) (Same as Anthropology M171P and History M108C.) Lecture, three hours. Designed for juniors/seniors. Introduction to North Africa, especially Morocco, Algeria, Tunisia, and Libya, also known as Maghrib or Tamazgha. Topics include changing notions of personal, tribal, ethnic, linguistic and religious identities; colonialism; gender and legal rights, changing representations of Islam, and religions in region's public spaces. P/NP or letter grading.

180. Linguistic Analysis of Arabic. (4) Lecture, four hours. Requisite: course 102C. Linguistic description of Arabic in both its modern standard and dialect forms. Introduction to linguistic analysis of Arabic phonology, morphology, and syntax and to linguists' approaches to specific problems posed by Arabic grammar and dialectology. Letter grading.

181. Translating Arabic. (4) Seminar, three hours. Preparation: advanced proficiency in English and Arabic (at least three years of Arabic instruction or equivalent). Open to both native and nonnative speakers of English and Arabic. Training of students in methodology of translation from Arabic into English, with focus on producing accurate and readable English versions of Arabic texts from variety of fields. Close reading and written translation of Arabic texts, with review of linguistic and cultural difficulties that arise in course of translation. Texts may include classical Arabic literature (religion, historiography), modern writing (literature, media), and spoken Arabic (television, radio), based on student interest. Letter grading.

188FL. Special Studies: Readings in Arabic. (2) Seminar, two hours. Requisite: course 102C. Students must be concurrently enrolled in affiliated main course. Primary readings and additional work in Arabic to enrich and augment work assigned in main course, including reading, writing, and other exercises. May be repeated for credit. P/NP or letter grading.

197. Individual Studies in Arabic. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Arabic. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

220. Seminar: Islamic Texts. (4) Seminar, three hours. Major Islamic thinkers and their works from classical period to modern times. Coverage of doctrines and hermeneutics of various schools of thought in Islam, such as Ahl al-sunna wa'l-jama'a, Shi'a, Mu'tazila, and Sufis. May be organized around one author and his works, multiple authors and their works, or specific topic with representative readings from various schools. Exploration of secondary literature in Arabic and other languages for student research papers. May be repeated for credit. S/U or letter grading.

M231. Texts in Judeo-Arabic. (4) (Same as Hebrew M231.) Lecture, three hours. Requisites: course 102C, Hebrew 102C. Reading of Judeo-Arabic texts by Maimonides (medieval religion, medicine, philosophy) and more recent texts in Judeo-Arabic dialects of Iraq and Egypt, with discussion of grammar and deviations from norms of classical Arabic. S/U or letter grading.

240A. Seminar: Arab Historians. (4) Seminar, three hours. Introduction to very large body of literature on medieval Islamic history. Selected readings in Arabic that represent cross-section of Islamic historical writings, including Ibn Ishaq's *Sira*, Waqidi's *Maghazi*, Baladhuri's *Futuh*, Tabari's *Ta'rikh*, digests of Ya'qubi and Mas'udi, Ibn Khaldun's *Muqaddima*, and Maqrizi's topography. Historians studied either to determine their reliability as sources or their view of history

and its theoretical foundations. Exploration of sources, research tools, and problems in Islamic history. May be repeated for credit. S/U or letter grading.

240B. Seminar: Arab Geographers. (4) Seminar, three hours. Introduction to large body of literature on medieval Islamic geographers. Selected readings in Arabic that represent cross-section of Islamic geographical writings distributed over number of disciplines and various aspects of geography, such as *Surat al-ard*, *Kitab al-Buldan*, *al-Masalik wa'l-mamalik*, topography, and travel accounts. May be repeated for credit. S/U or letter grading.

C241. Modern Arabic Literature. (4) Lecture, three hours. Requisite: course 102C. Conducted in English and Arabic, with all required readings in original Arabic only. Readings in modern Arabic literature, variably organized across or around particular trends, genres, topics, canonical authors, regional, or national literatures, mixing thematic and formal analyses of literary and critical texts and making use of film, video-clip, and song in approaching literary culture. May be repeated for credit. Concurrently scheduled with course C141. Letter grading.

250. Seminar: Premodern Arabic Literature. (4) Seminar, three hours. Readings in Arabic texts from variety of periods and genres, along with appropriate secondary literature. Topics include pre-Islamic poetry and oratory, Qur'an, Umayyad and Abbasid poetry and literary prose, Hadith and Fiqh, historiography, biography, geography, medicine, mathematics, theology, asceticism, and mysticism. May be repeated for maximum of 24 units. S/U or letter grading.

251. Seminar: Modern Arabic Literature. (4) Seminar, three hours; discussion, one hour. Requisite: course C141. Selected topics in modern and contemporary Arabic prose and poetry. May be repeated for credit. Letter grading.

M255. Literatures and Cultures of Maghreb. (4) (Same as Comparative Literature M251.) Seminar, three hours. Limited to graduate students. Examination of traditionally diverse literatures of Maghreb in their multiple and competing contexts of language and gender politics, religious and cultural formations, Pan-Arabism and postcolonial nationhood, Third-Worldism and economic development, modernity and globalization, immigration and citizenship, soccer industry and Rai music, mass media and Star Academy Maghreb, and more. Readings of literatures in English and in English translations from different Maghrebian languages (particularly Arabic and French) in conjunction with theories of language and linguistic pluralism, cultural translation, deconstruction, and host of other relevant theories of gender, globalization, and postcolonial cultural studies. S/U or letter grading.

275. Encountering Arabic Manuscripts: Introduction to Arabic Paleography and Critical Edition of Manuscripts. (4) Lecture, three hours; discussion, one hour. Requisite: course 103C. Introduction to Arabic paleography and how to prepare editions of medieval manuscripts with critical apparatus and stemma. During past decades enormous number of previously unknown Arabic manuscripts have been discovered. While vast range of medieval texts have been published in editions of varying quality, equally large number of manuscripts remain unpublished. UCLA has outstanding collections of Near Eastern manuscripts in Arabic, Persian, and Ottoman Turkish, primarily in fields of medicine, literature, philology, theology, law, and history. It is rich in works related to studies of theologians and scholars at different centers of learning in Iran during Safavid period noted for works of Shiite theology, Islamic sciences, and philosophy. Course opens this treasure to graduate students interested in editing and/or translating manuscripts. S/U or letter grading.

M288. Modern Arab Thought. (4) (Same as Comparative Literature M288.) Seminar, three hours. While much has been written and said about resurgence and spread of political Islam after collapse of ideology of secular nationalism and failure of Arab left to apprehend exigencies of postrevolutionary/postcolonial moment, little has been devoted to less sensational topic of modern Arab thought despite unmistakable

proliferation of critical output produced by Arab thinkers and artists in aftermath of 1967. Course addresses and redresses this glaring imbalance by considering new cultural material—literary, critical, philosophical, artistic, and journalistic—produced before and after al-Nahda but mostly before and after 1967 and fosters insightful approaches to unlikely coexistence in Arab contemporaneity of ever-deepening and generalized crisis and of steady and consolidated development (if not effervescence) of cultural and artistic production. S/U or letter grading.

496. Arabic Language Pedagogy Course. (2) Seminar, three hours. Taught in English and Arabic. Discussion of multiple topics pertaining to Arabic language teaching and learning. Content designed to address Arabic language pedagogy, with emphasis on practical issues and applications of different language teaching methodologies. Activities include lectures, classroom observations, and teaching demonstrations. Participants collaborate on projects that investigate issues related to teaching different language skills, such as listening, speaking, reading, and writing. S/U grading.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. PhD Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

Armenian

Upper Division Courses

101A-101B-101C. Elementary Modern Western Armenian. (5-5-5) (Formerly numbered 1A-1B-1C.) Lecture, five hours. Course 101A is recommended requisite to 101B, which is recommended requisite to 101C. Students with knowledge of Armenian should contact instructor to determine appropriate enrollment level. Armenian grammar, conversation, and exercises. P/NP or letter grading.

102A-102B-102C. Intermediate Modern Western Armenian. (5-5-5) Lecture, five hours. Recommended requisite: course 1C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Reading of selected texts, composition, and conversation. Each course may be taken independently for credit. P/NP or letter grading.

103A-103B-103C. Advanced Modern Western Armenian. (4-4-4) Lecture, four hours. Recommended requisite: course 102C. Course 103A is recommended requisite to 103B, which is recommended requisite to 103C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Designed for students with advanced speaking fluency and reading abilities in Armenian. Exploration of advanced Western Armenian in following areas of competency: fluency, literacy, accuracy, and proficiency. Use of language to engage literary themes and cultural issues of historical and contemporary significance for Armenian speakers. P/NP or letter grading.

104A-104B-104C. Elementary Modern Eastern Armenian. (5-5-5) (Formerly numbered 4A-4B-4C.) Lecture, five hours. Course 104A is recommended requisite to 104B, which is recommended requisite to 104C. Students with knowledge of Western Armenian should contact instructor to determine appropriate enrollment level. Designed for students with little or no prior knowledge of Eastern Armenian, official idiom of Republic of Armenia. Introduction to basics of grammar and conversation. P/NP or letter grading.

105A-105B-105C. Intermediate Modern Eastern Armenian. (5-5-5) Lecture, five hours. Recommended requisite: course 4C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to deter-

mine appropriate enrollment level. Continuing introduction to Armenian grammar, with greater attention to readings from short stories and simple newspaper articles and film viewing on video. Emphasis on improving students' self expression in idiom, both orally and in written form. Each course may be taken independently for credit. P/NP or letter grading.

106A-106B-106C. Armenian Society and Culture. (4-4-4) Lecture, four hours. Recommended requisite: course 105C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Designed for students with advanced speaking fluency and reading abilities in Armenian. Discussion of contemporary Armenian social and cultural issues through readings from critical essays, editorials, short stories, and poems written since World War II and film showings. Emphasis on enhancing students' self expression orally and in written form. Each course may be taken independently for credit. Letter grading.

110. History of Armenian Language. (4) Lecture, three hours. Requisite: course 1C or 4C. Exploration of history of Armenian language as reflected in literature created in Armenian throughout written period (5th through 20th centuries). Use of top-down approach beginning with modern state of Armenian language in its two standard versions (Western and Eastern), then retracing of historical development through formation of New Armenian (17th century), Middle Armenian (17th through 12th centuries), and earliest attested form, Grabar, literary version of ancient Armenian (11th through 5th centuries). Discussion of attempts at reconstructing major features of Armenian phonology and morphology in preliterary period. P/NP or letter grading.

130. Armenian Civilization under Bagratid Dynasty, 884 to 1064. (4) Lecture, four hours. Interdisciplinary investigation of interface between sociopolitical and economic factors in creation of works of art (literature, art, architecture, etc.) and social function these works performed in this important period of Armenian history. Letter grading.

131. Armenian Civilization in Cilician Period, 1080 to 1375. (4) Lecture, four hours. Interdisciplinary investigation of rise and fall of unique form of Armenian polity established outside homeland and examination of degree to which its social structure and cultural and aesthetic norms were impacted by those of West (Byzantium, Western Europe) and East (Crusader states, Seljuqs, Mamluks, Mongols). Letter grading.

M134. Introduction to Armenian Music. (4) (Same as Ethnomusicology M134 and Music M134.) Lecture, three hours. Some amount of formal music study and experience as vocalist or instrumentalist desirable but not essential. Introduction to history, tradition, and scope of music of Armenia. Focus on number of different genres and approaches, and interactions between music and culture, society, and history. P/NP or letter grading.

150A. Survey of Armenian Literature in English. (4) Lecture, three hours. Knowledge of Armenian not required. P/NP or letter grading.

C151. Armenian Literature and Canon Formation. (4) Lecture, four hours. Discussion of fundamental themes and genres around which Armenian literary tradition evolved and modalities by which this has been transformed in course of last two centuries as result of exposure to European thought and expressive forms. Concurrently scheduled with course C251. P/NP or letter grading.

C152. Modern Armenian Drama as Vehicle for Social Critique. (4) Lecture, four hours. Readings of selected plays from 1668 to 1992 from three main genres of tragedy, comedy, and serious drama and featuring works by most significant Armenian playwrights, with focus on their role as commentators on contemporary mores and as agents for social reform. Concurrently scheduled with course C252. Letter grading.

C153. Art, Politics, and Nationalism in Modern Armenian Literature. (4) Lecture, four hours. Examination of role of literature in modern Armenian society in service to cause or causes, as propaganda for various ideologies, as art for art's sake, etc. Exploration of contrasting aesthetics implicit in these differing interpretations. Concurrently scheduled with course C253. P/NP or letter grading.

C155. Issues in Armenian American Literature and Culture. (4) Lecture, four hours. Preparation: reading knowledge of modern Eastern and Western Armenian. Theoretically informed exploration of some of most salient questions related to Armenian American community as reflected in its literature and other cultural artifacts in interaction with its pluralistic American ambience. Concurrently scheduled with course C255. Letter grading.

160A-160B. Armenian Literature of 19th and 20th Centuries. (4-4) Lecture, three hours. Requisites: courses 102A, 102B, 102C. Reading of texts and discussion of various genres of modern Armenian literature within context of Armenian cultural renaissance. P/NP or letter grading.

C166. Armenian Film and Culture. (5) Lecture, six hours. Requisite: course 1C or 4C. Overview of development of Armenian cinematography from first talkie to present, with focus on work of most seminal directors from Armenian Republic, as well as various voices from worldwide diaspora. Concurrently scheduled with course C266. P/NP or letter grading.

170. Armenian Poetry, 1880 to 1930. (4) Lecture, three hours. Requisite: course 1C or 4C. Examination of process behind creation of range and variety of poetic expression that developed in new literary formats and genres of what became standard modern Eastern and Western Armenian language in second half of 19th century. Special attention to crafting of central practitioners' individual voice, with particular consideration to poetics and aesthetics, continuity and innovation under impact of modernism, and employment of poetic structure as medium for expression of deeper philosophical values. All texts read in original language. P/NP or letter grading.

171. Variable Topics in Armenian Studies. (4) Lecture, three hours. Examination of major issues in Armenian studies. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

M172. Medieval Armenian Art. (4) (Formerly numbered M173.) (Same as Art History M118A.) Lecture, three hours. Examination of cultural and historical impact of Armenian miniature paintings. P/NP or letter grading.

M173. Armenian Painting, 17th to 20th Century. (4) (Formerly numbered M172.) (Same as Art History M118B.) Lecture, three hours. Overview of development of modern Armenian painting out of its matrix in 17th and 18th centuries. P/NP or letter grading.

188. Variable Topics in Armenian. (4) Lecture, four hours. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

197. Individual Studies in Armenian. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Armenian. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

230A-230B-230C. Elementary Classical Armenian. (4-4-4) Lecture, three hours. Course 230A is requisite to 230B, which is requisite to 230C. Introduction to grammar of classical literary language (5th to mid-19th century) and guided readings in narrative prose texts. Letter grading.

231A-231B-231C. Intermediate Classical Armenian. (4-4-4) Lecture, three hours. Requisite: course 230C. Intensive review of grammar and reading of select prose and poetic texts. Each course may be taken independently for credit. Letter grading.

232A-232B-232C. Advanced Classical Armenian. (4-4-4) Lecture, three hours. Requisite: course 231A or 231B or 231C. In-depth reading and linguistic analysis of texts related to Philhellenic School of 6th to 8th century and related works up to 19th century. Each course may be taken independently for credit. Letter grading.

250A-250B. Seminars: Armenian Literature. (4-4) Seminar, three hours. Selected topics from various periods of Armenian literature. May be repeated for credit. S/U or letter grading.

C251. Armenian Literature and Canon Formation. (4) Lecture, four hours. Discussion of fundamental themes and genres around which Armenian literary tradition evolved and modalities by which this has been transformed in course of last two centuries as result of exposure to European thought and expressive forms. Concurrently scheduled with course C151. S/U or letter grading.

C252. Modern Armenian Drama as Vehicle for Social Critique. (4) Lecture, four hours. Readings of selected plays from 1668 to 1992 from three main genres of tragedy, comedy, and serious drama and featuring works by most significant Armenian playwrights, with focus on their role as commentators on contemporary mores and as agents for social reform. Concurrently scheduled with course C152. Letter grading.

C253. Art, Politics, and Nationalism in Modern Armenian Literature. (4) Lecture, four hours. Examination of role of literature in modern Armenian society in service to cause or causes, as propaganda for various ideologies, as art for art's sake, etc. Exploration of contrasting aesthetics implicit in these differing interpretations. Concurrently scheduled with course C153. P/NP or letter grading.

C255. Issues in Armenian American Literature and Culture. (4) Lecture, four hours. Preparation: reading knowledge of modern Eastern and Western Armenian. Theoretically informed exploration of some of most salient questions related to Armenian American community as reflected in its literature and other cultural artifacts in interaction with its pluralistic American ambience. Concurrently scheduled with course C155. Letter grading.

C266. Armenian Film and Culture. (5) Lecture, six hours. Requisite: course 1C or 4C. Overview of development of Armenian cinematography from first talkie to present, with focus on work of most seminal directors from Armenian Republic, as well as various voices from worldwide diaspora. Concurrently scheduled with course C166. S/U or letter grading.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. PhD Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

Hebrew

Lower Division Courses

1A-1B-1C. Elementary Hebrew. (5-5-5) Lecture, four hours; laboratory, one hour. Enforced preparation: Hebrew placement test. Course 1A is enforced requisite to 1B, which is enforced requisite to 1C. Not

open to native speakers. Introduction to modern Hebrew, including listening, speaking, reading, and writing. P/NP or letter grading.

8. Elementary Hebrew: Intensive. (12) Lecture, 10 hours; discussion, 10 hours. Intensive course equivalent to courses 1A, 1B, and 1C. Introduction to modern Hebrew, including listening, speaking, reading, and writing. Offered in summer only. P/NP or letter grading.

Upper Division Courses

102A-102B-102C. Intermediate Hebrew. (5-5-5) Lecture, five hours. Enforced requisite: course 1C or Hebrew placement test. Course 102A is enforced requisite to 102B, which is enforced requisite to 102C. Not open to native speakers. Amplification of grammar; reading of texts from modern literature. P/NP or letter grading.

103A-103B-103C. Advanced Hebrew. (4-4-4) Lecture, five hours. Enforced requisites: courses 102A, 102B, and 102C, or Hebrew placement test. Students with prior knowledge of Hebrew who did not take courses 102A, 102B, and 102C should contact instructor to determine appropriate enrollment level. Not open to native speakers. Designed for students with intermediate speaking fluency and reading abilities in Hebrew. Introduction to modern Hebrew literary texts. P/NP or letter grading.

110A-110B. Introduction to Biblical Hebrew. (4-4) Lecture, three hours. P/NP or letter grading. **110A.** Phonology, morphology, and structure of biblical Hebrew. **110B.** Requisite: course 110A. Continuation of course 110A. Readings of biblical prose texts.

110C. Readings in Biblical Hebrew. (4) Lecture, three hours. Requisites: courses 110A, 110B. Continuation of course 110B. Reading of prose texts from Hebrew Bible, particularly from Former Prophets (Joshua-Kings). Introduction to certain aspects of historical grammar of biblical Hebrew. Reading and translation of variety of texts from different historical periods of Hebrew language, including texts from Archaic, Standard, and Late periods. Increased understanding of Hebrew verbal system, including different verbal patterns, their morphology, and syntactic function in biblical Hebrew prose. P/NP or letter grading.

111A. Israeli Society through Hebrew Song and Video. (4) Lecture, three hours; laboratory, one hour. Requisite: course 1C. Use of contemporary Israeli song and video to explore Israeli collective imagination and various Israeli sociocultural issues to familiarize students with different aspects of Israeli daily life and popular culture, while teaching them multiple speech acts in both formal and informal contexts and enriching their Hebrew vocabulary and its retention. P/NP or letter grading.

111B-111C. Conversational Hebrew. (3-3) Lecture, two hours; laboratory, one hour. Requisite: course 111A. Course 111B is requisite to 111C. Vocabulary used in daily life, different speech acts in both formal and informal contexts, and various Israeli sociocultural issues using different kinds of media, such as video, Internet, and newspapers. P/NP or letter grading.

112. Readings in Modern Scholarly Hebrew. (2) Seminar, two hours. Requisite: course 102C. In-depth reading and discussion of selected scholarly articles in modern Hebrew for various disciplines: Bible study, Jewish history and folklore, sociology, and literary criticism. Development of student proficiency in vocabulary, terminology, and ideas in these fields while enhancing comprehension of complex syntactical structures in Hebrew. May be repeated for credit. P/NP or letter grading.

M113. Contemporary Israeli Short Stories/Novellas and Films in English. (5) (Same as Jewish Studies M113.) Lecture, three hours; laboratory, two hours. Exploration of Israeli short stories/novellas and films (translated into English) written since mid-1980s that use, each to varying degree, postmodernist techniques to undermine predominance of modernist-Zionist narrative. Recycling and reexamination of Israeli condition and Zionism and skepticism about

legitimacy of meta-narratives to redefine blurred outline of Israeli identity and subvert its underpinning formative myths. They simultaneously display loss of faith in representative dimension of language, including ability of texts to penetrate to its hidden meaning. Using periphery discourses, these texts strive to change modernist aesthetic and power paradigm. P/NP or letter grading.

120. Biblical Texts. (4) Lecture, three hours. Requisites: courses 102A, 102B, 102C. Translation and analysis of biblical texts, with attention to aspects of grammar, style, and interpretation.

125. Hebrew Bible with Medieval Commentaries. (4) Lecture, three hours. Requisite: course 103C. Hebrew Bible with the commentaries of Rashi, Ibn Ezra, and/or Nahmanides. May be repeated for maximum of 16 units. Letter grading.

130. Rabbinic Texts. (4) Lecture, three hours. Requisites: courses 103A, 103B, 103C. Readings in Mishnah, Talmud, and/or Midrash. May be repeated for credit.

135. Medieval Hebrew Texts. (4) Lecture, three hours. Requisites: courses 103A, 103B, 103C. Readings in medieval Hebrew prose and poetry. May be repeated for maximum of 16 units. P/NP or letter grading.

C140. Modern Hebrew Poetry and Prose. (4) Lecture, three hours. Requisites: courses 103A, 103B, and 103C, or equivalent knowledge of Hebrew. Study of major Hebrew writers of past 100 years. May be repeated for credit. Concurrently scheduled with course C240. Letter grading.

170. Dead Sea Scrolls. (4) Lecture, three hours. Requisite: course 110C. Readings in Hebrew scrolls from Dead Sea, with focus on grammar, paleography, and biblical interpretation in Dead Sea Scrolls. May be repeated for credit. P/NP or letter grading.

180A-180B. Survey of Hebrew Grammar. (4-4) Lecture, three hours. Requisites: courses 102A, 102B, 102C. Descriptive and comparative study of Hebrew grammar: phonology and morphology. Topics include development of Hebrew language from biblical times to present day, its relation to Arabic and other Semitic languages, methods of language expansion in Israeli Hebrew, traditional pronunciation of Hebrew by various Jewish communities, Hebrew contribution to other Jewish languages (Yiddish, Ladino, Judeo-Arabic). P/NP or letter grading.

188FL. Special Studies: Readings in Hebrew. (2) Seminar, two hours. Requisite: course 102C. Students must be concurrently enrolled in an affiliated main course. Primary readings and advanced training in Hebrew. Additional work in Hebrew to enrich and augment work assigned in main course, including reading, writing, and other exercises in Hebrew. P/NP or letter grading.

197. Individual Studies in Hebrew. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Hebrew. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

210. History of Hebrew Language. (4) Seminar, three hours. Development of Hebrew language in its classical period from archaic poetry through rabbinic Hebrew. Special attention to sociology of Hebrew: literacy, language ideology, register, dialect. S/U or letter grading.

220. Studies in Hebrew Biblical Literature. (4) Seminar, three hours. Critical study of Hebrew texts in relation to major versions; philological, comparative, literary, and historical study of various biblical books. May be repeated for credit. S/U or letter grading.

225. Studies in Dead Sea Scrolls. (2 or 4) Seminar, three hours. Requisite: course 120. Critical study of Dead Sea Scrolls, with attention to history of biblical interpretation and role of Dead Sea Scrolls in formative Judaism. Reading in original manuscripts from Dead Sea Scrolls. May be repeated for credit. S/U or letter grading.

230. Rabbinic Hebrew Literature. (4) Seminar, three hours. May be repeated for credit. S/U or letter grading.

M231. Texts in Judeo-Arabic. (4) (Same as Arabic M231.) Lecture, three hours. Requisites: course 102C, Arabic 102C. Reading of Judeo-Arabic texts by Maimonides (medieval religion, medicine, philosophy) and more recent texts in Judeo-Arabic dialects of Iraq and Egypt, with discussion of grammar and deviations from norms of classical Arabic. S/U or letter grading.

235. Hebrew Literature of Second Temple Period. (4) Seminar, three hours. Designed for students who have basic language skills and capacities necessary for reading Biblical Hebrew or Rabbinic Hebrew. Reading, analysis, and interpretation of Hebrew literature composed during Second Temple period. Relevant sources include Chronicles, Ezra-Nehemiah, Ecclesiastes, Ben Sira, Daniel, Dead Sea Scrolls, and other documents from Judean desert, and various apocrypha and pseudepigrapha. Special attention to historical development of Hebrew language and literature in relation to both earlier biblical sources, styles, grammar, and syntax and to subsequent Rabbinic writings. Course builds following skills: reading unpointed texts, mastering distinctive elements of vocabulary, idiom, and syntax of Second Temple Hebrew, and analyzing relationships between biblical and postbiblical sources. May be repeated for credit. S/U or letter grading.

C240. Modern Hebrew Poetry and Prose. (4) Lecture, three hours. Requisites: courses 103A, 103B, and 103C, or equivalent knowledge of Hebrew. Study of major Hebrew writers of past 100 years. May be repeated for credit. Concurrently scheduled with course C140. Letter grading.

241. Studies in Modern Hebrew Prose Fiction. (4) Studies in specific problems and trends in Hebrew prose fiction of the last two centuries. May be repeated for credit.

242. Studies in Modern Hebrew Poetry. (4) Studies in specific problems and trends in Hebrew poetry of the last two centuries.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. PhD Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

Iranian

Lower Division Courses

1A-1B-1C. Elementary Persian. (5-5-5) Lecture, six hours. Course 1A is enforced requisite to 1B, which is enforced requisite to 1C. Not open to students with prior knowledge of Persian. P/NP or letter grading.

8. Elementary Persian: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Persian to qualify for more advanced courses. Intensive course equivalent to courses 1A, 1B, and 1C. Introduction to fundamentals of Persian, including pronunciation, grammar, and Persian script, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. Offered in summer only. P/NP or letter grading.

20A-20B-20C. Accelerated Elementary Persian. (6-6-6) Lecture, four hours; discussion two hours; laboratory, 30 minutes per day. Preparation: some knowledge of spoken Persian. Course 20A is enforced requisite to 20B, which is enforced requisite to 20C. In-

tensive and thorough study of fundamental structure of Persian grammar; reading from a wide range of classical and modern poetry and prose compositions. P/NP or letter grading.

Upper Division Courses

102A-102B-102C. Intermediate Persian. (5-5-5) Lecture, six hours. Requisite: course 1C or 20C. Course 102A is requisite to 102B, which is requisite to 102C. P/NP or letter grading.

103A-103B-103C. Advanced Persian. (4-4-4) Lecture, three hours. Requisite: course 102C. Students who do exceptionally well in course 20C may be permitted to enroll with consent of instructor. Each course may be taken independently for credit. P/NP or letter grading. **103A.** Introduction to Classical Persian Poetry; **103B.** Introduction to Classical Persian Prose; **103C.** Introduction to Contemporary Persian Poetry and Prose.

104. Philosophical Texts. (4) Lecture, three hours. Readings in English. Introduction to wide selection of philosophical texts in translation. Identification of major philosophical themes in ontology, epistemology, psychology, and cosmology through texts, with study in detail. P/NP or letter grading.

M105A-M105B-M105C. Bahá'i Faith in Iran. (4-4-4) (Same as Religion M105A-M105B-M105C.) Lecture, three hours. Readings in English. Each course may be taken independently for credit. P/NP or letter grading.

M105A. Historical and Sociological Survey. Historical record of birth and spread of Bahá'i faith in Iran from beginning to present. **M105B.** Bahá'i Teachings that Transformed Iranian Community and Made It Open to Modernity. Progressive and transforming teachings and principles that broke mental and physical isolation of Shi'i Persia and ushered in modernity. **M105C.** 20th-Century Iran and Bahá'is. Role of Bahá'is in fabric of Persian society as agents of modern education and communal service.

M110A-M110B-M110C. Iranian Civilization. (4-4-4) (Same as Ancient Near East M110A-M110B-M110C and History M110A-M110B-M110C.) Lecture, three hours; discussion, one hour (when scheduled). History of ancient Iran from rise of Elam to end of Sasanian dynasty—Elamite civilization and Mede, Achaemenid, Arsacid, and Sasanian Empires. Emphasis on ancient Iran, but may be offered for early Islamic period. P/NP or letter grading.

M115A-M115B-M115C. Elementary Azeri. (4-4-4) (Same as Turkic Languages M115A-M115B-M115C.) Lecture, five hours. Knowledge of Russian, Turkish, and Iranian helpful. Grammatical competence at elementary level; knowledge of basic facts of Azeri grammar; reading competence with help of dictionary; ability to write simple compositions; basic conversational skill. P/NP or letter grading.

120. Comparative Study of Six Major Persian Poets. (4) Lecture, two hours; discussion, one hour. Preparation: knowledge of Persian. Lectures in Persian, readings in English and Persian. Comparative study of six major Persian poets from 10th to 14th century who shaped sense of Persian identity and delineated chief distinguishing characteristics of Persian thought and culture. May be repeated for credit with consent of instructor. P/NP or letter grading.

130. Intellectual History of Jews of Persia. (4) Lecture, three hours. Readings in English. Introduction to intellectual history of Jews in Persia by highlighting select areas of Judeo-Persian studies and focusing on various authors and their work. P/NP or letter grading.

131. Introduction to Judeo-Persian: Language and Culture. (4) Lecture, three hours. Preparation: knowledge of Persian equivalent to course 102C. Introduction to history of Judeo-Persian literature and culture to prepare students to read Judeo-Persian texts. P/NP or letter grading.

132. Intermediate Judeo-Persian Literature and Culture. (4) Lecture, three hours. Enforced requisites: courses 102C, 131. Literary study of Judeo-Persian literature, as segment of Iranian classical literature. Judeo-Persian literary genres, in forms of prose

and verse, compared with their parallel genres in context of Iranian literature. Textual study of Judeo-Persian manuscripts, both print and cursive, and their variations depending on time period or locality. P/NP or letter grading.

140. Persian Belles Lettres (*Adabiyāt*). (4) Lecture, three hours. Requisite: course 102C. Study of major Persian poets and prose writers: prose—Sohravardi, Hamadāni, Nasafi, Irāqī, and others; poetry—Hāfez, Sa'di, Rūmī, Bahār, Dehkhoda, and others. May be repeated for credit with consent of instructor. P/NP or letter grading.

141. Persian Analytical Prose. (4) Lecture, three hours. Requisite: course 102C. Study of selected analytical and expository prose texts, with emphasis on philosophy, sciences, literary criticism, and history. May be repeated for credit with consent of instructor. P/NP or letter grading.

142. Persian Popular Ethics. (4) Lecture, three hours. Requisite: course 102C. Study of major Persian works on popular ethics that have helped shape normative social, cultural, and political values in Iranian civilization. May be repeated for credit with consent of instructor. P/NP or letter grading.

150A-150B. Survey of Persian Literature in English. (4-4) Lecture, three hours. Knowledge of Persian not required. Each course may be taken independently for credit.

161A-161B-161C. Elementary Middle Iranian. (4-4-4) Lecture, three hours. Preparation: knowledge of Persian desirable. Course 161A is requisite to 161B, which is requisite to 161C. Studies in grammars and texts of Middle Iranian languages (e.g., Middle Persian, Parthian, Sogdian, Khotanese, Bactrian). May be repeated for credit with consent of instructor. P/NP or letter grading.

CM163. Archaeology of Iran. (4) (Same as Ancient Near East CM163.) Lecture, three hours. Designed to introduce students to Iranian archaeology from prehistoric through Achaemenid times. Concurrently scheduled with course CM259. P/NP or letter grading.

169. Civilization of Pre-Islamic Iran. (4) Survey of Iranian culture from the beginning through Sasanian period.

170. Religion in Ancient Iran. (4) History of religion in Iran from the beginning to the Mohammedan conquest; Indo-Iranian background, Zoroastrianism, Manichaeism, Mazdakism.

187. Variable Topics in Iranian Studies. (4) Lecture, three hours. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit. P/NP or letter grading.

188FL. Special Studies: Readings in Iranian. (2) Seminar, two hours. Requisite: course 102C. Students must be concurrently enrolled in affiliated main course. Primary readings and advanced training in Iranian. Additional work in Iranian to enrich and augment work assigned in main course, including reading, writing, and other exercises in Iranian. P/NP or letter grading.

197. Individual Studies in Iranian. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Iranian. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M210. Topics in Ancient Iranian History. (4) (Same as Ancient Near East M208 and History M210.) Seminar, three hours. Varying topics on Elamite, Achaemenid, Arsacid, and Sasanian history. May be repeated for credit. S/U or letter grading.

220A-220B. Classical Persian Texts. (4) Lecture, three hours. Requisites: courses 103A, 103B, 103C. Study of selected classical Persian texts. Each course may be taken independently for credit.

221. Rumi, Mystic Poet of Islam. (4) Seminar, three hours. Requisite: course 220A or 220B. Study of life and works of Rumi in context of interaction of Sufism and poetic creativity. May be repeated twice for credit.

M222A-M222B. Vedic. (4-4) (Same as Indo-European Studies M222A-M222B and South Asian M222A-M222B.) Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to South Asian 110C. Characteristics of Vedic dialect and readings in Rig-Vedic hymns. Only course M222B may be repeated for credit. S/U or letter grading.

M230A-M230B. Old Iranian. (4-4) (Same as Indo-European Studies M230A-M230B.) Lecture, four hours. Studies in grammars and texts of Old Persian and Avestan. Comparative considerations. Only course M230B may be repeated for credit. S/U or letter grading.

231A-231B-231C. Advanced Middle Iranian. (4-4) Lecture, three hours. Requisite: course 161C. Course 231A is requisite to 231B, which is requisite to 231C. Further studies in grammars and texts of Middle Iranian languages (e.g., Middle Persian, Parthian, Sogdian, Khotanese, Bactrian). May be repeated for credit with consent of instructor. S/U or letter grading.

250. Seminar: Classical Persian Literature. (4) Seminar, three hours. Requisites: courses 103A, 103B, 103C, 199. May be repeated twice for credit.

251. Seminar: Contemporary Persian Literature. (4) Seminar, three hours. Requisite: course 140. Studies in specific problems and trends in Persian poetry and prose in the 20th century. May be repeated twice for credit.

CM259. Archaeology of Iran. (4) (Same as Ancient Near East CM259.) Lecture, three hours. Designed to introduce students to Iranian archaeology from prehistoric through Achaemenid times. Concurrently scheduled with course CM163. S/U or letter grading.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. PhD Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

Islamic Studies

Upper Division Courses

M107. Islam in West. (5) (Formerly numbered Islamics M107.) (Same as Arabic M107 and Religion M107.) Lecture, three hours; discussion, one hour. Acquisition of understanding of basic doctrines and practices of Islam. Survey of history of Islam in West, with focus on U.S. and France. Analysis of issues relevant to growth and development of selected Muslim communities in West. Exposure to diverse expressions of Islam through independent research on Muslim communities and institutions in U.S. Development of strong analytical writing and speaking skills. P/NP or letter grading.

M110. Introduction to Islam. (5) (Formerly numbered Islamics M110.) (Same as Religion M109.) Lecture, three hours; discussion, one hour. Genesis of Islam, its doctrines, and practices, with readings from Qur'an and Hadith; schools of law and theology; piety and Sufism; reform and modernism. P/NP or letter grading.

M111. Introduction to Islamic Archaeology. (4) (Formerly numbered Islamics M111.) (Same as Art History M119C and Middle Eastern Studies M111.) Lecture, three hours. From earliest monuments of Islam in Arabia and Jerusalem to humble remains of small Egyptian port, broad focus on archaeological and standing remains in central Islamic lands (pri-

marily Syria, Egypt, and Iraq), Turkey, Iran, North Africa, and Spain. Profound cultural transformations occurred from birth of Islam in 7th century to early Ottoman period in 16th and 17th centuries, which are traceable in material records. Assessment of effectiveness of tools afforded by historical archaeology to aid understanding of past societies. P/NP or letter grading.

M112. Archaeology and Art of Christian and Islamic Egypt. (4) (Same as Archaeology M112, Art History M119D, and Middle Eastern Studies M112.) Lecture, three hours. Culture of Egypt transformed gradually after Muslim conquest in mid-7th century C.E. According to material evidence such as ceramics, textiles, architectural forms, and building techniques, it is functionally impossible to separate pre-Islamic Christian Egypt from early Islamic Egypt. Although population may have become largely Muslim by 10th century, Egypt remained Coptic in many senses even to 14th century and retains sizeable Christian minority to present. Survey of archaeological remains and standing architecture of Egypt from 6th to 19th century, charting changes and continuities in material culture and shifts in human geography and land use. P/NP or letter grading.

130. Shi'a in Islamic History. (4) (Formerly numbered Islamics 130.) Seminar, three hours; discussion, one hour. Rise and development of Shi'a Islam, its doctrines, and practices; major branches: Twelvers, Ismailis, Zaydis; their contribution to Islamic thought and civilization; modern trends of reinterpretation and reform. Letter grading.

151. Contemporary Islamic Thought. (4) (Formerly numbered Islamics 151.) Lecture, 90 minutes; discussion, 90 minutes. Recommended requisite: course M110. Based on original writings of major Islamic thinkers in English translation, provides balanced picture of enormous ideological variety found in contemporary Muslim world. Examination of representative writings from wide spectrum of modern Islamic intellectuals and writers. Letter grading.

197. Individual Studies in Islamic Studies. (2 to 4) (Formerly numbered Islamics 197.) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Islamic Studies. (2 to 4) (Formerly numbered Islamics 199.) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Introduction to Islamic Studies. (4) Seminar, three hours. Introduction to various disciplines and methods employed in study of Islamic histories, cultures, and societies, with special emphasis on methodologies and current theories and how they may be used and combined by Islamic studies students. Content varies each year. Letter grading.

201. Arabo-Islamic Sciences. (4) (Formerly numbered Islamics 201.) Seminar, three hours. Preparation: good reading knowledge of Arabic, English, and one other Western language. Comprehensive coverage of Arabo-Islamic sciences that formed matrix of Islamic education. Survey of most recent developments in following disciplines: Arabic language and literature, Qur'anic sciences, traditions, jurisprudence, theology, and Sufism. Letter grading.

291A. Variable Topics in Islamic Studies. (4) Seminar, three hours. Selected topics on Islam. May be repeated for credit with topic change. S/U or letter grading.

596. Directed Individual Study. (2 to 8) (Formerly numbered Islamics 596.) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) (Formerly numbered Islamics 597.) Tutorial, to be arranged. S/U grading.

598. MA Thesis Research and Preparation. (2 to 8) (Formerly numbered Islamics 598.) Tutorial, to be arranged. S/U or letter grading.

599. PhD Dissertation Research and Preparation. (2 to 8) (Formerly numbered Islamics 599.) Tutorial, to be arranged. S/U grading.

Jewish Studies

Lower Division Course

M10. Social, Cultural, and Religious Institutions of Judaism. (5) (Same as Religion M10.) Lecture, three hours; discussion, one hour. Judaism's basic beliefs, institutions, and practices. Topics include development of biblical and rabbinic Judaism; concepts of god, sin, repentance, prayer, and the messiah; history of Talmud and synagogue; evolution of folk beliefs and year-cycle and life-cycle practices. P/NP or letter grading.

M67. Popular Jewish and Israeli Music. (5) (Same as Music History M67.) Lecture, four hours; discussion, one hour. Music of Jews is diverse. With history of several thousand years and series of developments in modernity, music in Jewish life covers variety of styles found in many contexts. Exploration of music of Jews within last 100 years, with focus on popular music of Jews in America and Israel. Examination of music in Israel, with focus on songs of land of Israel, Israeli rock, and Muzika Mizrahit (Middle Eastern popular music). P/NP or letter grading.

Upper Division Courses

M113. Contemporary Israeli Short Stories/Novellas and Films in English. (5) (Same as Hebrew M113.) Lecture, three hours; laboratory, two hours. Exploration of Israeli short stories/novellas and films (translated into English) written since mid-1980s that use, each to varying degree, postmodernist techniques to undermine predominance of modernist-Zionist narrative. Recycling and reexamination of Israeli condition and Zionist condition and skepticism about legitimacy of meta-narratives to redefine blurred outline of Israeli identity and subvert its underpinning formative myths. They simultaneously display loss of faith in representative dimension of language, including ability of texts to penetrate to its hidden meaning. Using periphery discourses, these texts strive to change modernist aesthetic and power paradigm. P/NP or letter grading.

135. Jewish Law. (5) Lecture, three hours. Introduction to Jewish law from biblical literature to modern legal systems. Comparison of Jewish legal systems to modern secular systems and discussion of ethical dimensions of legal systems. P/NP or letter grading.

140A-140B. American Jewish History. (4-4) Lecture, three hours. Examination of social and cultural history of American Jewish community from its inception to the present, with emphasis on integration of successive immigrants and development of institutions. P/NP or letter grading. **140A.** 1654 to 1914; **140B.** 1914 to the Present.

M142. Modern Israel: Politics, Society, Culture. (4) (Formerly numbered 142.) (Same as Middle Eastern Studies M142.) Lecture, three hours. Examination of evolution of Israel—its changing society, volatile domestic and foreign politics, and dynamic culture—from its foundation in 1948 to present, in context of global political and cultural change and changing Jewish world. Tension between Israel's conception of itself as Jewish state and fact that it is home to wide variety of ethnic and religious groups and to great diversity of cultures; that it was envisaged as safe haven for Jewish people but has been characterized by insecurity and ongoing war; that, founded as democracy, it contends with multiple strains on its democratic system, such as tensions between Jews and Arabs, secular and religious Jews, and disparate ethnic groups. P/NP or letter grading.

143. Introduction to Jewish Folklore. (4) Lecture, three hours. Nature of Jewish folklore; narrative, folk song, folk art, folk religion, and methods and perspectives used in their analysis. P/NP or letter grading.

M144. Zionism: Ideology and Practice in Making of Jewish State. (4) (Formerly numbered 144.) (Same as Middle Eastern Studies M144.) Lecture, three hours; discussion, one hour. History of Zionism on backdrop of European, world, and Jewish histories from ideological origins to political, cultural, and social foundations of State of Israel. P/NP or letter grading.

M150A-150B. Hebrew Literature in English. (4-4) Lecture, three hours. Each course may be taken independently for credit. **M150A.** Literary Traditions of Ancient Israel: Bible and Apocrypha. (Same as Comparative Literature M101.) Study of literary culture of ancient Israel through examination of principal compositional strategies of Hebrew Bible and Apocrypha (read in translation). P/NP or letter grading. **150B.** Rabbinic Judaism. Topics include emergence of rabbinic Judaism; its original literary forms; rabbinic worldview; forms of medieval rabbinic literature; modern Jewish religious movements and their attitude to rabbinic Judaism.

M151A-151B. Modern Jewish Literature in English. (4-4) Lecture, three hours. Each course may be taken independently for credit. P/NP or letter grading. **M151A.** Diaspora Literature. (Same as Comparative Literature M166.) Study of literary responses of Jews to modernity, its challenges, and threats. Readings in texts originally written in English or translated from Hebrew, Yiddish, German, Russian, French, and Italian. Analysis of formal aspects of each work. **151B.** Israeli Literature. Study of translations from Hebrew literature written in Israel and reflecting cardinal facets of Israeli life: social issues, security problems, identity of the state, role of individual. Analysis of formal aspects of each work.

M155. Jewish Mysticism, Magic, and Kabbalah. (4) (Same as Religion M155.) Lecture, three hours. Exploration of types of Jewish mystical thought and practice from Hebrew Bible to medieval Kabbalah and its modern offshoots. P/NP or letter grading.

M162. Israel Seen through Its Literature. (4) (Same as Comparative Literature M162.) Lecture, three hours. Attempt to impart profound understanding of Israel as seen through its literature. Examination of variety of literary texts—stories, novels, and poems—and reading of them in context of their historical backgrounds. P/NP or letter grading.

170. Dead Sea Scrolls and Early Judaism. (4) Lecture, three hours. Introduction to Dead Sea Scrolls in English translation. Survey of literature, community of Khirbet Qumran, and their place in early Judaism. P/NP or letter grading.

175. Modern Israeli Literature Made into Films. (5) (Formerly numbered 75.) Lecture, four hours; discussion, one hour. Reading, analysis, and discussion of modern Israeli literature that was made into films, including literary works of prominent Israeli authors (S. Yizhar, A.B. Yehoshua, Amos Oz, and Yitzhak Ben Ner) that were translated to English and had filmic adaptations. Letter grading.

177. Variable Topics in Jewish Studies. (4) Lecture, three hours. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit. P/NP or letter grading.

M181. Topics in Jewish History. (4) (Same as History M181.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of major issues in Jewish history. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

M181SL. Jews in Los Angeles: Representation, Memory, and History in Digital Age. (4) (Formerly numbered M188SL.) (Same as History M181SL.) Lecture, three hours; fieldwork, two hours. Designed for juniors/seniors. History of Los Angeles, with special emphasis on pivotal roles Jews have played in shaping Los Angeles and role that Los Angeles has played in reshaping of Jewish identities, communities, and cultures. Exploration of themes related to region-

alism in American Jewish history, comparative immigration and migration patterns, and frontiers and borderlands, while providing overview of historical methodologies and interpretation. Examination of ethical and methodological implications of writing history in digital age and learning how to read and analyze these new media works as primary and secondary historical texts. Opportunity to contribute to body of historical work related to Los Angeles Jewish history through required service work with community partners and development of digital public history projects. P/NP or letter grading.

M182A. Ancient Jewish History. (4) (Same as History M182A and Religion M182A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of social, political, and religious developments. P/NP or letter grading.

M182B. Medieval Jewish History. (4) (Same as History M182B and Religion M182B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of unfolding of Jewish history from rise of Christianity to expulsion of Jews from Spain in 1492. P/NP or letter grading.

M182C. Modern Jewish History. (4) (Same as History M182C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of early modern Jewish history beginning with enormously repercussive expulsion of Jews from Spain in 1492, followed by transformations in Jewish society and identity over five centuries in Europe and Middle East, and concluding with nationalism. P/NP or letter grading.

M184A. Jewish Civilization: Encounter with Great World Cultures. (4) (Same as History M184A and Religion M184A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of dynamic and millennia-old interaction of Jews with great world cultures. Creative adaptations that have lent Jewish culture its distinct and various forms. P/NP or letter grading.

M184B. History of Anti-Semitism. (4) (Same as History M184B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of origins and historical development of anti-Semitism. P/NP or letter grading.

M184C. American Jewish Experience. (4) (Same as History M184C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Experience of Jews in America, both historical and contemporary. P/NP or letter grading.

M184D. History of Zionism and State of Israel. (4) (Same as History M184D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of history of State of Israel from 1948 to present. P/NP or letter grading.

M187. Holocaust in Literature. (4) (Same as Comparative Literature M165.) Lecture, three hours. Investigation of how Holocaust informs variety of literary and cinema works and raises wide range of aesthetic and moral questions. P/NP or letter grading.

191. Variable Topics Research Seminars: Jewish Studies. (4) Seminar, three hours. Research seminar on selected topics. Reading, discussion, and development of culminating project. May be repeated for credit. P/NP or letter grading.

197. Individual Studies in Jewish Studies. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Jewish Studies. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Course

202. Colonization and Nationalism: Jewish Settlement in Palestine-Israel, 1882 to 1948. (4) Seminar, three hours. Zionist settlement policy and practice, engaging perspectives concerning colonialism, socialism, and national conflict over Palestine. S/U or letter grading.

Middle Eastern Studies

Lower Division Courses

M50A. First Civilizations. (5) (Formerly numbered 50A.) (Same as Ancient Near East M50A.) Lecture, three hours; discussion, one hour. Survey of great civilizations of ancient Near East—Egypt, Israel, and Mesopotamia—with attention to emergence of writing, monotheism, and urban societies. Letter grading.

M50B. Origins of Judaism, Christianity, and Islam. (5) (Formerly numbered Near Eastern Languages M50B.) (Same as Ancient Near East M50B and Religion M50.) Lecture, three hours; discussion, one hour. Examination of three major monotheisms of Western cultures—Judaism, Christianity, and Islam—historically and comparatively. Development, teachings, and ritual practices of each tradition up to and including medieval period. Composition and development of various sacred texts, highlighting key themes and ideas within different historical and literary strata of traditions, such as mechanisms of revelation, struggle for religious authority, and common theological issues such as origin of evil and status of nonbelievers. Letter grading.

50C. Making and Studying Modern Middle East. (5) (Formerly numbered Near Eastern Languages 50C.) Lecture, three hours; discussion, one hour. Survey of modern Middle Eastern cultures through readings and films from Middle East and North Africa. Letter grading.

Upper Division Courses

M111. Introduction to Islamic Archaeology. (4) (Same as Art History M119C and Islamic Studies M111.) Lecture, three hours. From earliest monuments of Islam in Arabia and Jerusalem to humble remains of small Egyptian port, broad focus on archaeological and standing remains in central Islamic lands (primarily Syria, Egypt, and Iraq), Turkey, Iran, North Africa, and Spain. Profound cultural transformations occurred from birth of Islam in 7th century to early Ottoman period in 16th and 17th centuries, which are traceable in material records. Assessment of effectiveness of tools afforded by historical archaeology to aid understanding of past societies. P/NP or letter grading.

M112. Archaeology and Art of Christian and Islamic Egypt. (4) (Same as Archaeology M112, Art History M119D, and Islamic Studies M112.) Lecture, three hours. Culture of Egypt transformed gradually after Muslim conquest in mid-7th century C.E. According to material evidence such as ceramics, textiles, architectural forms, and building techniques, it is functionally impossible to separate pre-Islamic Christian Egypt from early Islamic Egypt. Although population may have become largely Muslim by 10th century, Egypt remained Coptic in many senses even to 14th century and retains sizeable Christian minority to present. Survey of archaeological remains and standing architecture of Egypt from 6th to 19th century, charting changes and continuities in material culture and shifts in human geography and land use. P/NP or letter grading.

C122. History, Memory, and Identity in Israel. (4) Seminar, three hours. Israeli society was born in effort to reshape images of Jewish past and has been shaken by many debates over history, recent and ancient events, and how these are represented by historical scholarship as well as in popular media and public spaces. Struggles over image of past have become central (as in many other societies) to debates

about identity in present and directions, goals, and hopes for future. Exploration of ways in which struggles over past have shaped Israeli present. Examination of historiographical debates and their reflections in range of media to make some sense of ever-changing past, ways in which it shapes political, ideological, and cultural identities in present, and where meeting points are between popular discourse and work historians do. Examination of conflicting readings of past and its representation in Israeli historiography and in shaping of Israeli collective memory and identity. Concurrently scheduled with course C222. P/NP or letter grading.

M133. Bible and Qur'an. (4) (Same as Religion M133.) Lecture, three hours. Survey of Hebrew Bible/Old Testament, New Testament, and Qur'an to familiarize students with content of scriptures of Judaism, Christianity, and Islam, and sociocultural background from which these multifarious texts emerged, and to explore major themes and consider variety of approaches to scripture. Development of appreciation for role scripture plays in these religious systems and in American culture and society. P/NP or letter grading.

M142. Modern Israel: Politics, Society, Culture. (4) (Same as Jewish Studies M142.) Lecture, three hours. Examination of evolution of Israel—its changing society, volatile domestic and foreign politics, and dynamic culture—from its foundation 1948 to present, in context of global political and cultural change and changing Jewish world. Tension between Israel's conception of itself as Jewish state and fact that it is home to wide variety of ethnic and religious groups and to great diversity of cultures; that it was envisaged as safe haven for Jewish people but has been characterized by insecurity and ongoing war; that, founded as democracy, it contends with multiple strains on its democratic system, such as tensions between Jews and Arabs, secular and religious Jews, and disparate ethnic groups. P/NP or letter grading.

M144. Zionism: Ideology and Practice in Making of Jewish State. (4) (Same as Jewish Studies M144.) Lecture, three hours; discussion, one hour. History of Zionism on backdrop of European, world, and Jewish histories from ideological origins to political, cultural, and social foundations of State of Israel. P/NP or letter grading.

177. Variable Topics in Middle Eastern Studies. (4) Lecture, three hours. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit. P/NP or letter grading.

M178. Variable Topics. (4) (Same as Religion M178.) Seminar, three hours. Interdisciplinary approach to some major topics in study of religion and Middle Eastern studies. May be repeated for credit with topic change. P/NP or letter grading.

Graduate Courses

200. Bibliography and Method of Near Eastern Languages and Literatures. (4) (Formerly numbered Near Eastern Languages 200.) Lecture, two hours. Required for MA degree. Introduction to bibliographical resources and training in methods of research in various areas of specialization offered by department. May be repeated for credit. S/U or letter grading.

201. Study of Religion: Theory and Method. (4) (Formerly numbered Near Eastern Languages 201.) Seminar, three hours. Preparation: familiarity with at least two major world religions. Designed for advanced undergraduate and graduate students. Introduction to variety of theories and methods used in academic study of religion. In attempt to demonstrate importance that historical, cultural, and social exigencies play in development of religious traditions, discussion of theories comparatively and in their historical context, with focus on presuppositions and core concepts and implications of each theory. Letter grading.

210. Survey of Afro-Asiatic Languages. (4) (Formerly numbered Near Eastern Languages 210.) Lecture, three hours. Survey of structures of number of

representative languages from various major branches of Hamito-Semitic (Afro-Asiatic) language family. S/U or letter grading.

C222. History, Memory, and Identity in Israel. (4) (Formerly numbered Near Eastern Languages 222.) Seminar, three hours. Israeli society was born in effort to reshape images of Jewish past and has been shaken by many debates over history, recent and ancient events, and how these are represented by historical scholarship as well as in popular media and public spaces. Struggles over image of past have become central (as in many other societies) to debates about identity in present and directions, goals, and hopes for future. Exploration of ways in which struggles over past have shaped Israeli present. Examination of historiographical debates and their reflections in range of media to make some sense of ever-changing past, ways in which it shapes political, ideological, and cultural identities in present, and where meeting points are between popular discourse and work historians do. Examination of conflicting readings of past and its representation in Israeli historiography and in shaping of Israeli collective memory and identity. Concurrently scheduled with course C122. S/U or letter grading.

241. Folklore and Mythology of Near East. (4) (Formerly numbered Near Eastern Languages 241.) Lecture, three hours. Exploration of variety of traditions in ancient Near Eastern literature concerning creation of cosmos, origins of mankind, and boundaries between divine and human realms. Answers to questions concerning origins of evil, pursuit of wisdom, expectations for life beyond death, and quest for immortality are all sought in folklore of ancient religions. Directed readings of ancient literatures. S/U or letter grading.

290. Seminar: Paleography. (4) (Formerly numbered Near Eastern Languages 290.) Seminar, three hours. Provides students with ability to cope with varieties of manuscripts. S/U or letter grading.

Near Eastern Languages

Lower Division Course

M20. Visible Language: Study of Writing. (5) (Same as Asian M20, Indo-European Studies M20, Slavic M20, and Southeast Asian M20.) Lecture, three hours; discussion, one hour. Consideration of concrete means of language representation in writing systems. Earliest representations of language known are those of Near East dating to end of 4th millennium B.C. While literate civilizations of Egypt, Indus Valley, China, and Mesoamerica left little evidence of corresponding earliest developments, their antiquity and, in case of China and Mesoamerica, their evident isolation mark these centers as loci of independent developments in writing. Basic characteristics of early scripts, assessment of modern alphabetic writing systems, and presentation of conceptual basis of semiotic language representation. Origins and development of early non-Western writing systems. How Greco-Roman alphabet arose in 1st millennium B.C. and how it compares to other modern writing systems. P/NP or letter grading.

Upper Division Course

CM114. Teaching and Learning of Heritage Languages. (4) (Same as Asian CM124 and Slavic CM114.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and instructor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLLs) regarding teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM214. P/NP or letter grading.

tion research component included. Concurrently scheduled with course CM214. P/NP or letter grading.

Graduate Courses

CM214. Teaching and Learning of Heritage Languages. (4) (Same as Asian CM224 and Slavic CM214.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and instructor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLLs) regarding teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM114. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Preparation for Teaching Language and Literature in Near Eastern Languages and Cultures. (2) Seminar, two hours. Problems and methods of presenting literary texts as exemplary materials in teaching of language and literature in Near Eastern Languages and Cultures. Theory and classroom practice, with individual counseling and faculty evaluation of teaching assistant performances. May not be applied toward MA degree requirements. S/U grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. PhD Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

Semantics

Upper Division Courses

110. Neo-Aramaic. (4) Lecture, three hours. Grammar and reading of selected texts (folktales, homilies, songs) in modern Aramaic dialects of the Jews and Christians of Kurdistan.

115. Syriac. (4) Lecture, two hours. Morphology and syntax of Syriac language, introductory reading.

130. Biblical Aramaic. (4) Lecture, three hours. Requisites: Hebrew 102A, 102B, 102C. Grammar of biblical Aramaic and reading of texts.

140A-140B. Elementary Akkadian. (4-4) Lecture, three hours. Elementary grammar and reading of texts in standard Babylonian.

141. Advanced Akkadian. (4) Lecture, three hours. Advanced Akkadian syntax and grammar; reading of Akkadian historical and literary texts. May be repeated for credit. P/NP or letter grading.

142. Akkadian Literary Texts. (4) Lecture, three hours. Selected readings from Akkadian myths and epics, with introduction to historical tradition of works and their literary structure. May be repeated for credit. P/NP or letter grading.

197. Individual Studies in Semitics. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Semitics. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

210. Ancient Aramaic Dialects. (4) Lecture, three hours. Requisite: course 130. Reading of surviving inscriptions and papyri. Texts include Old Aramaic inscriptions, Egyptian Aramaic texts, Qumran Aramaic, and Targumic Aramaic. May be repeated for credit. S/U or letter grading.

215B. Syriac. (4) Lecture, two hours. Morphology and syntax of Syriac language; readings in Syriac translation of Bible and Syriac literature. May be repeated for credit. S/U or letter grading.

220A-220B. Ugaritic. (4-4) Lecture, two hours. Requisites: Hebrew 102A, 102B, 102C. Study of Ugaritic language and literature. Only course 220B may be repeated for credit. S/U or letter grading.

225. Phoenician. (4) Lecture, two hours. Requisites: Hebrew 102A, 102B, 102C. Study of Phoenician language and inscriptions. May be repeated for credit. S/U or letter grading.

230. Seminar: Northwest Semitic Languages and Literatures. (4) Seminar, two hours. May be repeated for credit. S/U or letter grading.

240. Seminar: Akkadian Language. (4) Seminar, two hours. Readings of texts from various dialects of Akkadian; selected problems in linguistic analysis of Akkadian dialects. May be repeated for credit. S/U or letter grading.

240X. Seminar: Akkadian Language. (1) Seminar, two hours. Readings of texts from various dialects of Akkadian; selected problems in linguistic analysis of Akkadian dialects. Course for students who participate regularly in class meetings but without the homework required in course 240. May be repeated for credit. S/U grading.

241. Seminar: Akkadian Literature. (4) Seminar, two hours. Readings of texts from various Akkadian literary genres; selected problems in literary history and stylistic analysis. May be repeated for credit. S/U or letter grading.

241X. Seminar: Akkadian Literature. (1) Seminar, two hours. Readings of texts from various Akkadian literary genres; selected problems in literary history and stylistic analysis. Course for students who participate regularly in class meetings but without the homework required in course 241. May be repeated for credit. S/U grading.

280A. Seminar: Comparative Semitics. (4) Seminar, two hours. S/U or letter grading.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. PhD Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

Turkic Languages

Upper Division Courses

101A-101B-101C. Elementary Turkish. (5-5-5) Lecture, five hours. Course 101A is requisite to 101B, which is requisite to 101C. Grammar, reading, conversation, and elementary composition drills. P/NP or letter grading.

102A-102B-102C. Advanced Turkish. (4-4-4) Lecture, five hours. Requisites: courses 101A, 101B, 101C. Continuing study of grammar, conversation, and composition. Readings in modern literature and social science texts. May be repeated for credit. P/NP or letter grading.

111A-111B-111C. Elementary Uzbek. (4-4-4) Lecture, three hours; laboratory, two hours. Elementary grammar, reading, and composition exercises; elementary conversation.

112A-112B-112C. Advanced Uzbek. (4-4-4) Lecture, three hours; laboratory, two hours. Descriptive Uzbek grammar, reading, and analysis of Uzbek literary and folkloric texts. High-style composition and conversation.

M115A-M115B-M115C. Elementary Azeri. (4-4-4) (Same as Iranian M115A-M115B-M115C.) Lecture, five hours. Knowledge of Russian, Turkish, and Iranian helpful. Grammatical competence at elementary level; knowledge of basic facts of Azeri grammar; reading competence with help of dictionary; ability to write simple compositions; basic conversational skill. P/NP or letter grading.

116A-116B-116C. Advanced Azeri. (4-4-4) Lecture, three hours; discussion, one hour; laboratory, one hour. Preparation: placement test. Proficiency-based course in descriptive Azeri grammar. Reading and analysis of Azeri literary and folkloric texts in new writing system. High-style composition and conversation. May be repeated for credit. Letter grading.

160. Turkish Tradition. (4) Lecture/discussion. Preparation: entrance examination. Survey of cultural history of the Turks, as seen primarily through their literature, from their early history to the present.

165. Islamic Literary Heritage of Central Asia. (4) Lecture, two hours; discussion, one hour. Systematic survey of Islamic documents produced in Turkish and Persian in Central Asia, with reading of primary sources in English translation. Study of special characteristics of Central Asian Islam.

170. Turco-Mongolian Nomadic Empires. (4) Lecture, three hours. Required of students in Turkic program. Survey of history of Turkic and Mongolian dominions from the 3rd century B.C. to A.D. 19th century (Hsiung-nu, Hsien-pi, Juan-Juan, T'u-Chueh, Uyghur, Khitan, Karakhanid, Seljuq, Kara-Khitay, Khorazmian, Jengiz-Khanite).

180. Modern Turkic Languages and Peoples. (4) Lecture, three hours. Required of students in Turkic program and recommended for students in Soviet studies. Ethnic and linguistic survey of the Turkic peoples.

197. Individual Studies in Turkic. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Turkic. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

210A. Readings in Ottoman I. (4) Lecture, three hours. Examination of printed texts in Ottoman from 19th and 20th centuries to improve student competence to read, transliterate, and translate Ottoman texts. Readings include selections from newspapers, almanacs, travel books, and literary and historical texts. S/U or letter grading.

211. Ottoman Diplomatics. (4) Lecture, three hours. Requisites: courses 210A, 210B, 210C. Organization and contents of Ottoman archives; reading and discussion of documents and registers. Introduction to use of Ottoman archive materials as a source for historical research.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. PhD Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

NEUROBIOLOGY

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Felix E. Schweizer, PhD, *Vice Chair, Education*

Professors

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Dean V. Buonomano, PhD
S. Thomas Carmichael, MD, PhD
Marie-Françoise Chesselet, MD, PhD (*Charles H. Markham Professor of Neurology*)
Jean S. de Vellis, PhD (*Dr. George Tarjan Professor of Mental Retardation*), *in Residence*
Jerome Engel, Jr., MD, PhD (*Jonathan Sinay Professor of Epilepsy*)
Jack L. Feldman, PhD
Robert G. Frank, Jr., PhD
Mark A. Frye, PhD
David L. Glanzman, PhD
Ronald M. Harper, PhD
Carolyn R. Houser, PhD
Joanna C. Jen, MD, PhD
Baljit S. Khakh, PhD
Mayank R. Mehta, PhD
Paul E. Micevych, PhD (*Edith Agnes Plumb Professor of Neurobiology*)
Bennett G. Novitch, PhD
Thomas S. Otis, PhD
Dario L. Ringach, PhD
Felix E. Schweizer, PhD
Alcino J. Silva, PhD (*Eleanor I. Leslie Professor of Pioneering Brain Research*)
Michael V. Sofroniew, MD, PhD
Catia Sternini, MD, *in Residence*
Joshua T. Trachtenberg, PhD
David S. Williams, PhD, *in Residence*

Professors Emeriti

R. Dean Bok, PhD (*Dolly Green Professor Emeritus of Ophthalmology*)
John H. Campbell, PhD
Carmine D. Clemente, PhD
Edwin L. Cooper, PhD
V. Reggie Edgerton, PhD
Earl Eldred, MD
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Anna N. Taylor, PhD
Jaime R. Villablanca, PhD
Charles D. Woody, PhD
Richard W. Young, PhD
Guido A. Zampighi, DDS, PhD
Emery G. Zimmermann, MD, PhD

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Samantha J. Butler, PhD
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 Alapakkam P. Sampath, PhD, *in Residence*

Assistant Professors

Jeffrey Donlea, PhD
 Weizhe Hong, PhD
 Sotiris Masmanidis, PhD

Adjunct Professor

Ronald Szymusiak, PhD

Adjunct Instructor

Jennifer A. Ogren, PhD

Scope and Objectives

The Department of Neurobiology offers advanced training leading to the PhD degree. Graduates can anticipate an academic career at the college or university level or as a basic science researcher at a research institute or biotechnology company. In accord with this the department strives to produce graduates soundly qualified both for teaching at the college or university level and for the conduct of original research in neurobiology.

The overall objective of the PhD program is to provide a strong theoretical and practical foundation in the area of cellular and systems neurobiology, with the goal to develop a better understanding of normal and pathological brain function and behavior. The graduate program provides (1) basic and advanced instruction in the fundamentals of neuroscience, (2) advanced independent research training in the areas of cellular, structural, and systems neurobiology, and (3) teaching experience in undergraduate, graduate, and professional (dental and medical) courses in neuroscience. The program is targeted toward highly qualified and self-motivated doctoral students who take advantage of a flexible curriculum characterized by extensive informal and formal interactions with faculty in small groups and on an individual tutorial basis. The curriculum is structured to allow students extensive opportunities for critical examination of contemporary neuroscience literature and research and for the development of oral and written communication skills.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Neurobiology offers Master of Science (MS), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Neurobiology.

Medical History

Upper Division Courses

107A-107B. Historical Development of Medical Sciences. (4-4) Lecture, three hours. Major contributions of medicine and medical personalities from earliest times. P/NP or letter grading. **107A.** Contribu-

tions of medicine and medical personalities from earliest times through 1650. **107B.** Subject in the period from 1650 through the 19th century. Illustrated lectures, class discussion, and required readings from selected texts.

M169. History of Neurosciences. (4) (Same as Neurobiology M169.) Lecture, one hour; discussion, two hours. Development of neurosciences, especially neuroanatomy and neurophysiology, from Enlightenment era through latter 20th century. Emphasis on fundamental nerve functions, cell communication, and technological, conceptual, and cultural influences that have shaped understanding of brain and nervous system. P/NP or letter grading.

Graduate Course

596. Directed Individual Studies in Medical History. (2 to 12) Tutorial, to be arranged. Investigation of subjects in medical history selected by students with advice and direction of instructor. Individual reports and conferences. S/U or letter grading.

Neurobiology

Upper Division Courses

106. Functional Neuroanatomy. (4) Lecture/laboratory, three two-hour sessions. Designed for dental students. Lectures, demonstrations, and laboratories dealing with structure and functional organization of nervous system. P/NP or letter grading.

M168. Ideas and Experiments in History of Physiology. (4) (Same as Physiological Science M168.) Lecture, three hours. Interaction of concepts and experimental techniques in physiology from the early 19th to latter 20th centuries, including heart and circulation, hormones, nutrition and vitamins, brain, spinal cord, and peripheral nervous system, as well as development of physiology as scientific discipline. Discussion of weekly readings and presentations by students. Letter grading.

M169. History of Neurosciences. (4) (Same as Medical History M169.) Lecture, one hour; discussion, two hours. Development of neurosciences, especially neuroanatomy and neurophysiology, from Enlightenment era through latter 20th century. Emphasis on fundamental nerve functions, cell communication, and technological, conceptual, and cultural influences that have shaped understanding of brain and nervous system. P/NP or letter grading.

M171. Variable Topics Research Seminars: Contemporary Biology. (2) (Formerly numbered Biological Chemistry 191.) (Same as Physiological Science M171.) Seminar, two hours. Limited to undergraduate fellows in Howard Hughes Undergraduate Research Program. Presentations of scientific data from primary research articles and from students' own research. May be repeated for credit. P/NP grading.

197. Individual Studies in Neurobiology. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned readings and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research in Neurobiology. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Studies in anatomy and related subject areas appropriate for training of particular students, which includes reading assignments or laboratory work leading to final oral or written report. May be repeated for maximum of 16 units. Individual contract required. P/NP or letter grading.

Graduate Courses

M200A. Synapses, Cells, and Circuits. (4) (Same as Neuroscience M204.) Lecture, three hours; laboratory, two hours. Fundamental topics concerning subcellular, cellular, and structural organization of nervous

system. Specific topic areas include neuronal ultrastructure, cellular neurobiology, neuroanatomy, neural circuitry, and imaging. Letter grading.

M200B. Cell, Developmental, and Molecular Neurobiology. (6) (Same as Molecular, Cell, and Developmental Biology M220 and Neuroscience M201.) Lecture, six hours. Fundamental topics concerning cellular, developmental, and molecular neurobiology, including intracellular signaling, cell-cell communication, neurogenesis and migration, synapse formation and elimination, programmed neuronal death, and neurotropic factors. Letter grading.

M200C. Sensory Systems Neurobiology. (4) (Same as Neuroscience M221.) Lecture, two hours; discussion, two hours. Fundamental topics in sensory systems neurobiology, including sensory transduction, taste and olfaction, audition, vision, and somatosensory system. Letter grading.

200D. Motor Systems Neurobiology. (4) Lecture, four hours. Fundamental topics in motor systems neurobiology, including muscle, motor units, and motoneuron pools, spinal motor control, reflexes, locomotion, basal ganglia, cerebellum, and eye movements. Letter grading.

200E. Regulatory, Behavioral, and Cognitive Neurobiology. (6) Lecture, two hours; discussion, two hours; laboratory, two hours. Topics include hypothalamus, cardiovascular system, breathing, food intake and metabolism, water intake and body fluids, neuroendocrine systems, circadian timing, sleep and dreaming, psychosexual development, motivation, reward and addiction, cognitive development, object, face, and spatial recognition, learning and memory, language and communication, and thinking and problem solving. Letter grading.

M200F. Cellular Neurophysiology. (4) (Same as Neuroscience M202 and Physiological Science M202.) Lecture, three hours; discussion, two hours. Requisites: Physiological Science 111A (or M180A or Physics 6B), 166. Advanced course in cellular physiology of neurons. Action and membrane potentials, channels and channel blockers, gates, ion pumps and neuronal homeostasis, synaptic receptors, drug-receptor interactions, transmitter release, modulation by second messengers, and sensory transduction. Letter grading.

M200G. Biology of Learning and Memory. (4) (Same as Molecular, Cellular, and Integrative Physiology M200G, Neuroscience M220, and Psychology M208.) Lecture, four hours. Molecular, cellular, circuit, systems, neuroanatomy, theory, and models of learning and memory. Cross-disciplinary focus on learning and memory to provide integrative view of subject that emphasizes emerging findings that take advantage of novel groundbreaking models. Letter grading.

220. Structural Neurobiology. (2) Lecture, two hours; discussion, two hours; laboratory, two hours. Introduction to molecular structure of chemical, electrical, and mixed synapses as determined by imaging methods such as electron tomography. Comprehensive review of current principles governing synaptic transmission and balanced account of some of most topical areas of field, such as hemifusion, kiss and run, and fast exocytosis. Laboratory sessions review methods for preparing samples through in-depth analysis of imaging strategies. Computer laboratory sessions allow demonstration of data processing and interpretation. Three round table discussions provide forum for further inspiration as well as tackling any questions or difficulties that may arise from laboratories and lectures. S/U grading.

225. Functional Organization of Visual System. (2) Seminar, three hours. Preparation: basic neuroscience course. Recommended: neuroanatomy, neurophysiology, and/or neural systems courses. Designed for neuroscientists, cell biologists, and psychologists. Basic organizational, physiological, and functional principles of visual system and how visual information is processed at different levels of nervous system. Structure, microcircuitry organization and function of retina, central visual nuclei, and primary cortical areas mediating visual behavior. S/U or letter grading.

M227. Neuroendocrinology of Reproduction. (4) (Same as Physiological Science CM227.) Lecture, three hours. Enforced requisite: Physiological Science 111B. Understanding of reproductive neuroendocrinology throughout mammalian lifespan, with emphasis as appropriate on human condition. Discussion of general concepts of endocrine feedback and feed-forward loops, sexual differentiation, and structure and function for components of hypothalamo-pituitary gonadal axis. Exploration of sex differences in physiology and disease. Letter grading.

M255. Seminar: Neural and Behavioral Endocrinology. (2) (Same as Physiological Science M255 and Psychology M294.) Seminar, one hour; discussion, one hour. Topics include hormonal biochemistry and pharmacology. Hypothalamic/hypophyseal interactions, both hormonal and neural. Structure and function of hypothalamus. Hormonal control of reproductive and other behaviors. Sexual differentiation of brain and behavior. Stress: hormonal, behavioral, and neural aspects. Aging of reproductive behaviors and function. Letter grading.

270. Joint Seminar: Neuroscience Lectures. (1) Seminar, one hour. Formal lectures on current research topics in neuroscience by speakers from national, international, and local neuroscience communities. S/U grading.

M287. Dynamics of Neural Microcircuits. (4) (Same as Neuroscience M287.) Lecture, two hours; discussion, two hours. Development of integrative understanding of neural microcircuits that underlie specific functions of sensory processing, generation, and coordination of motor activity, as well as generation and modulation of neural rhythms. Letter grading.

295. Culture of Neurobiology. (2) Discussion, one hour. Outside readings, classroom discussions, short write-ups, and student presentations on current issues in neurobiology. Topics include networking, mentoring, publishing, grant system, authorship, and career opportunities. S/U grading.

296. Research Seminar and Journal Club. (1) Seminar, one hour. Seminar and journal club with focus on current research topics and activities occurring within department. S/U grading.

298A-298B-298C. Advanced Topics in Neurobiology. (2-2-2) Seminar, one hour; discussion, one hour. Advanced seminar courses in neurobiology to be offered by different departmental faculty members. Topics are grouped thematically. S/U grading. **298A.** Molecular, Cellular, and Developmental Neurobiology; **298B.** Sensory and Motor Systems Neurobiology; **298C.** Regulatory, Behavioral, and Cognitive Neurobiology.

495. Preparation for Teaching in Anatomical Sciences. (2 to 4) Seminar, to be arranged. Designed for graduate students. Observation and practice of methods of teaching in anatomy, including preparation of material, participation in laboratory instruction, and presentation of review sessions, all with peer and faculty criticism. Gross anatomy, microscopic anatomy, and neuroanatomy subject fields included. May not be applied toward degree requirements. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. S/U grading.

597. Preparation for MS Comprehensive Examination or PhD Qualifying Examinations. (2 to 12) Tutorial, to be arranged. S/U grading.

598. Thesis Research for MS Candidates. (2 to 12) Tutorial, to be arranged. S/U grading.

599. Dissertation Research for PhD Candidates. (2 to 12) Tutorial, to be arranged. S/U grading.

NEUROLOGY

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Chairs

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(*Charles H. Markham Professor of Neurology*)

S. Thomas Carmichael, MD, PhD, *Vice Chair of Programs and Research*

Barbara Giesser, MD, *Executive Vice Chair, Vice Chair of Education and Clinical Affairs*

Marc R. Nuwer, MD, PhD, *Vice Chair of Finance and Administration*

Mark Morrow, MD, *Vice Chair, Harbor-UCLA*

Christopher DeGiorgio, MD, *Vice Chair, Olive View-UCLA*

Claude G. Wasterlain, MD, *Vice Chair, VA Greater Los Angeles Healthcare System*

Scope and Objectives

Neurology is the medical science dealing with the normal and diseased nervous system. Neurological disorders are often associated with significant disability, morbidity, and mortality. Their higher incidence in association with greater longevity of the population, increased awareness, improved diagnostic methods, and other factors place neurological disorders among the major medical problems today. The Department of Neurology and the Reed Neurological Research Center provide means for a coordinated basic science and clinical research approach to neurological disorders, patient care, and neurological education.

The department instructs medical students throughout the four years. Emphasis in the first year is on basic aspects of neuroanatomy, chemistry, and physiology; in the second year, neurological history taking and neurological examination of afflicted patients are stressed. The third year consists of a clerkship, and the fourth year provides electives in neurology, including an advanced clinical clerkship.

Graduate students and postdoctoral candidates are trained in both the basic and clinical laboratories.

For further details on the Department of Neurology and a listing of the courses offered, see <http://neurology.ucla.edu>.

Neurology

Upper Division Course

199. Directed Research in Neurology. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

NEUROSCIENCE

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Christopher S. Colwell, PhD (*Psychiatry and Biobehavioral Sciences*)

David L. Glanzman, PhD (*Integrative Biology and Physiology, Neurobiology*)

Carlos V. Grimalva, PhD (*Psychology*)

Patricia E. Phelps, PhD (*Integrative Biology and Physiology*)

Joseph B. Watson, PhD (*Psychiatry and Biobehavioral Sciences*)

Kate M. Wassum, PhD (*Psychology*)

Stephanie A. White, PhD (*Integrative Biology and Physiology*)

Scope and Objectives

Neuroscience seeks to understand the brain in health and in disease. Topics of fundamental interest include perception, cognition, learning, memory, motor control, and regulation of body function. The undergraduate interdepartmental program seeks to explore the principles and concepts of this broad range of nervous system function at many levels of analysis, including molecular, cellular, synaptic, network, computational, and behavioral.

Undergraduate Study

The Neuroscience major is a designated capstone major. Undergraduate students have the option of conducting two terms of independent research within a faculty laboratory or completing an advanced laboratory methods course with a series of research modules. Through their capstone work, students demonstrate ability to generate testable scientific hypotheses and develop a research plan to test such hypotheses; work on research projects independently and in small groups; evaluate and discuss primary literature and the validity of hypotheses generated by others; communicate effectively orally and in writing; and demonstrate creative thinking.

Neuroscience BS

Capstone Major

Preparation for the Major

Life Sciences Core Curriculum

Required: Chemistry and Biochemistry 14A, 14B, 14BL, 14C, 14CL, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B, and 30BL; Mathematics 3A, 3B, 3C, and Statistics 13, or Mathematics

31A, 31B, 32A, and Statistics 13, or Life Sciences 30A, 30B, and Statistics 13; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

Students must also complete one of two life sciences sequences—either Life Sciences 1, 2, 3, 4, and 23L OR 7A, 7B, 7C, 23L, and 107. They may not substitute courses in either sequence.

Each core curriculum course must be passed with a grade of C– or better, and all courses must be completed with an overall grade-point average of 2.0 or better. Students receiving grades below C– in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants to the Neuroscience major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2 OR 7A, 7B, and 7C, one year of calculus, one year of general chemistry with laboratory for majors, one semester of organic chemistry with laboratory, and one statistics course. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

The Neuroscience major consists of 11 courses (approximately 47 units). Consult respective departmental or program listings for course descriptions.

Required Core: Neuroscience M101A (with grade of C– or better for Neuroscience majors), M101B, M101C, 102, Chemistry and Biochemistry 153A, 153L. Psychology 115 cannot be substituted for Neuroscience M101A; however, Physiological Science 111A can be substituted.

Elective Options: One course from each of the following three options:

Behavioral and Cognitive Neuroscience: Neuroscience M119L, M130, C172, 178, 179, 191A, Physiological Science C144, 175, M181, Psychology 110, 112A, 112B, 112C, M117J, 118, 119A through 119F, M119L, 119M, 119R, 119S, M119X, 120A, 120B, 124A, 124B, 124I, or 127B.

Molecular, Cell, and Developmental Neuroscience: Molecular, Cell, and Developmental Biology 162, Neuroscience M130, M145, M148, C177, 180, 181, 182, 186, 191C, Physiological Science C126, M145, 146, 147, M148, M181, or Psychology M117J.

Systems and Integrative Neuroscience: Neuroscience M119N, M130, M145, 191B, Physiological Science C126, 138, C144, M145, 146, 147, 173, 177, M181, Psychology 112B, 112C, M117J, 119A, 119B, 119M, M119N, 119Q, 119S, or 120B.

Capstone Research Options: (1) Neuroscience 101L or (2) Neuroscience 198A and 198B, or 199A and 199B. Students who select the Neuroscience 101L capstone research option must take four upper division electives, with at least one from each of the three elective options. Students who select the Neuroscience 198A and 198B, or 199A and 199B option must take three upper division electives, one from each elective option.

No more than eight courses may be from any one department. A maximum of 8 units of Neuroscience 198 or 199 in any combination may be applied toward the major. Each course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better in all upper division courses taken for the major.

Honors Program

The honors program provides exceptional Neuroscience majors with the opportunity to do research culminating in an honors thesis. Majors who have completed all preparation courses with a grade-point average of 3.0 or better and an overall GPA of 3.2 or better may apply for admission to the honors program. Applications and program requirements are available in the Neuroscience Undergraduate Office and at <http://www.neurosci.ucla.edu>. Students must submit the application before beginning their upper division honors requirements. After completion of all requirements and with the recommendation of the faculty sponsor and a second reader of the thesis, the chair confers honors at graduation.

Neuroscience Minor

The Neuroscience minor is designed to allow students in other majors an opportunity to explore the interdisciplinary field of neuroscience in a structured and rigorous way, while pursuing a major field of study in another discipline at the same time.

To enter the minor, students must have an overall grade-point average of 2.0 or better and a 2.5 GPA in the requisite courses for Neuroscience M101A and M101B.

Nonscience majors wishing to minor in Neuroscience should be aware that preparation courses in chemistry, life sciences, and physics are requisites to the upper division course requirements.

Required Upper Division Courses (approximately 31 units): Neuroscience M101A, M101B, M101C (5 units each) and four elective courses selected from 101L, 102, 199A and 199B, and from any of the three elective options listed under the Neuroscience major.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Neuroscience

See the Neuroscience Interdepartmental Graduate Program for the graduate course offerings.

Lower Division Course

10. Brain Made Simple: Neuroscience for 21st Century. (4) Lecture, four hours. Preparation: high school background in either biology or chemistry. Not open for credit to students with credit for course M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115. General overview and introduction to most exciting and fundamental topics encompassing field of neuroscience. P/NP or letter grading.

Upper Division Courses

M101A-M101B-M101C. Neuroscience: From Molecules to Mind. (5-5-5) (Same as Molecular, Cell, and Developmental Biology M175A-M175B-M175C, Physiological Science M180A-M180B-M180C, and Psychology M117A-M117B-M117C.) Lecture, four hours; discussion, 90 minutes. P/NP or letter grading.

M101A. Cellular and Systems Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisites: Chemistry 14C or 30A (14C may be taken concurrently), Life Sciences 2, Physics 1B or 1BH or 6B or 6BH. Not open for credit to students with credit for Physiological Science 111A. For Neuroscience and Physiological Science majors, grade of C– or better is required to proceed to Neuroscience M101B or Physiological Science 111B. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement. P/NP or letter grading.

M101B. Molecular and Developmental Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisites: course M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A); Neuroscience majors must have grade of C– or better) or Physiological Science 111A or Psychology 115, Life Sciences 3, 4 (4 may be taken concurrently). Molecular biology of channels and receptors: focus on voltage dependent channels and neurotransmitter receptors. Molecular biology of supramolecular mechanisms: synaptic transmission, axonal transport, cytoskeleton, and muscle. Classical experiments and modern molecular approaches in developmental neurobiology. P/NP or letter grading.

M101C. Behavioral and Cognitive Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisite: course M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A); Neuroscience majors must have grade of C– or better) or Physiological Science 111A or Psychology 115. Neural mechanisms underlying motivation, learning, and cognition. P/NP or letter grading.

101L. Neuroscience Laboratory. (4) Lecture, two hours; laboratory, three hours. Requisites: courses M101A, M101B (M101B may be taken concurrently). Not open for credit to students with credit for Psychology 116. Introduction to laboratory methods in neuroscience. Laboratory exercises range from molecular and cell biological to behavioral. Hands-on experience with important methodology and experimental approaches in neuroscience. Letter grading.

102. Introduction to Functional Anatomy of Central Nervous System. (4) Lecture, three hours; laboratory, one hour. Enforced requisite: Life Sciences 2. Enforced corequisite: course M101A. Not open to freshmen. Overview of human nervous system; relation of behavior to higher cognitive function. Development of primate and human brain during past few million years; evolutionary aspects of neuroanatomical structures and effects of behavior and cultural attitudes of modern man. P/NP or letter grading.

M119L. Human Neuropsychology. (4) (Same as Psychology M119L.) Lecture, three hours. Recommended requisites: courses M101A and M101C (or Psychology 115), Psychology 120A or 120B. Designed for juniors/seniors. Survey of experimental and clinical human neuropsychology; neural basis of higher cognitive functions. P/NP or letter grading.

M119N. Visual System. (4) (Same as Psychology M119N.) Lecture, three hours. Requisite: course M101A or Physiological Science 111A or Psychology 115. Ability to image and analyze visual world is truly remarkable feat. Coverage of anatomy and physiology of visual processing from retina to visual cortex through lectures, extensive reading, and discussions. P/NP or letter grading.

M130. Biological Bases of Psychiatric Disorders. (4) (Same as Molecular, Cell, and Developmental Biology M181, Physiological Science M181, Psychiatry M181, and Psychology M117J.) Lecture, three hours. Requisite: course M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115. Underlying brain systems involved in psychiatric symptoms and neurological disorders, including schizophrenia, depression, bipolar disorder, obsessive/compulsive disorder. Provides basic understanding of brain dysfunctions that contribute to disorders and rationales for pharmacological treatments. P/NP or letter grading.

M145. Neural Mechanisms Controlling Movement. (5) (Same as Physiological Science M145.) Lecture, four hours. Requisite: course M101A or Physiological Science 111A or M180A. Examination of central nervous system organization required for production of complex movements such as locomotion, mastication, and swallowing. Letter grading.

M148. Neuronal Signaling in Brain. (4) (Same as Physiological Science M148.) Lecture, three hours; discussion one hour. Requisites: courses M101A (or Physiological Science 111A or M180A), M101B (or Physiological Science M180B or Chemistry 153A). Consideration of brain function, with focus on cellular physiology and functional neuroanatomy. Topics include neuronal excitability and synaptic transmission and function of specific neuronal circuits in auditory pathway, basal ganglia, cerebellum, hippocampus, and neocortex. Letter grading.

M161. Personal Brain Management. (4) (Same as Psychiatry M182.) Seminar, four hours. Basic overview of brain function and consideration of some management methods that exist already, and what future may hold. New methods for predicting our own futures and modeling what if scenarios that might alter risks and benefits of different courses of action, based on individual genetic background and other elements of personal history and environmental exposures. Introduction to key principles from science of behavior change, illustrating how important health-related behavioral habits are and how difficult these can be to change and why. Coverage of series of topics that center on personal enhancement of well-being through consideration of stress management, long-term goal and value identification, mapping of long-term goals onto immediate actions, reinforcement learning, meditation, neurofeedback, and time management. Critical appraisal of tools to help students distinguish scientifically validated procedures. Offered in summer only. Letter grading.

C172. Neuroimaging and Brain Mapping. (4) Lecture, three hours. Requisite: course M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115. Strongly recommended: course 102. Theory, methods, applications, assumptions, and limitations of neuroimaging. Techniques, biological questions, and results. Brain structure, brain function, and their relationship discussed with regard to imaging. Concurrently scheduled with course CM272. Letter grading.

C177. Drugs of Abuse from Neurobiology to Policy and Education. (4) Lecture, four hours. Enforced requisite: course M101A. Course ranges from synapse to society. Provides intensive didactic on current neuroscientific basis for understanding substance abuse and blends that material with relevant topics such as epidemiology, co-occurring disorders, treatment options, prevention, and public policies, with emphasis on communication of course materials to general public. Concurrently scheduled with course C277. Letter grading.

178. Human Electroencephalography and Evoked Potentials in Research and Clinical Diagnosis. (4) Seminar, four hours. Enforced requisite: course M101A. Not open for credit to students with credit for course 191A, seminar 1. Emphasis on human electroencephalogram (EEG) and various forms of sensory-evoked potentials. Introduction to number of experimental paradigms that allow for recording of different brain signals from brainstem to cortex. Letter grading.

179. Clinical Neuroscience: New Concepts in Neurological Disorders. (4) Lecture, four hours. Enforced requisite: course M101A. Not open for credit to students with credit for course 191A, seminar 2. Introduction to neurological diseases. Description of diseases from clinical perspective, description of disorder, dealing with clinical population, and discussion of treatments and underlying causes. Mechanisms and new treatments. Letter grading.

180. Genetic, Molecular, and Genomic Approaches to Neural Development and Disease. (4) Seminar, three hours. Enforced requisites: courses M101A, M101B. Not open for credit to students with credit for course 191C, seminar 1. In-depth study of genetic, molecular, and genomic approaches to studying nervous system development and disease. Overview of current technologies used to generate mouse models for genetic and phenotypic analysis. Review of techniques for studying development and disease. Integrative genomic approaches for identifying and characterizing gene(s) involved in these processes. Emphasis on mouse models, but other model organisms considered as well. Letter grading.

181. Cellular and Molecular Mechanisms of Learning and Memory. (4) Seminar, four hours. Enforced requisite: course M101A. Not open for credit to students with credit for course 191C, seminar 2. Cellular models of learning and memory. Genetic and molecular approaches to learning and memory. Learning and memory deficits in neuropsychiatric diseases. LTP and LTD models. Letter grading.

182. Pharmacology of Drugs of Abuse. (4) Seminar, four hours. Enforced requisite: course M101A. Not open for credit to students with credit for course 191A, seminar 3. Pharmacology of stimulants, depressants, hallucinogens, and opioids. Discussion of how drugs interact with central nervous system and produce dependence, addiction, and chronic toxic effects. Letter grading.

186. Neural Stem Cells: Biology, Diseases, and Therapies. (4) Lecture, two and one half hours. Preparation: background in biology and biochemistry. Enforced requisites: courses M101A, M101B. Designed for third- and fourth-year Neuroscience majors. Comprehensive coverage of stem cells of nervous system during development and adulthood, involvement of stem cells in diseases (e.g., brain tumors, Alzheimer's, Parkinson's), and use of stem cells for therapy. P/NP or letter grading.

M187. Neurobiology of Bias and Discrimination. (4) (Same as Psychology M166.) Seminar, three hours; discussion, one hour. Limited to junior/senior neuroscience and psychology students. Exploration of aspects of mammalian brain function that generate preference, bias, and discrimination. Consideration of research at multiple levels of analysis from genetics to neural circuits to behavior. Discussion of societal implications of these research findings, including their relevance to public policies and criminal justice system. Letter grading.

191A-191B-191C. Variable Topics Research Seminars: Neuroscience. (4-4-4) Seminar, three hours. Topics on one or more aspects of neuroscience. Reading, discussion, and development of culminating project. May be applied as elective only in specific area of group 2. Each course may be repeated once for credit. P/NP or letter grading. **191A.** Behavioral and Cognitive Neuroscience. Requisite: course M101A or Physiological Science 111A. **191B.** Systems and Integrative Neuroscience. Requisite: course M101A or Physiological Science 111A. **191C.** Molecular, Cell, and Developmental Neuroscience. Enforced requisite: course M101B.

191H. Honors Seminars: Neuroscience. (4) Seminar, four hours. Preparation: one statistics course (Statistics 10 or equivalent). Limited to neuroscience honors program students. Instruction in principles of scientific method, ethics, and written and oral communication; critique of current journal articles and research projects. Presentation of individual research. May not be applied toward elective requirements for major. Must be taken during winter quarter of academic year that students enroll in courses 198A and 198B. Letter grading.

192A. Practicum in Neuroanatomy for Undergraduate Assistants. (2) Seminar, three hours; laboratory, one hour. Requisites: courses M101A and 102, with grades of A. Limited to senior Neuroscience majors. Training and supervised practicum in neuroanatomy for undergraduate assistants. Students assist faculty members and graduate teaching assistants in laboratory only. May not be applied toward elective requirements and may not be repeated for credit. P/NP or letter grading.

192B. Project Brainstorm: Neuroscience K-12 Outreach. (4) Seminar, one hour; fieldwork, three hours. Limited to juniors/seniors. Course to be supervised by faculty and teaching assistant advisers. Project Brainstorm is K-12 science education outreach program of Brain Research Institute (BRI) and Neuroscience PhD and undergraduate programs that stimulates interest in science for children and young adults in grades K-12 by providing hands-on learning experiences that emphasize function and importance of brain. Students expected to prepare age-appropriate lesson plans to be used in Project Brainstorm classroom visits. Students meet on regular basis with supervisors and provide periodic reports of their experience. May not be applied toward major requirements. May be repeated twice for credit. P/NP grading.

192C. Drug Abuse and Society: Conveying Concepts to High School Students. (4) Seminar, four hours (seven weeks); fieldwork, four hours (three weeks). Enforced requisites: courses M101A, C177. Limited to senior Neuroscience majors. Preparation of students to give accurate, knowledgeable, and age-appropriate lectures in area of drug abuse to students at local high schools. Designed as followup to course C177 where students learned didactic material on mechanisms of action and translational aspects of drugs of abuse. Students meet on regular basis with supervisors and provide periodic reports of their experience. May not be applied toward major requirements. May be repeated twice for credit. Letter grading.

193. Journal Club Seminars: Current Research in Brain Development and Regeneration. (1) Seminar, one hour. Requisite: course M101B. Limited to undergraduate students. Review and discussion of recent research papers that make potential breakthroughs in understanding of brain development and regeneration. May be repeated for credit. P/NP grading.

198A. Honors Research in Neuroscience. (4) Tutorial, 12 hours minimum. Requisites: courses 99, M101A. Limited to neuroscience honors program students. Directed independent research involving extensive reading and development of honors thesis or comprehensive project under direct supervision of faculty member. For departmental honors, students must also take course 191H. Maximum of 8 units of courses 198A, 198B, 199 may be applied toward major. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

198B. Honors Research in Neuroscience. (4) Tutorial, 12 hours minimum in laboratory. Requisite: course 198A. Continued reading and research that culminate in honors thesis under direct supervision of faculty member. For departmental honors, students must also take course 191H. Maximum of 8 units of courses 198A, 198B, 199 may be applied toward major. Individual contract required. Letter grading.

199A. Directed Research in Neuroscience. (4) Tutorial, 12 hours minimum. Enforced requisites: courses 99, M101A. Limited to junior/senior Neuroscience majors and minors with grades of B (3.0) or better. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. Maximum of 8 units of courses 198A, 198B, 199A, 199B may be applied toward major. Individual contract required. In Progress grading (credit to be given only on completion of course 199B).

199B. Directed Research in Neuroscience. (4) Tutorial, 12 hours minimum. Enforced requisite: course 199A. Limited to junior/senior Neuroscience majors and minors with grades of B (3.0) or better. Continued supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. Maximum of 8 units of courses 198A, 198B, 199A, 199B may be applied toward major. Individual contract required. Letter grading.

199C. Continued Directed Research in Neuroscience. (4) Tutorial, 12 hours minimum in laboratory. Enforced requisite: course 198B or 199B. Limited to junior/senior Neuroscience majors and minors with grades of B (3.0) or better. Continued reading and research that culminate in report under direct supervision of faculty mentor. May not be applied toward major. May be repeated for credit. Individual contract required. Letter grading.

NEUROSCIENCE

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Thomas J. O'Dell, PhD, Vice Chair

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S. Thomas Carmichael, Jr., MD, PhD (*Neurology*)
Ellen M. Carpenter, PhD, *in Residence* (*Psychiatry and Biobehavioral Sciences*)
Marie-Françoise Chesselet, MD, PhD (*Neurobiology, Neurology*)
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Thomas J. O'Dell, PhD (*Physiology*)
Alvaro Sagasti, PhD (*Molecular, Cell, and Developmental Biology*)
Felix E. Schweizer, PhD (*Neurobiology, Psychiatry and Behavioral Sciences*)

Scope and Objectives

The interdepartmental Neuroscience PhD Program prepares students for careers in neuroscience research and education. The hallmark of the program is an integrated approach to study of the nervous system, using the multi-level analytical tools of molecular, cellular, systems, and/or behavioral biology, as well as quantitative approaches from the fields of mathematics, physics, and engineering. Students working at one or two analytical levels nevertheless learn to appreciate the methods and advantages of other levels of analysis. Emphasis is both on mechanisms of neural function and the biological basis of disease. Students select their research mentor from the list of all neuroscience faculty at UCLA.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Neuroscience Program offers the Doctor of Philosophy (PhD) degree in Neuroscience.

Neuroscience

Graduate Courses

M201. Cell, Developmental, and Molecular Neurobiology. (6) (Same as Molecular, Cell, and Developmental Biology M220 and Neurobiology M200B.) Lecture, six hours. Fundamental topics concerning cellular, developmental, and molecular neurobiology, including intracellular signaling, cell-cell communication, neurogenesis and migration, synapse formation and elimination, programmed neuronal death, and neurotropic factors. Letter grading.

M202. Cellular Neurophysiology. (4) (Same as Neurobiology M200F and Physiological Science M202.) Lecture, three hours; discussion, two hours. Requisites: Physiological Science 111A (or M180A or Physics 6B), 166. Advanced course in cellular physiology of neurons. Action and membrane potentials, channels and channel blockers, gates, ion pumps and neuronal homeostasis, synaptic receptors, drug-receptor interactions, transmitter release, modulation by second messengers, and sensory transduction. Letter grading.

M203. Neuroanatomy: Structure and Function of Nervous System. (4) (Same as Bioengineering M263.) Lecture, three hours; discussion/laboratory, three hours. Anatomy of central and peripheral nervous system at cellular histological and regional systems level, with emphasis on contemporary experimental approaches to morphological study of nervous system in discussions of circuitry and neurochemical anatomy of major brain regions. Consideration of representative vertebrate and invertebrate nervous systems. Letter grading.

M204. Synapses, Cells, and Circuits. (4) (Same as Neurobiology M200A.) Lecture, three hours; laboratory, two hours. Fundamental topics concerning subcellular, cellular, and structural organization of nervous system. Specific topic areas include neuronal ultrastructure, cellular neurobiology, neuroanatomy, neural circuitry, and imaging. Letter grading.

205. Systems Neuroscience. (4) Lecture/discussion, four hours. Introduction to fundamentals of systems neuroscience, with emphasis on integration of molecular mechanisms, cellular processes, anatomical circuits, and behavioral analysis to understand function of neural systems. Letter grading.

M206. Neuroengineering. (4) (Same as Bioengineering M260 and Electrical Engineering M255.) Lecture, four hours; laboratory, three hours; outside study, five hours. Requisites: Mathematics 32A, Physics 1B or 6B. Introduction to principles and technologies of bioelectricity and neural signal recording, processing, and stimulation. Topics include bioelectricity, electrophysiology (action potentials, local field potentials, EEG, ECOG), intracellular and extracellular recording, microelectrode technology, neural signal processing (neural signal frequency bands, filtering, spike detection, spike sorting, stimulation artifact removal), brain-computer interfaces, deep-brain stimulation, and prosthetics. Letter grading.

207. Integrity of Scientific Investigation: Education, Research, and Career Implications. (2) Discussion, two hours. Designed for graduate students. Debate on topics related to ethical conduct of scientific investigation, with emphasis on critical thinking. Topics include scientific misconduct, mentoring, data ownership, authorship, peer review, use of animals and humans in biomedical research, conflicts of interest, technology, and scientific integrity. S/U grading.

210A-210B-210C. Introduction to Current Literature in Neuroscience. (2-2-2) Discussion, two hours. Critical discussion of current research literature related to topics of the five core courses in neuroscience graduate curriculum. S/U grading.

211A-211B-211C. Evaluation of Research Literature in Neuroscience. (2-2-2) Discussion, two hours. Advanced critical analysis of current research in neuroscience. S/U grading.

M212A-M212B-M212C. Evaluation of Research Literature in Neuroengineering. (2-2-2) (Same as Bioengineering M261A-M261B-M261C and Electrical Engineering M256A-M256B-M256C.) Discussion, two hours. Critical discussion and analysis of current literature related to neuroengineering research. S/U grading.

215. Variable Topics Research Literature Seminars: Neuroscience. (1) Seminar, two hours. Critical discussion and analysis of current literature for various neuroscience research topics. Only one topic may be taken twice for credit and applied toward neuroscience graduate requirements. S/U grading.

M220. Biology of Learning and Memory. (4) (Same as Molecular, Cellular, and Integrative Physiology M200G, Neurobiology M200G, and Psychology M208.) Lecture, four hours. Molecular, cellular, circuit, systems, neuroanatomy, theory, and models of learning and memory. Cross-disciplinary focus on learning and memory to provide integrative view of subject that emphasizes emerging findings that take advantage of novel groundbreaking models. Letter grading.

M221. Sensory Systems Neurobiology. (4) (Same as Neurobiology M200C.) Lecture, two hours; discussion, two hours. Fundamental topics in sensory systems neurobiology, including sensory transduction, taste and olfaction, audition, vision, and somatosensory system. Letter grading.

M230. Molecular and Cellular Mechanisms of Neural Integration. (5) (Same as Physiological Science M210 and Physiology M210.) Lecture, four hours; discussion, one hour. Requisite: course M202. Introduction to mechanisms of synaptic processing. Selected problems of current interest, including regulation and modulation of transmitter release, molecular biology and physiology of receptors, cellular basis of integration in sensory perception and learning, neural nets and oscillators, and molecular events in development and sexual differentiation. Letter grading.

M233. Mechanisms and Relief of Pain. (2) (Same as Oral Biology M204.) Lecture, two hours. Advanced treatment of neuroanatomical, neurophysiological, and biochemical bases of pain perception. Topics in-

clude classical pain theories, pain receptors and pathways, endogenous mechanisms of pain modulation, and pharmacological basis for treatment of pain disorders. Letter grading.

240. Phenotypic Measurement of Complex Traits. (4) Lecture, three hours. Preparation: background in human genetics helpful. Integrative approach to understanding gene to behavior pathways by examination of levels of phenotype expression across systems (cell, brain, organism), across species (invertebrate, fly, mouse, human), and throughout development across varying environmental milieus. Using examples from human disorders such as schizophrenia and Alzheimer's disease, linking of these diverse approaches in genetic research to map out integrative system of understanding basis of complex human behavior. Emphasis on basic understanding of methods used at each level of phenotype analysis, along with major resources that can be accessed to gain insight to gene-behavioral links. Letter grading.

245. Optical Approaches in Neuroscience. (4) Lecture, four hours. State-of-art, light-microscopy-based approaches in neuroscience. Background material on basic optical principles and microscope design, as well as certification in use of lasers. Technical approaches commonly used in study of nervous system, including imaging modalities such as two-photon microscopy, methods for imaging and stimulating neuronal activity, and advanced microscopy approaches such as FRET and FLIM. Letter grading.

250. Neural Development and Repair. (4) Lecture, four hours. Specific training in neural development and repair. Each module offers different research topic and provides perspective on its relevance to human diseases, treatments, and unmet needs for future research. Letter grading.

255. Functional Organization of Behavior. (2) Lecture, two hours. Changes in neuronal properties supporting changes in learned behavior. Different types of learning. Role of neurotransmitters and second messengers in changing ion channels of neurons to support associative learning versus long-term potentiation of neurotransmission. S/U or letter grading.

M267. Advanced Magnetic Resonance Imaging. (4) (Same as Physics and Biology in Medicine M266 and Psychiatry M266.) Lecture, four hours. Starting with basic principles, presentation of physical basis of magnetic resonance imaging (MRI), with emphasis on developing advanced applications in biomedical imaging, including both structural and functional studies. Instruction more intuitive than mathematical. Letter grading.

CM272. Neuroimaging and Brain Mapping. (4) (Same as Physiological Science M272 and Psychology M213.) Lecture, three hours. Requisites: courses M201, M202. Theory, methods, applications, assumptions, and limitations of neuroimaging. Techniques, biological questions, and results. Brain structure, brain function, and their relationship discussed with regard to imaging. Concurrently scheduled with course C172. Letter grading.

M273. Neural Basis of Memory. (4) (Same as Psychiatry M270.) Lecture, two hours; discussion, one hour. Anatomical, physiological, and neurological data integrated into models for how behavioral phenomena of memory arise. Discussion of invertebrate memory, cortical conditioning, hippocampus and declarative memory, and frontal lobes and primary memory.

275. Advanced Techniques in Neurobiology. (2) Lecture, one hour; laboratory, one hour. Preparation: basic biology and chemistry. Designed to provide introduction and, when possible, practical demonstration of a number of techniques used in neurochemical research, with emphasis on techniques used for identification, measurement, and visualization of compounds thought to be important as mediators of intercellular communication in central nervous system. S/U or letter grading.

C277. Drugs of Abuse from Neurobiology to Policy and Education. (4) Lecture, four hours. Enforced requisite: Neuroscience M101A. Course ranges from synapse to society. Provides intensive didactic on

current neuroscientific basis for understanding substance abuse and blends that material with relevant topics such as epidemiology, co-occurring disorders, treatment options, prevention, and public policies, with emphasis on communication of course materials to general public. Concurrently scheduled with course C177. Letter grading.

M284A-M284B. Principles of Neuroimaging I, II. (4-4) (Same as Psychiatry M284A-M284B and Psychology M288A-M288B.) Lecture, four and one half hours. Preparation: competence in integral calculus, electricity and magnetism, computer programming (any language), general statistics. Requisite: Psychiatry 292. Course M284A is requisite to M284B. Instrumental imaging methods for study of nervous system, with emphasis on quantitative understanding and data interpretation and features common to modalities. X-ray computed tomography, magnetic resonance imaging, positron emission tomography, magnetoencephalography, transcranial magneto stimulation, near infrared imaging. Letter grading.

M285. Functional Neuroimaging: Techniques and Applications. (3) (Same as Bioengineering M284, Physics and Biology in Medicine M285, Psychiatry M285, and Psychology M278.) Lecture, three hours. In-depth examination of activation imaging, including MRI and electrophysiological methods, data acquisition and analysis, experimental design, and results obtained thus far in human systems. Strong focus on understanding technologies, how to design activation imaging paradigms, and how to interpret results. Laboratory visits and design and implementation of functional MRI experiment. S/U or letter grading.

M287. Dynamics of Neural Microcircuits. (4) (Same as Neurobiology M287.) Lecture, two hours; discussion, two hours. Development of integrative understanding of neural microcircuits that underlie specific functions of sensory processing, generation, and coordination of motor activity, as well as generation and modulation of neural rhythms. Letter grading.

M293. Culture, Brain, and Development Forum. (1) (Same as Anthropology M293, Education M285, and Psychology M248.) Seminar, 90 minutes every other week. Interdisciplinary seminar series to provide students with exposure to current research in understanding complex relationship between culture, brain, and development. S/U grading.

M294. Culture, Brain, and Development. (4) (Same as Anthropology M293S, Education M286, and Psychology M247.) Seminar, three hours. Designed for graduate students. Integration of knowledge across different disciplines to understand interrelations of culture, brain, and development, where development includes both human ontogeny and human phylogeny. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. S/U grading.

597. Preparation for PhD Qualifying Examinations. (2 to 12) Tutorial, to be arranged. S/U grading.

599. Dissertation Research for PhD Candidates. (2 to 12) Tutorial, to be arranged. Designed for students requiring special instruction or time to work on dissertation. S/U grading.

NEUROSURGERY

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Chair

Neil A. Martin, MD (*W. Eugene Stern Professor of Neurosurgery*)

Scope and Objectives

Neurosurgery is a discipline of medicine that provides (1) operative and nonoperative management (i.e., critical care, prevention, diagnosis, evaluation, treatment, and rehabilitation) of disorders of the central, peripheral, and autonomic nervous systems, including their supporting structures and vascular supply, (2) the evaluation and treatment of pathological processes that modify the function or activity of the nervous system, including the hypophysis, and (3) the operative and nonoperative management of pain.

As such, neurosurgery encompasses treatment of adult and pediatric patients with disorders of the nervous system—disorders of the brain, meninges, and skull and their blood supply, including the extracranial carotid and vertebral arteries, disorders of the pituitary gland, disorders of the spinal cord, meninges, and vertebral column, including those that may require treatment by spinal fusion or instrumentation, and disorders of the cranial and spinal nerves throughout their distribution.

For further details on the Department of Neurosurgery, see <http://neurosurgery.ucla.edu>.

Neurosurgery

Upper Division Course

199. Directed Research in Neurosurgery. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

NURSING

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Deborah Koniak-Griffin, RNC, EdD, FAAN,
Associate Dean, Diversity, Equity, and Inclusion
 Adeline M. Nyamathi, ANP, PhD, FAAN,
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Professors

Barbara M. Bates-Jensen, RN, PhD
 Lynn V. Doering, RN, PhD, FAAN
 Karen H. Gylys, RN, PhD
 Felicia S. Hodge, DrPH
 Deborah Koniak-Griffin, RNC, EdD, FAAN (*Audrienne H. Moseley Professor of Women's Health Research*)
 Mary A. Lewis, RN, DrPH, ANP-C, FAAN
 Courtney H. Lyder, ND, ScD(H), FAAN
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 Wendie A. Robbins, RN, PhD, FAAN (*Audrienne H. Moseley Professor of Biological Nursing Science*)
 Linda P. Sarna, RN, PhD, FAAN (*Lulu Wolf Hassenplug Professor of Nursing*)
 Mary A. Woo, RN, DNSc, FAAN

Professors Emeriti

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 Linda K. Badr, RN, DNSc, PNP-C, FAAN
 Betty L. Chang, RN, DNSc, FNP-C, FAAN
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 Eunice Eunkyung Lee, RN, DNSc, MS, GNP, CS
 Paul M. Macey, PhD, *in Residence*
 Janet C. Mentes, RN, PhD, GNP
 Carol L. Pavlish, RN, PhD, ONC, FAAN

Assistant Professors

Sarah E. Choi, RN, PhD, FNP
 Leah FitzGerald, RN, PhD, C-FNP
 Nalo M. Hamilton, PRN, PhD, BC
 Su Yon Jung, PhD
 Huibrie C. Pieters, RN, PhD
 Nancy A. Pike, RN, PhD, FNP-C, CPNP-AC
 Mary Ann Shinnick, RN, PhD, MN, ACNP-BC, CCNS, *in Residence*
 Sophie Sokolow, PhD, MPharm
 Elizabeth Anne Thomas, RN, PhD, ANP-BC, COHN-S, CNL

Lecturers

Jody L. Adams-Renteria, RN, MN, FNP
 Cynthia Albaran, RN, PhD, CNS
 Theresa A. Brown, NP
 Nancy Jo Bush, RN, MN, MA, AOCN, ONP
 Mary M. Canobbio, RN, MN, FAAN
 Patricia Cason, MS, FNP
 Barbara L. Demman, RN, MSN
 Elizabeth L. Dixon, RN, FNP, MSN, PhD
 Stephanie Evangelista, RN, MSN, FNP
 Jan M. Fredrickson, RN, MN, C-PNP
 Stacey D. Green, NP
 M. Jill Jordan, RNC, MSN
 Kellie T. Kell, RN, MSN, FNP-C
 Helen L. Kiger, RN, MSN, CNS
 Maria P. Knoll, MSN
 John Lazar, RN, PhD, FNP-BC
 Amy S. Lohmann, RN, MSN, NP, CNS
 Laurie A. Love-Bibbero, RN, MSN, FNP
 Young Kee Markham, RN, MN, GNP-C
 Nancy E. McGrath, RN, MN, CPNP

Silvia L. Mieure, RN, MSN, CCRN, CNL
 Matthew G. Moran, MSN, ANP-BC
 Deborah A. Rice, RN, MN, FNP-C
 Paola Salgueiro
 Joan R. Schleper, RN, MSN, GNP
 Avni A. Sheth, PharmD
 Silvia Shin, RN, MSN, FNP
 Priscilla A. Taylor, RN, MN, CNS, FNP-C
 Inese L. Verzemnieks, RN, PhD

Adjunct Professors

Mary Lynn Brecht, PhD
 Mary P. Cadogan, RN, DrPH, GNP
 Anna F. Gawlinski, RN, DNSc, CS, ACNP, CCRN, FAAN
 Isabell B. Purdy, RN, PhD
 Marlyn S. Woo, MD

Adjunct Associate Professors

Catherine L. Carpenter, PhD
 Colleen K. Keenan, RNC, PhD, WHCNP
 Karabi Nandy, PhD

Adjunct Assistant Professors

Nancy T. Blake, RN, PhD, CCRN, NEA-BC
 Teresita E. Corvera-Tindel, RN, PhD
 Mary M. Marfisee, MD
 Lori C. Marshall, RN, PhD
 Mary B. Nelson, RN, CPNP, PhD
 Maria E. Ruiz, RN, PhD
 Benissa E. Salem, RN, MSN, PhD, CNL, FNP
 Rita L. Secola, RN, PhD

Scope and Objectives

A strong scientific basis underlies the teaching of nursing practice, leadership, and research. Related clinical experiences are arranged within the Reagan UCLA Medical Center, its affiliates, other major medical centers, or in selected community sites.

At the bachelor's level, nurses are prepared as generalists with special skills in primary, secondary, and tertiary prevention and care within a population-based context, leadership, and evidence-based practice. At the master's level, nurses are prepared as generalists in hospital-based care or for advanced nursing practice as nurse practitioners, clinical specialists, or administrators in a variety of settings and specialized areas of healthcare. The PhD program prepares scholars who do original research, generate new theories, and build the scientific basis for professional nursing practice. Research is both basic and applied.

Undergraduate Study

The Nursing (Prelicensure) major is a designated capstone major. Students complete a clinically based scholarly project that is approved by a designated faculty member. In completing the capstone course, students should select, evaluate, and apply appropriate theory and research findings concerning individual- and population-based health promotion and disease prevention, biobehavioral and health systems, and social environmental, cultural, and human diversity to the nursing process. They should utilize the nursing process to promote biopsychosocial health and disease prevention and to support the resources of culturally diverse clients and families in community- and/or hospital-based settings.

Through their work, students should demonstrate effective communication and collaboration skills with clients and their families,

research participants, other health professionals, colleagues, and policymakers. They also should identify practice-based problems and hypotheses and critique research on issues of importance to nursing and healthcare delivery; participate effectively in relevant professional and community organizations and/or interest groups; demonstrate leadership as a member of the health team to plan, manage, and evaluate care of individuals, families, and communities for culturally diverse populations; and practice their work based on the principles of ethics, social justice, and law.

Nursing BS Prelicensure

Capstone Major

The focus of the prelicensure program is on the preparation of nurse generalists with special skills in primary, secondary, and tertiary prevention and care within an individual- and population-based context while developing the basics for a strong leadership role. Students learn the art and science of nursing using the latest research findings to guide their practice.

Admission

The School of Nursing strives to attract a culturally and ethnically diverse student population. Admission is designed for freshman students and transfer students at the junior level. Freshman applicants are expected to fulfill the University of California admission requirements. Transfer applicants are expected to fulfill the Intersegmental General Education Transfer Curriculum (IGETC). Students must have a grade of C or better in each requisite course and an overall grade-point average of 3.5 or better.

Two recommendation forms and a written statement of purpose are also required. Diverse life experiences, including previous employment, volunteer work, and community service that reflect leadership, responsibility, multicultural involvement, multilingual abilities, and other unusual skills and knowledge are evaluated for all applicants. Consideration is also given to students who are socially, economically, and educationally disadvantaged. Completed applications should reflect clearly identified career goals and documentation of potential for nursing practice.

Preparation for the Major

Required: Chemistry and Biochemistry 14A, 14B, 14C, Communication Studies 1 or 10, Life Sciences 2, 3, Mathematics 3A or 31A, Microbiology, Immunology, and Molecular Genetics 10, Nursing 3, 10, 13, 20, 50, 54A, 54B, Psychology 10.

Transfer Students

Transfer applicants to the Nursing major with 90 or more units must complete the following introductory courses prior to admission to UCLA: calculus, communications, human anatomy, human physiology, inorganic and organic chemistry, cells, tissues, and organs, microbiology, molecular biology, and introductory or general psychology.

Refer to the *UCLA Transfer Admission Guide* at <http://www.admission.ucla.edu/prospect/Adm>

[tr/tradms.htm](#) for up-to-date information regarding transfer selection for admission.

The Major

Required: Biostatistics 100A, Nursing 115, 150A, 150B, 152W, 160, 161, 162A through 162D, 164, 165, 168, 171, 173, 174, and completion of a capstone senior scholarly project (course 169). Transfer students must complete Nursing 10, 20, 50, 54A, and 54B on entry. Students may request to pursue a minor in a related field if the coursework can be completed within the 216-unit limit.

The curriculum at UCLA must be completed with a minimum overall grade-point average of 2.0 (C) or better in all courses taken while a student in the School of Nursing.

Each required nursing course in the school must be completed with a grade of C or better (C- grade is not acceptable).

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The School of Nursing offers the Master of Science in Nursing (MSN) degree and the Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Nursing. A concurrent degree program (Nursing MSN/Management MBA) is also offered.

Nursing

Lower Division Courses

3. Human Physiology for Healthcare Providers. (5) Lecture, three hours; laboratory, two hours. Basic understanding of human physiological processes, with emphasis on applications to patient evaluation and care. Concepts underlying normal function and how alterations in these normal functions can affect body systems. Knowledge and understanding of these normal human processes is basic to providing quality nursing care. Examination of system variations across lifespan. Letter grading.

10. Introduction to Nursing and Social Justice I. (2) Lecture, two hours. Within context of history of nursing, introduction to practice of nurses, including role of advocacy. Discussion of effective use of self as professional nurse in relation to ethics, cultural competence, and human diversity. Introduction to ethical principles (justice, autonomy, veracity, beneficence, confidentiality) and professional values (altruism, autonomy, human dignity, integrity, and social justice) in relation to nursing practice throughout history in health/illness and end-of-life contexts. Letter grading.

13. Introduction to Human Anatomy. (5) Lecture, three hours; laboratory, two hours. Structural presentation of human body, including musculoskeletal, nervous, circulatory, respiratory, digestive, renal, and reproductive systems. Laboratory uses virtual cadaver dissection and examination. Letter grading.

20. Introduction to Nursing and Social Justice II. (2) Lecture, two hours. Advanced discussion on history of nursing, with focus on role of contemporary nursing in relation to ethics and social justice. Analysis of ethical principles (justice, autonomy, veracity,

beneficence, confidentiality) and professional values (altruism, autonomy, human dignity, integrity, and social justice) in relation to nursing practice throughout history in health/illness and end-of-life contexts. Evaluation of social, cultural, legal, and political forces in relation to paternalism for professional nurses working with diverse patient populations in the 21st century. Letter grading.

50. Fundamentals of Epidemiology. (4) Lecture, three hours; laboratory, three hours. Epidemiology focuses on distribution and determinants of health-related states or events in specified populations. Fundamentally, epidemiology seeks to control health problems in communities and institutions. Letter grading.

54A. Pathophysiology I. (3) Lecture, three hours. Preparation: human physiology course taken within past five years. Designed to provide students with basic understanding of pathophysiological changes that occur within internal environment of individuals. Understanding these alterations is basic to providing quality nursing care. Discussion of system variations across lifespan. Letter grading.

54B. Pathophysiology II. (2) Lecture, two hours. Requisite: course 54A. Designed to provide students with understanding of pathophysiological changes that occur within internal environment of individuals. Presence of dysfunction or disease of selected systems provided as rationale for nursing diagnosis and therapeutic interventions. Letter grading.

Upper Division Courses

105. Human Physiology. (4) Lecture, three hours; discussion, one hour. Designed for nursing students. Lecture and discussion, with emphasis on a correlative approach to anatomy and physiology of human body. P/NP or letter grading.

115. Pharmacology and Therapeutics. (5) Lecture, four hours. Requisites: courses 54A, 54B. Clinical pharmacology for undergraduate nursing students, beginning with emphasis on basic pharmacologic principles. Focus on major drug classes and their mechanism of action, pharmacokinetics, adverse effects, and clinical issues. Letter grading.

150A. Theoretical Foundations of Nursing BS Role and Fundamentals of Professional Nursing Lecture/Clinical Skills Practicum. (4) Lecture, three hours; laboratory, three hours. Introduction to practice of professional nursing as theory-based goal-directed method for assisting patients to meet basic human needs at various levels of health continua. Concepts of communication, interdisciplinary communication and collaboration, interpersonal relationships, cultural competence, and nursing process as clinical decision-making strategies essential to practice of professional nursing. Characteristics and roles of professional nursing. Development of caregiver, teacher, and collaborator roles in learning experiences in nursing skills laboratory and clinical settings. Letter grading.

150B. Theoretical Foundations of Nursing BS Role and Fundamentals of Professional Nursing Lecture/Clinical Skills Laboratory. (4) Lecture, three hours; laboratory, three hours. Requisite: course 150A. Continuation of course 150A. Expansion of student knowledge on practice of professional nursing as theory-based goal-directed method for assisting patients to meet basic human needs at various levels of health continua. Concepts of communication, interdisciplinary communication and collaboration, interpersonal relationships, cultural competence, and nursing process as clinical decision-making strategies essential to practice of professional nursing. Characteristics and roles of professional nursing. Development of caregiver, teacher, and collaborator roles in learning experiences in nursing skills laboratory and clinical settings. Letter grading.

152W. Human Development/Health Promotion in Culturally Diverse Populations. (5) Lecture, four hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Limited to nursing students. Introduction to primary prevention strategies as they pertain to

health and wellness across lifespan, using population-based approach to nursing care of diverse populations. Priorities in nutrition and reproductive health, including issues related to contraception and parenting; well-child care, school-age health, and chronic illness prevention strategies for young- and middle-aged adults; elderly who live independently in communities or within institutions. Analysis of influence of overarching political, societal, and governmental systems within U.S. Satisfies Writing II requirement. Letter grading.

C155. Global Health Elective: Globalization, Social Justice, and Human Rights. (3) Seminar, two hours. Exploration of theories, issues, debates, and pedagogy associated with globalization, social justice, and human rights and how these perspectives influence human health and well-being. Provides students with unique opportunity to explore these topics within classroom, via Internet and other technologies, and in other classrooms located around globe. Students, through collaborative projects with peers around world, reflect on how globalization shapes and transforms local communities and national cultures. Concurrently scheduled with course C255. Letter grading.

160. Secondary Prevention. (4) Lecture, four hours. Requisite: course 152W. Corequisite: course 161. Screening and early detection of illness to prevent chronic or acutely deteriorating illness. Expanding on concepts of health and human development and using nursing process, application of nursing role in providing care to individuals and their families to screen, diagnose, and treat illness at earliest possible time to prevent disability or premature mortality. Examination of health problems of individuals within context of family, social and community systems, and interdisciplinary healthcare systems. Emphasis on differences in developmental stages in response to screening for early and late signs and symptoms of illness in ambulatory and acute care settings, community agencies, rehabilitation units, outpatient specialty clinics and surgical units, and home and community settings. Letter grading.

161. Psychiatric Mental Health Nursing. (5) Lecture, three hours; clinical, six hours. Requisites: courses 115, 152W. Knowledge development and skill assessment to promote mental health of individuals and communities. Exploration of research underlying assessment, diagnosis, and treatment of individuals with psychiatric disorders and pharmacotherapeutic and psychological treatment of individuals. Application of theory in clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Letter grading.

162A. Foundational Concepts for Tertiary Prevention and Care of Medical-Surgical Patients and Families. (4) Lecture, three hours; clinical, three hours. Corequisite: course 150A. Examination of nursing assessment and management of common health problems that adults experience. Theory content in basic assessment, health history, and diagnostic reasoning for selected health problems, with emphasis on social, cultural, and developmental influences. Integration of basic knowledge of pathophysiology, stress and adaptation, adult development theory, therapeutic interventions, and communication concepts as applied to care of medical and surgical clients and their families. Introduction to concept of nurses as bedside scientists, with emphasis on critical and contextual thinking skills and diagnostic reasoning. Nursing process, ethical principles, clinical research, evidence-based practice, and clinical thinking that maximize patient safety and quality care used during clinical experiences. Letter grading.

162B. Tertiary Prevention and Care of Medical-Surgical Patients and Families. (6) Lecture, four hours; clinical, six hours. Enforced requisite: course 162A. Examination of pathophysiological and psychosocial aspects of assessment and management for selected acute and emergent problems of adult patients/clients with complex illness, including multi-faceted assessment, health history, and diagnostic reasoning skills, with emphasis on social, cultural, and developmental influences. Integration of knowledge

of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to care of medical and surgical adult patients. Supervised practicum experience within setting of multidimensional team on medical-surgical clinical units, with focus on clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Intermediate-level assessment, health maintenance, and management of symptoms across lifespan. Letter grading.

162C. Tertiary Prevention and Care of Geriatric Medical-Surgical Patients and Families. (8) Lecture, four hours; clinical, 12 hours. Enforced requisites: courses 162A, 162B. Examination of nursing assessment and management of acute and chronic health problems experienced by older adults. Theory content in assessment, health history, and diagnostic reasoning, with emphasis on older adults and on social, cultural, and developmental influences. Integration of knowledge of pathophysiology, stress and adaptation, adult development theory, therapeutic interventions, and communication concepts as applied to care of older medical and surgical clients with more complex and co-morbid conditions and their families. Concept of nurses as bedside scientists, with emphasis on critical and contextual thinking skills and diagnostic reasoning. Nursing process, ethical principles, clinical research, evidence-based practice, and clinical thinking that maximize patient safety and quality care for older adults used during clinical experiences. Letter grading.

162D. Human Responses to Critical Illness: Introduction to Critical Care. (4) (Formerly numbered 170.) Lecture, three hours; fieldwork, three hours. Enforced requisites: courses 162A, 162B, 162C. Pathophysiological and psychosocial concepts in acute life-limiting illness and nursing management of critically ill adults. Effect of critical illness on individual and family health and key diagnostic and therapeutic modalities that promote effective nursing management of individuals with complex critical illnesses addressed. Emphasis on rapid assessment, critical reasoning, prompt intervention, and outcome achievement with fluid replanning for rapidly changing disease conditions. Letter grading.

164. Maternity Nursing. (5) Lecture, three hours; clinical, six hours. Requisites: courses 150A, 150B, 152W, 160, 174. Corequisite: course 173. Nursing assessment and management for selected acute and emergent problems in maternity/newborn patients, with emphasis on social, cultural, and developmental influences. Integration of basic knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to childbearing families, with application of nursing process, evidenced-based practice, problem-solving strategies, and critical thinking. Supervised clinical practicum experience within setting of multidimensional team, with focus on application of theory in clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating nursing care for maternity/newborn patients. Intermediate-level assessment, health maintenance, and management of symptoms in this population. Letter grading.

165. Pediatric Nursing. (5) Lecture, three hours; clinical, six hours. Requisites: courses 162A, 162B, 162C, 164. Nursing assessment and management for selected acute and emergent problems in infants, children, and adolescents, with emphasis on social, cultural, and developmental influences. Integration of basic knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to care of infants, children, and adolescents, with application of nursing process, evidenced-based practice, and problem-solving strategies, and critical thinking. Discussion of application of nursing process, research, problem solving, and critical thinking. Supervised practicum experience within setting of multidimensional team, with focus on application of theory in clinical interpretation of assessment and diagnostic data for purpose

of planning, implementing, and evaluating nursing care for infants, children, and adolescents. Intermediate-level assessment, health maintenance, and management of symptoms in this population. Letter grading.

168. Advanced Leadership and Role Integration. (5) Lecture, five hours. Leadership and management theories and models, resource allocation and management, delegation, conflict resolution, legal implications and practice, managed care, evaluation of practice, continuous quality improvement, accreditation process for healthcare systems, and contemporary issues in workplace. Emphasis on integration of all professional role behaviors, application of research, and leadership-management of care as transition is made from student role to that of practicing professional nurse. Preparation for National Council Licensure Examination (NCLEX). Letter grading.

169. Clinical Internship: Integration. (12) Clinical, 36 hours. Requisites: courses 161, 162C, 164, 165. Supervised practicum experience within setting of multidimensional team, with focus on application of theory in clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Beginning-level assessment, health maintenance, and management of symptomatology across lifespan. P/NP grading.

171. Public Health Nursing. (6) Lecture, three hours; clinical, nine hours. Requisites: courses 161, 162D, 164, 165 (or 461), 462, 464, 465D. Theoretical content focuses on population-based approach to public health nursing in relation to health promotion and disease prevention at level of communities, other large population aggregates, and systems. Clinical practicum concentration on population-based public health nursing in culturally diverse settings, including health departments, health policy institutions, and public service agencies. Health promotion and disease prevention at level of communities, aggregates, whole populations, and systems, both domestically and internationally. Letter grading.

173. Introduction to Research. (4) Lecture, four hours. Introduction to planning research project based on simple question. Specific components of research activities analyzed: specific aims and study purposes, variable definition, sample selection, data collection tools, data analyses, and ethical conduct in research studies. Critique of research reports. P/NP or letter grading.

174. Physical Assessment. (4) Lecture, three hours; laboratory, three hours. Designed to provide in-depth review and synthesis of physical assessment skills and knowledge covering lifespan. Individual study, use of audiovisual aids, physical assessment skills practice in laboratory, and required text are mandatory. Letter grading.

175. Physical Assessment for Advanced Practice. (4) Lecture, three hours; laboratory, three hours. Comprehensive review and synthesis of physical assessment skills and knowledge covering lifespan and in diverse populations. Emphasis on history-taking related to general health status and specific complaints, as well as detailed physical examination techniques. Individual study, use of audiovisual aids, physical assessment skills practice in laboratory, and required text are mandatory. Letter grading.

188. Special Topics in Nursing. (4) Lecture, three hours; discussion, one hour. Limited to junior/senior Nursing majors. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

190. Research Colloquia in Nursing. (1) Seminar, one hour. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

193. Journal Club or Speaker-Series Seminars: Nursing. (1) Seminar, two hours; outside study, four hours. Limited to undergraduate students. Discussion of readings selected from current literature of field or of topics related to guest speaker series. May be repeated for credit. P/NP grading.

196. Research Apprenticeship in Nursing. (2 to 4) Tutorial, four hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP grading.

197. Individual Studies in Nursing. (2 to 4) Tutorial, one hour. Limited to junior/senior Nursing majors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Nursing. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Health Promotion and Assessment across Lifespan. (4) Lecture, four hours. Review and discussion of research, theories, clinical practice guidelines, healthcare systems, and policies that influence assessment of health and health behaviors, health promotion, and screening of disease across lifespan among diverse populations in multiple settings in communities for advanced practice nurse (clinical nurse specialist and nurse practitioner). Letter grading.

201. Health-Related Quality of Life. (2) Lecture, two hours. Theoretical foundations of health-related quality of life as an outcome of disease, treatment, and style of care. Analysis of meaning, dimensions, predictors, measures, ethical dilemmas, cultural diversity issues, and biobehavioral foundations of health-related quality of life. Letter grading.

202. Philosophy of Nursing Science. (4) Lecture, four hours. Exploration of concepts of importance to philosophy of science as context for understanding philosophy of nursing science. Genealogies of thought that underpin epistemological assumptions about knowledge and knowledge development in relation to discipline of nursing, methods of inquiry (quantitative and qualitative), and scientific reasoning. Contemporary schools of thought (modern and postmodern) analyzed in relation to nursing research, nursing practice, and role of nurse scientists as leaders in relation to policy development in greater healthcare milieu. Letter grading.

203A. Basic Statistics and Fundamentals for Analysis. (4) Lecture, four hours. Preparation: one upper division statistics course. Introduction to applied statistics, including design, analysis of variance, correlation techniques, and regression. Sample size calculations, parametric versus nonparametric tests, and concepts of database design, management using statistical package programs. Letter grading.

203B. Statistical Approaches for Complex Nursing Phenomena. (4) Lecture, four hours. Requisite: course 203A. Use of multiple linear regression, including model validation, discriminant function analysis, principal components analysis, factorial and repeated measure analysis of variance models, logistic regression, analysis of survival data. Letter grading.

204. Research Design and Critique. (4) Lecture, 90 minutes; discussion, 90 minutes. Requisite: course 173 or equivalent upper division basic research methodology course. Complex research designs and analysis of multiple variables, and research utilization. Emphasis on techniques for control of variables, data analysis, and interpretation of results. Analysis in depth of interrelationship of theoretical frameworks, design, sample selection, data collection instruments,

and data analysis techniques. Content discussed in terms of clinical nursing research problems and how these apply to clinical settings. Letter grading.

205A. Introduction to Qualitative Methods in Research. (4) Lecture, four hours. Requisite: course 202. Introduction to qualitative research design in nursing science. Examination of major methodologies that guide qualitative research in relation to various strategies for data collection (interviews, participant observation, focus groups), data analysis, and data interpretation. Scientific rigor and ethical concerns for research with human participants critically examined. Letter grading.

205B. Advanced Qualitative Research Methodology I. (4) Lecture, four hours. Requisites: course 205A, submission of OPRS application for small pilot study in fall of second year. In-depth analysis of symbolic interactionism and pragmatism as foundation for study of grounded theory methodology as guide to study design development, including sampling plan, interview strategies for data collection, and basic coding. Exploration of self-reflexivity and ethics in relation to entrée to field, recruitment of pilot study participants, interviewing, and preliminary data analysis via analytic, theoretic, and reflective memos based on pilot study data collected as part of course. Letter grading.

205C. Advanced Qualitative Research Methodology II. (4) Lecture, four hours. Requisite: course 205B. Advanced techniques for simultaneous collection and analysis of qualitative data. Expansion on traditional grounded theory analysis procedures by learning and applying situational analysis and constructivist grounded theory techniques to analysis of data. Development of conceptual formulation (or grounded theory) of student-selected phenomenon based on pilot study data collected and analyzed as part of course. Letter grading.

206. Nursing Theory Development. (4) Lecture, four hours. Critical examination of theoretical and conceptual thinking in nursing and issues that continue to influence development of nursing knowledge and nursing science. Application of analytical and evaluative skills fundamental to development of theory in nursing and integral to use of theory in nursing research. Letter grading.

207. Quantitative Research Designs of Clinical Phenomena. (4) Lecture, three hours; discussion, one hour. Introduction to wide array of quantitative research designs for testing clinical nursing phenomena. Emphasis on dynamic interaction between research process and theory, as well as on appropriate use of experimental, quasi-experimental, and correlational designs among diverse populations. Approaches for evaluation of validity of various research designs, with analysis of related threats to validity of each design. Letter grading.

208. Research in Nursing: Measurement of Outcomes. (4) Lecture/discussion, three hours. Requisites: courses 206, 207. Advanced discussions of psychosocial, behavioral, and biophysical measurement and analysis in nursing research. Analysis of psychometrics, reliability, and internal validity of research instruments in relation to outcomes in nursing research. Letter grading.

209. Human Diversity in Health and Illness. (4) Lecture, four hours. Human diversity in response to illness that nurses diagnose and treat, centering on culture and human belief systems associated with diverse orientations related to ethnicity and gender. Provides conceptual base that nurses can use in clinical practice, research, teaching, and administration. Letter grading.

210. Nursing Science. (4) Lecture, four hours. Designed for PhD students. Exploration of phenomena of interest to nurse scholars from past to present and future in relation to proposed domains of nursing (person, environment, health, and nursing). Investigation of state of science in nursing, with special focus on health service, biological, vulnerable populations, and biobehavioral nursing research. Integration and synthesis of current and historical scholarly findings

of particular phenomena in literature to identify meaningful gaps in knowledge and directions for future research. Letter grading.

211. Women's Health Primary Care. (2 to 4) Lecture, three hours; discussion, one hour. Theory and research on assessment and management of women's health issues during reproductive years. Clinical topics include gynecology, family planning, pregnancy, and postpartum care, with emphasis on health promotion of women during reproductive years in primary care settings. Letter grading.

212. Family Healthcare Perspectives. (2) Lecture, two hours. Overview of conceptual frameworks related to contemporary family structure and functioning, with particular emphasis on health. Family is defined broadly to include nontraditional families; consideration of cross-cultural views of families as well. Identification of limitations of current theory and research related to family study and applicability of current knowledge to various problems encountered in care of families. Letter grading.

213. Adult/Gerontology Nurse Practitioner Professional Role: Work, Health, Environment. (4) Lecture, four hours. Adult/gerontology primary care nurse practitioner professional role, including care for workers and high-risk environmental groups. Letter grading.

214. Seminar: Advanced Concepts in Oncology Nursing. (4) (Formerly numbered 214A.) Seminar, four hours. Designed for adult/gerontology acute care, gerontologic, and family nurse practitioners and clinical nurse specialists. Comprehensive overview of oncologic care. Advanced practice nursing, with emphasis on theories and research related to prevention, detection, health history/risk assessment, cancer diagnosis and staging, treatment, rehabilitation, oncologic emergencies, genetics, and psychosocial issues to provide emotional and family-focused care related to solid tumors and hematologic malignancies. In-depth investigation of symptom management (nausea and vomiting, dyspnea, fatigue, cognitive dysfunction, anemia, immunosuppression, anxiety, depression). Evidence-based practice guidelines provide comprehensive review of health promotion, acute, chronic, and late effects, and psychological concepts in long-term survivorship. Letter grading.

216A-216B-216C. Adult/Gerontology Concepts for Advanced Practice Nurses in Acute Care I, II, III. (4-4-4) Lecture, four hours. Enforced requisites: courses 200, 231. Enforced corequisite for course 216A: course 224. Course 216A is enforced requisite to 216B, which is enforced requisite to 216C. Assessment and management of health problems affecting adult/gerontology population from late adolescence to senescence in acute care settings. Synthesis of knowledge from advanced courses in pathophysiology, pharmacotherapeutics, health promotion, and evidence-based psychosocial care and cultural constraints. Letter grading.

218A-218D. Nursing Administration Theory. (4 each) Lecture, four hours. Letter grading:

218A. (4) Lecture, four hours. Synthesis and evaluation of organizational theory in leadership and management of healthcare organizations, with emphasis on organizational structure, processes, and outcomes. Letter grading.

218B. (4) Lecture, four hours. Requisite: course 218A. Focus on synthesizing organizational and management theories in relation to strategic planning and management, changing care delivery systems, human and financial resource management, decision making, management information systems, professional practice, and meeting accreditation and legal standards. Letter grading.

218C. (4) Lecture, four hours. Requisite: course 218B. Project management, organizational communication, governance, development and change, diverse relationships within organizations, risk management, liability, and ethics of administration decision making. Emphasis on issues affecting local, national, and international healthcare management. Letter grading.

218D. (4) Lecture, four hours. Requisite: course 218C. Community healthcare needs, political action and healthcare policy, marketing, and media. Planning for future continuous personal and professional growth. Emphasis on issues affecting local, national, and international healthcare management and policy development. Letter grading.

219A. Essentials of Accounting and Budgeting in Healthcare Organizations. (4) Lecture, four hours. Theories of management, organization, and administration presented in relation to techniques of accounting, budgeting, finance, and healthcare economics. Focus on definition of terms and concepts, followed by practical applications within variety of healthcare settings. Letter grading.

219B. Operations Planning and Control for Nursing Administrators. (4) Lecture, four hours. Requisite: course 219A. Concepts, issues, and analytic techniques of budget formulation, decision making, variance analysis, financing in healthcare, models for forecasting productivity determinations, and program planning and evaluation for nurse administrators. Emphasis on practical methods and techniques within wide variety of healthcare situations. Letter grading.

220. Theories of Instruction and Learning in Nursing. (3) Lecture, two hours. Theories of learning, curriculum and program development, and principles and techniques of evaluation. Examination of educator role of advanced practice nurse in variety of settings and with diverse cultural and socioeconomic groups. Opportunities provided for skill development in use of computer-based information systems and development of instructional aids. Letter grading.

M221. Qualitative Research Design and Methodology for Indigenous Communities. (5) (Same as American Indian Studies M202 and Health Policy and Management M202.) Seminar, three hours. Introduction to some key theoretical themes in American Indian studies and exploration of methods that can be used to incorporate them in research on American Indian cultures, societies, languages, and other issues. Quantitative methods (design, appropriate use), with emphasis on qualitative research methods, ethics, and special considerations in conducting research in American Indian country. Design of research and exploration of feasibility of researching topics. Letter grading.

223. Childhood Development: Research and Application to Nursing. (3) Lecture, three hours. Critique and evaluation of current research and theory in child development and their application to care of children. Provides scientific basis for understanding human growth and development, anticipating problems, and managing barriers to growth and development throughout childhood. Letter grading.

224. Advanced Pharmacology for Advanced Practice Nurses. (5) Lecture, five hours. Requisite: course 231. In preparation for prescriptive authority, focus on major drug classes and their mechanisms of action, pharmacokinetics, adverse effects, and clinical uses. Advanced knowledge of and skills in pharmacology for clients/patients with stable acute or chronic conditions. Letter grading.

225A. Advanced Pharmacology I. (3) Lecture, two hours. Course 225A is enforced requisite to 225B. Basic pharmacological principles in addition to clinical knowledge and skills necessary for care of clients/patients with stable acute or chronic conditions. Focus on major drug classes and their mechanisms of action, pharmacokinetics, adverse effects, and clinical uses. Letter grading.

225B. Advanced Pharmacology II. (2) Lecture, two hours. Enforced requisite: course 225A. Knowledge of and skills in pharmacology necessary for care of clients/patients with stable acute or chronic conditions. Letter grading.

226. Seminar: Aging Research. (1 to 2) Seminar, two hours. Preparation: completion of first-year coursework. Discussion and conceptualization of gerontological nursing concepts within context of specialty areas of research (acute care, oncology, occupational health, and gerontological nursing). Provides opportunity for students to integrate gerontological

nursing concepts into their evolving dissertation research and to examine state of science in their areas of focus. Core faculty from all specialty areas participate in discussions. May be repeated for maximum of 10 units. S/U grading.

227. Ethnogeriatric Nursing. (4) Lecture, three hours. Requisite: course 209. Identification of unique content related to minority aging using Giger and Davidhizar Transcultural Assessment Model. Examination of transcultural nursing viewed as culturally competent practice that is both client centered and research focused. Exploration of difference between Eurocentric lens and gerothetic lens when providing nursing care to ethnically and racially diverse elders. In-depth examination of issues related to conducting research with elders who are racially and ethnically diverse in variety of healthcare settings. Study designs for conducting research, issues surrounding informed consent of minority elders, and data collection techniques, including critique and use of data collection instruments used in community and long-term care settings, behavioral observations, interviews, and surveys. Letter grading.

228. Research Methods for Aging Populations. (4) Lecture, three hours. Requisites: courses 204, 205A, 207. Corequisite: course 208. In-depth examination of issues related to conducting research with elders in variety of healthcare settings. Study designs for conducting research in community and long-term care settings, issues surrounding informed consent, planning for mortality and morbidity, data collection techniques for frail elders, including use of assessment tools used in community and long-term care settings, behavioral observations, interviews, and surveys, and statistical analysis techniques related to missing data, longitudinal data analysis, clustering, and repeated measures. Letter grading.

229A-229B-229C. System-Based Healthcare I, II, III. (1-1-1) Seminar, two hours. System-based healthcare where students focus on context of medical decision making, including team, hospital, culture, politics, economics, law, and personal bias. Topics include legal, political, and moral aspects of sexual assault and abortion; economics and cultural considerations involved in end of life decision making; and public and personal interpretation of what constitutes conflict of interest. Consideration of how medical decisions are influenced by context of care (system-based practice) and emotional responses and preferences (professionalism). S/U grading.

230A-230B. Advanced Pathophysiology I, II. (3-2) Lecture, three hours (course 230A) and two hours (course 230B). Requisite: course 3 or equivalent taken within past five years. Course 230A is requisite to 230B. In-depth examination of pathophysiological processes that underline human illness and disease, with detailed study of these in major body systems. Analysis of manifestations of and responses to processes of cellular and molecular pathology at extracellular, system, and human levels. Letter grading.

231. Advanced Pathophysiology for Advanced Practice Nurses. (4) Lecture, four hours. In-depth examination of pathophysiological processes that underlie human illness and disease, with detailed study of these in major body systems. Analysis of manifestations of, and responses to, processes of cellular and molecular pathology at extracellular, system, and human levels with implications for advanced practice nursing. Letter grading.

232. Human Responses to Aging and Chronic Illness. (2 or 4) Lecture/discussion, four hours. Pathophysiologic concepts and nursing management of older adults who are healthy or who have disability and/or chronic illness. Nursing aspects of selected dysfunctions and implications for advanced practice in gerontological nursing. Letter grading.

233. Human Responses to Aging and Chronic Illness. (2 or 4) Lecture/discussion, four hours. Biopsychosocial concepts and nursing management of healthy, disabled, and/or chronically ill older adults, addressing pathophysiological aspects of common health problems. Implications for advanced practice in gerontological nursing. Letter grading.

236. Pediatric Primary Care for Family Nurse Practitioners. (4) Lecture, four hours. Requisite: course 200. Preparation of family nurse practitioners to assume responsibility for health promotion and illness prevention, and maintenance and management of common developmental, behavioral, acute, and chronic health problems of infants, children, and adolescents in primary healthcare settings. Presentation of condition or disease, etiology and incidence, clinical findings, differential diagnosis, pharmacologic and treatment management, complications, and preventive and patient education measures. Examination of primary child health delivery model reliant on evidence-based knowledge, practice protocols, consultation, referral, and community resources. Letter grading.

238A. Assessment and Management in Pediatric Healthcare I. (4) Lecture, four hours. Requisite: course 200. Anticipatory guidance for children and families to promote child wellness and assessment, diagnosis, and management of common pediatric illnesses. Demonstration of application and evaluation of evidence-based research and clinical guidelines in pediatric population. Letter grading.

238B. Assessment and Management in Pediatric Healthcare II. (4) Lecture, four hours. Requisite: course 238A. Assessment, diagnosis, and management of common pediatric illnesses. Demonstration of application and evaluation of evidence-based research and clinical guidelines in pediatric population. Letter grading.

238C. Assessment and Management in Pediatric Healthcare III. (4) Lecture, four hours. Requisite: course 238B. Assessment, diagnosis, and management of chronic and acute pediatric illnesses. Demonstration of application and evaluation of evidence-based research and clinical guidelines in pediatric population. Letter grading.

239A-239B-239C. Adult/Gerontology Primary Healthcare for Advanced Practice Nurses I, II, III. (4-4-4) Lecture, four hours. Enforced requisites: courses 200, 224, 231. Course 239A is enforced requisite to 239B, which is enforced requisite to 239C. Assessment, diagnosis, and management of common episodic and chronic adult health problems and conditions, including urgent care, for family and adult/gerontology primary care nurse practitioners. Application and evaluation of evidence-based interventions and clinical guidelines in diverse adult populations (late adolescence through old age). Analysis of health promotion, maintenance, and restoration approaches in special populations, including developmental, cultural, gender, life-stage perspectives, and functional impairment. Letter grading.

241. Biobehavioral Foundations of Neuropsychiatric Assessment. (2) Lecture, two hours. Biologic and behavioral theories and research from variety of disciplines, including nursing, for application to neuropsychiatric assessment and diagnosis. Exploration of theory and research evidence underlying assessment and diagnosis of cognitive, addictive, and affective dysfunctions, with emphasis on developing behavioral nursing approach. Letter grading.

241F. Biobehavioral Foundations of Neuropsychiatric Assessment. (4) Lecture, four hours. Biologic and behavioral theories and research from variety of disciplines, including nursing, for application of neuropsychiatric assessment and diagnosis. Exploration of research underlying assessment and diagnosis of cognitive, addictive, and affective dysfunctions, with emphasis on developing a behavioral nursing approach. Letter grading.

242. Biobehavioral Foundations of Neuropsychiatric Nursing Care. (2) Lecture, two hours. Concepts and principles of working with individuals and groups using psychotherapeutic nursing practices. Discussion of evolution of these modalities in nursing practice, as well as theory and research evidence underlying treatment of individuals with cognitive and attention deficits and thought, addictive, and mood disorders, with emphasis on developing unified approach to management of biobehavioral symptoms in advanced nursing practice. Letter grading.

242F. Biobehavioral Foundations of Neuropsychiatric Nursing Care. (4) Lecture, four hours. Biologic and behavioral research from variety of disciplines, including nursing, for application to treatment of neuropsychiatric dysfunction. Exploration of research underlying treatment interaction in cognitive, addictive, and affective dysfunctions, with emphasis on developing a biobehavioral nursing approach. Letter grading.

245. Theoretical Foundations of Clinical Nurse Specialist Practice. (4) Lecture/discussion, four hours. Theoretical foundations of clinical nurse specialist practice, including systems theory, behavioral theories, consultation theory, change theory, and models of research utilization. Emphasis on application of relevant theories to clinical nurse specialty practice roles in healthcare systems through case-study analysis, with focus on application to clinical practice settings which include culturally diverse populations. Letter grading.

249. Meeting Health-Related Needs in Underserved Populations. (4) Lecture, four hours. Examination of systematic barriers within healthcare settings that limit access to those in greatest need of culturally appropriate interventions. Unmet healthcare needs often result in health disparities and compromised quality of life among underserved, low income, uninsured, marginalized populations. Analysis of current evidence-based strategies and interventions designed to address these clinical problems and improve outcomes in culturally competent manner. Presentation of context of healthcare financing, limited access, and public policy. Letter grading.

250. Ethical Issues, Social Justice, and History of Nursing. (5) Lecture, five hours. Interplay of social, cultural, legal, and political forces in the U.S. form background for study of ethical issues related to role of nurses as advocates for social justice in contemporary society today. Analysis situated within context of history of nursing, with emphasis on human rights, civil rights, and patient rights. Discussion of evolution of professional nursing within healthcare arenas in relation to ethical principles, cultural competence, and human diversity. Letter grading.

252. Health Promotion/Risk Reduction Systems: Population Level. (4) Lecture, four hours. Introduction to primary prevention strategies as they pertain to health and wellness across lifespan, using population-based approach to nursing care of diverse populations. Priorities in nutrition; reproductive health, including issues related to contraception and parenting; well-child care, school-age health, and chronic illness prevention strategies for young- and middle-aged adults and elderly who live independently in communities or within institutions. Analysis of influence of overarching political, societal, and governmental systems within U.S. Letter grading.

254A. Theoretical Foundations of MSN/MECN Role and Fundamentals of Professional Nursing Lecture/Clinical Skills Practicum I. (4) Lecture, three hours; laboratory, three hours. Practice of professional nursing as theory-based goal-directed method for assisting patients to meet basic human needs at various levels of health continuum, with emphasis on application of relevant theories to master's entry clinical nurse (MECN) practice roles in healthcare systems. Introduction to concepts of communication, interdisciplinary communication and collaboration, interpersonal relationships, cultural competence, and nursing process as clinical decision-making strategy essential to practice of professional nursing. Learning experiences in nursing skills laboratory and in clinical settings. Letter grading.

254B. Theoretical Foundations of MSN/MECN Role and Fundamentals of Professional Nursing Lecture/Clinical Skills Practicum II. (4) Lecture, three hours; laboratory, three hours. Enforced requisite: course 254A. Expansion of student knowledge of practice of professional nursing as theory-based goal-directed method for assisting patients to meet basic human needs at various levels of health continuum, with emphasis on application of relevant theories to master's entry clinical nurse (MECN) practice roles in healthcare systems. Expansion of concepts of

communication, interdisciplinary communication and collaboration, interpersonal relationships, cultural competence, and nursing process as clinical decision-making strategy essential to practice of professional nursing. Learning experiences in nursing skills laboratory and in clinical settings. Letter grading.

C255. Global Health Elective: Globalization, Social Justice, and Human Rights. (3) Seminar, two hours. Exploration of theories, issues, debates, and pedagogy associated with globalization, social justice, and human rights and how these perspectives influence human health and well-being. Provides students with unique opportunity to explore these topics within classroom, via Internet and other technologies, and in other classrooms located around globe. Students, through collaborative projects with peers around world, reflect on how globalization shapes and transforms local communities and national cultures. Concurrently scheduled with course C155. Letter grading.

260. Secondary Prevention. (4) Lecture, four hours. Requisite: course 252. Corequisite: course 225A. Screening and early detection of illness to prevent chronic or acutely deteriorating illness. Expanding on concepts of health and human development and using nursing process, application of nursing role in providing care to individuals and their families to screen, diagnose, and treat illness at earliest possible time to prevent disability or premature mortality. Examination of health problems of individuals within context of family, social and community systems, and interdisciplinary healthcare systems. Emphasis on differences in developmental stages in response to screening for early and late signs and symptoms of illness in ambulatory and acute care settings, community agencies, rehabilitation units, outpatient specialty clinics and surgical units, and home and community settings. Letter grading.

264. Professional Role Issues in Advanced Practice Nursing. (3) Lecture, three hours. Requisite: course 418A or 438A or 439A. Assessment of organizational, legal, ethical, and healthcare policy issues in relation to delivery of healthcare services by advanced practice nurses in evolving healthcare system. Letter grading.

266. Healthcare Systems/Organizations. (3) Lecture, three hours. Analysis of evolving healthcare delivery systems in terms of effects of policy, economic factors, structure and financing of organizations, characteristics of patients/populations, and services provided, all of which shape reform in relation to role and practice of clinical nurse leaders. Letter grading.

267. Healthcare Policy. (3) Lecture, three hours. Analysis of healthcare policies and how policies impact clinical practice and healthcare delivery. Discussion of concepts related to policymaking, specifically how to formulate healthcare policy, how to affect political process, and stakeholder involvement in policy decision making and implementation. Development of understanding of increasing levels of public, governmental, and third-party participation in and scrutiny of shape and direction of healthcare system. Current mandated assembly bills and their effect on nursing. Concepts associated with escalating healthcare costs and cost containment efforts instituted by private and government sectors, as well as by individual healthcare institutions. Letter grading.

268. Systems (Hospital Unit): Individual Level. (4) Lecture, four hours. Discussion of use of systems theory approach in providing patient-centered and value-added care. Functioning within systems, individual healthcare practitioners learn to use critical thinking and decision making to coordinate and deliver quality and cost-effective patient care. Development of understanding of different modes of organizing nursing care within unit environment, managing care within multidisciplinary team framework, and promoting effective teamwork that enhances patient outcomes, improves staff vitality, and reduces costs. Emphasis on concepts related to system theory, problem solving and decision making, nursing care delivery models, delegation, and team strategies. Letter grading.

269. Quality Improvement and Population-Based Quality of Practice. (4) Lecture, four hours. Principal elements related to quality improvement theories and ways in which quality management impacts delivery of patient-centered and value-driven care, including improved system performance and efficient use of fiscal resources, quality improvement, and patient-population quality practice at organizational level. Review of individual methods to improve patient-care outcomes such as organizational support, effective teamwork, and quality-improvement concepts in workplace. Emphasis on quality management, adverse outcomes, evidence-based clinical and cost-control decision making, patient safety and risk reduction, resource management, and external impacts on quality control. Letter grading.

M273. Advanced Seminar: Medical Anthropology. (2 to 4) (Same as Anthropology M263Q, Community Health Sciences M244, and Psychiatry M273.) Seminar, three hours. Limited to 15 students. Examination of interrelationships between society, culture, ecology, health, and illness. Bases for written critical analysis and class discussion provided through key theoretical works. S/U or letter grading.

288. Variable Topics in Nursing. (4) Lecture, three hours; discussion, one hour. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit. S/U or letter grading.

M290A-M290B-M290C. Child Abuse and Neglect. (2-2-1) (Same as Community Health Sciences M245A-M245B-M245C, Dentistry M300A-M300B-M300C, Education M217G-M217H-M217I, Law M281A-M281B, Medicine M290A-M290B, and Social Welfare M203F-M203G-M203H.) Lecture, two hours. Course M290A is requisite to M290B, which is requisite to M290C. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of Schools of Dentistry, Law, Medicine, Nursing, and Public Health and Departments of Education and Psychology, as well as by relevant public agencies. Letter grading.

295A. Nursing Science Seminar. (1) Seminar, one hour. Introduction to nursing research methods, activities, and programs within specialty strands at UCLA School of Nursing: biobehavioral sciences, biologic sciences, health disparities/vulnerable populations, and health services. Exemplar work of UCLA nurse scholars highlighted. Overview of nursing research at UCLA and potential research opportunities for doctoral study. S/U grading.

295B-295C. Nursing Science Seminars. (2-2) Seminar, two hours. Requisite: course 295A. Introduction to grant writing, with focus on preparing applications for National Student Research Award. Discussion of requirements of various extramural and specialty organization funding sources, and evaluation criteria identified. Role of external funding to facilitate doctoral and postdoctoral research, research activities, and professional development. S/U grading.

M298. Interdisciplinary Response to Infectious Disease Emergencies: Nursing Perspective. (4) (Same as Community Health Sciences M256, Medicine M256, and Oral Biology M256.) Lecture, three hours; discussion, one hour. Designed to instill in professional students ideas of common emergency health problems and coordinated response, with specific attention to bioterrorism. Examination of tools to help students prevent, detect, and intervene in infectious disease emergencies. Interdisciplinary sessions also attended by students in Schools of Dentistry, Medicine, and Public Health during weeks two through five. Letter grading.

299A. Nursing Research Seminar. (2) Seminar, two hours. Seminar to assist students who are beginning careers in scientific research to understand issues of responsible conduct of research and protection of research subjects. S/U grading.

299B-299C. Nursing Research/Laboratory Experiences. (4-4) Seminar/discussion, one hour; research/laboratory, three hours. Requisites: courses 202, 206. Seminars and research/laboratory-based experiences

to assist students to prepare for careers as scientists, with focus on research methodology and mentorship. S/U grading.

299D. Nursing Education Seminar. (2) Seminar, two hours; discussion, one to two hours. Seminar to assist students to prepare for careers in academic settings, with focus on teaching. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

414A-414B. Clinical Practicum: Adult/Gerontology Acute Care Oncology Nurse Practitioners. (6-8) Clinic practicum, 16 hours (course 414A) and 22 hours (course 414B). Enforced requisite: course 416C. Course 414A is enforced requisite to 414B. Assessment and therapeutic interventions in oncology settings with diverse acute adult/gerontology populations. Management of cancer risk, cancer- and treatment-related side effects, rehabilitation, health promotion, and palliative care. For course 414A, students complete minimum of 160 direct clinical hours; for course 414B, they complete minimum of 200 direct clinical hours. Letter grading.

416A-416B. Adult/Gerontology Acute Care Nurse Practitioner Practicum I, II. (2-6) Clinic practicum, six hours (course 416A) and 16 hours (course 416B). Enforced requisite: course 440. Course 416A is enforced requisite to 416B. Assessment and therapeutic interventions for selected health problems in acute adult/gerontology populations. Developmental, health promotion, and maintenance needs of clients in relation to family, social, and cultural structures. For course 416A, students complete minimum of 40 direct clinical hours; for course 416B, they complete minimum of 160 direct clinical hours. Letter grading.

416C-416D. Adult/Gerontology Acute Care Nurse Practitioner Practicum III, IV. (6 each) Clinic practicum, 16 hours. Enforced requisite: course 416B. Course 416C is enforced requisite to 416D. Assessment and therapeutic interventions for selected health problems in acute adult/gerontology populations. Developmental, health promotion, and maintenance needs of clients in relation to family, social, and cultural structures. Students complete minimum of 160 direct clinical hours. Letter grading.

416E. Adult/Gerontology Acute Care Nurse Practitioner Practicum V. (6 to 8) Clinic practicum, 15 to 24 hours. Enforced requisite: course 416D. Assessment and therapeutic interventions for selected health problems in acute adult/gerontology populations. Developmental, health promotion, and maintenance needs of clients in relation to family, social, and cultural structures. Students complete minimum of 160 to 240 direct clinical hours. Letter grading.

418A-418B-418C. Nursing Administration Practicum. (3 or 4 each) Clinic practicum, eight or 11 hours; clinical conference, one hour. Letter grading.

418A. Requisites: courses 219A, 219B. Synthesis, evaluation, and practical application of organizational theory in practice setting, with emphasis on content presented in course 218A, including organizational structure, processes, and outcomes. **418B.** Requisites: courses 218A, 418A. Experience in organizational setting for synthesizing content from course 218B, including strategic planning and management, care delivery systems, resource management, decision making, management information systems, professional practice, and meeting accreditation and legal standards. **418C.** Requisites: courses 218B, 418B. Experience in organizational setting for synthesizing and evaluating content from course 218C, including processes of project management, organizational communication, governance, development and change, diverse relationships within organization, risk management, liability, and ethics of administration decision making.

418D. Nursing Administration Residency. (12) Clinic practicum, 33 hours; clinical conference, one hour. Requisites: courses 218C, 418C. Experience in organization setting as students assume leadership role in planning, managing, and evaluating administrative projects. Synthesizing of content from course 218D, including assessing community healthcare needs, marketing, media, and political action and healthcare policy. Letter grading.

429A. Family Nurse Practitioner Practicum I. (4) Clinic practicum, 12 hours. Requisites: courses 200, 440. First of five clinical practica designed to prepare family nurse practitioners with knowledge, skills, and competencies necessary to assume role of primary healthcare provider for families and individual patients across lifespan. Use of family-focused framework of care for those who experience common acute and chronic illness, developmental transitions, and health problems. Emphasis on health promotion, maintenance, and risk reduction interventions across wide range of diverse populations. Focus on context of community, cultural awareness, and practice in interdisciplinary teams. Students complete minimum of 80 direct clinical hours. Letter grading.

429B. Family Nurse Practitioner Practicum II. (4) Clinic practicum, 12 hours. Requisite: course 429A. Second of five clinical practica designed to prepare family nurse practitioners with knowledge, skills, and competencies necessary to assume role of primary healthcare provider for families and individual patients across lifespan. Use of family-focused framework of care for those who experience common acute and chronic illness, disability, and developmental transitions. Emphasis on health promotion, maintenance, and risk reduction interventions across wide range of diverse populations. Preparation in variety of clinical settings to implement evidence-based practice guidelines and to critically analyze and adapt healthcare interventions based on individualized assessments of individual/family needs. Focus on context of community, cultural awareness, and practice in interdisciplinary teams. Students complete minimum of 80 direct clinical hours. Letter grading.

429C-429D-429E. Family Nurse Practitioner Practicum III, IV, V. (6-6-9) Clinic practicum, 18 hours (courses 429C, 429D) and 27 hours (course 429E). Requisite for course 429C: course 429B; for 429D: course 429C; for 429E: course 429D. Third, fourth, and fifth of five clinical practica designed to prepare family nurse practitioners with knowledge, skills, and competencies necessary to assume role of primary healthcare provider for families and individual patients across lifespan. Use of family-focused framework of care for those who experience common acute and chronic illness, disability, and developmental transitions. Preparation in variety of clinical settings to implement evidence-based practice guidelines and to critically analyze and adapt healthcare interventions based on individualized assessments of individual/family needs. Focus on context of community, cultural awareness, and practice in interdisciplinary teams. For courses 429C and 429D, students complete minimum of 160 direct clinical hours; for course 429E, they complete minimum of 240 direct clinical hours. Letter grading.

438A. Pediatric Nurse Practitioner Clinical Practicum I. (4) Clinic practicum, 12 hours. Corequisite: course 238A. Comprehensive assessment and anticipatory guidance for children and families to promote child wellness. Clinical practicum, seminar, and other learning activities to demonstrate application and evaluation of evidence-based research and clinical guidelines in promotion of pediatric wellness. Students complete minimum of 100 direct clinical hours. Letter grading.

438B. Pediatric Nurse Practitioner Clinical Practicum II. (6) Clinic practicum, 18 hours. Corequisite: course 238B. Advanced comprehensive assessment, diagnosis, and management of common pediatric illnesses and developmental and/or behavioral problems. Clinical practicum, seminar, and other learning activities to demonstrate application and evaluation of

evidence-based research and clinical guidelines in common pediatric illnesses. Students complete minimum of 160 direct clinical hours. Letter grading.

438C. Pediatric Nurse Practitioner Clinical Practicum III. (6) Clinic practicum, 18 hours. Corequisite: course 238C. Advanced comprehensive assessment, diagnosis, and management of chronic and acute pediatric illnesses in ambulatory setting. Clinical practicum, seminar, and other learning activities to demonstrate application and evaluation of evidence-based research and clinical guidelines in pediatric chronic and acute illnesses. Students complete minimum of 160 direct clinical hours. Letter grading.

438D. Pediatric Nurse Practitioner Clinical Practicum IV. (8) Clinic practicum, 24 hours. Requisites: courses 238C, 438C. Students assume primary responsibility for assessment, diagnosis, management, and evaluation of care provided to children and families in ambulatory setting. Clinical practicum, seminar, and other learning activities to demonstrate application and evaluation of evidence-based research and clinical guidelines in pediatric health problems. Students complete minimum of 220 direct clinical hours. Letter grading.

439A. Adult/Gerontology Primary Care Nurse Practitioner Practicum I. (4) Clinic practicum, 12 hours. Requisites: courses 224, 231. Corequisite: course 239A. Advanced practice nursing in adult/gerontology. Beginning-level assessment and therapeutic interventions for health problems in selected populations. Developmental, health promotion, and maintenance needs of clients in relation to family, social, and cultural structures. Students complete minimum of 80 direct clinical hours. Letter grading.

439B. Adult/Gerontology Primary Care Nurse Practitioner Practicum II. (6) Clinic practicum, 18 hours. Requisite: course 439A. Corequisite: course 239B. Continuation of course 439A for advanced practice nurses, with emphasis on nursing management of acute and chronic health problems in selected populations. Developmental needs of clients in relation to family, social, and cultural structures. Students complete minimum of 80 direct clinical hours. Letter grading.

439C. Adult/Gerontology Primary Care Nurse Practitioner Practicum III. (6) Clinic practicum, 18 hours. Requisite: course 439B. Corequisite: course 239C. Third clinical practicum course for advanced practice nurses, with focus on nursing assessment and intervention in common illness-associated symptoms and complex patient/family presentations. Analysis, evaluation, and integration of current theory and research to provide basis for development of interventions and treatment for acute and chronic problems across lifespan. Students complete minimum of 160 direct clinical hours. Letter grading.

439D. Adult/Gerontology Primary Care Nurse Practitioner Practicum IV. (6) Clinic practicum, 18 hours. Requisites: courses 239C, 439C. Residency in advanced practice role where students assume primary responsibility for planning, managing, and evaluating care of clients in specialty setting. Emphasis on application and integration of theory, research, and clinical knowledge in advanced practice role. Students complete minimum of 160 direct clinical hours. Letter grading.

439E. Adult/Gerontology Primary Care Nurse Practitioner Practicum V. (9) Clinic practicum, 27 hours. Enforced requisites: courses 439A through 439D. Designed to prepare adult/gerontology primary care nurse practitioners with knowledge, skills, and competencies necessary to assume role of primary healthcare providers for young adults, adults, and older adults. Use of patient-centered framework of care for those who experience common acute and chronic illness, disability, and developmental transitions. Preparation in variety of clinical settings to implement evidence-based practice guidelines and to critically analyze and adapt healthcare interventions based on individualized assessments, with emphasis on context of community, cultural awareness, and practice in interdisciplinary teams. Students complete minimum of 240 direct clinical hours. Letter grading.

440. Advanced Assessment and Clinical Diagnosis for Advanced Practice Nurses. (2) Laboratory/clinic practicum, six hours. Practice foundations for advanced physical assessment and clinical diagnostic reasoning. Students conduct individualized patient- and symptom-focused assessments of health problems representative of diverse client populations. Emphasis on comprehensive and integrated critical analysis of symptom and focused history data, physical examination, selected laboratory data, and clinical diagnoses. Letter grading.

441. Neuropsychiatric Subspecialty Clinical Seminar. (1 to 2) Clinical seminar, one hour; self-study, two hours. Requisites: courses 241F, 242F. Designed for advanced practice nurses in any nurse practitioner specialty. Neuropsychiatric assessment, treatment, and case presentations in selected populations with addictive, affective, and cognitive dysfunctions in relation to neurophysiology and pathology and to family, social, and cultural structures. S/U grading.

444. Adult/Gerontology Acute Advanced Assessment and Clinical Diagnosis II. (2) Clinic practicum, six hours. Enforced requisite: course 440. Practice foundations for advanced physical assessment and clinical diagnostic reasoning, with focus on diagnostic or therapeutic procedures and related indications, complications, and follow-up care in laboratory setting. S/U grading.

445. Advanced Practice Nursing: Clinical Nurse Specialist Practicum. (2 to 10) Clinic practicum, six to 30 hours. Requisites: courses 220, 245. Practicum/residency where students gain skills and competencies to function collaboratively and autonomously to achieve high quality patient outcomes. Clinical nurse specialty (CNS) practice achieves this by working within three spheres of influence: patient/family, nursing personnel, and organizational systems utilizing multidisciplinary approach through application and integration of theory, research, and clinical knowledge. 17 units complete minimum of 500 unique CNS hours required for professional certification. Letter grading.

450. Advanced Practice Nursing: Clinical Elective Independent Study. (2 to 8) Clinic practicum, eight hours. Clinical elective designed to enhance skills and competencies in student-selected advanced practice specialty or related practice dimension, with emphasis on application and integration of theory and evidence-based practice knowledge. S/U grading.

461. Psychiatric Mental Health Nursing. (5) Lecture, three hours; clinical, six hours. Requisites: courses 225A, 225B, 230A, 230B, 260. Knowledge and skill assessment to promote mental health of individuals and communities. Exploration of research underlying assessment, diagnosis, and treatment of individuals with psychiatric disorders and pharmacotherapeutic and psychological treatment of individuals. Application of theory in clinical practice involves interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Beginning-level assessment, health maintenance, and management of symptomatology across lifespan. Letter grading.

462. Maternity Nursing. (5) Lecture, three hours; clinical, six hours. Requisite: course 465C. Corequisite: course 464. Pathophysiological and psychosocial aspects of assessment and management for selected acute and emergent problems of maternity-newborn patients, with emphasis on social, cultural, and developmental influences and integration of basic knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to care of childbearing families. Application of theory, nursing process, evidence-based practice, and problem solving in clinical setting, interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating care for maternity and newborn patients, both as individuals and cohorts. Assessment, health maintenance, and management of symptomatology among childbearing women and newborns. Letter grading.

464. Pediatric Nursing. (5) Lecture, three hours; clinical, six hours. Requisite: course 465C. Corequisite: course 462. Nursing assessment and management for selected acute and emergent problems in infants, children, and adolescents, with emphasis on social, cultural, and developmental influences. Integration of basic knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to care of infants, children, and adolescents. Application of nursing process, evidenced-based practice, problem-solving strategies, and critical thinking. Supervised practicum experience within setting of multidimensional team in clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating nursing care for infants, children, and adolescents. Assessment, health maintenance, and management of symptoms in infants, children, and adolescents. Letter grading.

465A. Foundational Concepts for Tertiary Prevention and Care of Medical-Surgical Patients and Families. (4) Lecture, three hours; clinical, three hours. Corequisite: course 254B. Examination of nursing assessment and management of common health problems of adults. Theory content in basic assessment, health history, and diagnostic reasoning for selected health problems, with emphasis on social, cultural, and developmental influences. Integration of basic knowledge of pathophysiology, stress and adaptation, adult development theory, therapeutic interventions, and communication concepts as applied to care of medical and surgical patients and their families across adult lifespan. Introduction to concept of nurses as bedside scientists, with emphasis on critical and contextual thinking skills and diagnostic reasoning. Nursing process, ethical principles, clinical research, evidence-based practice, and clinical thinking that maximize patient safety and quality care employed during clinical experiences. Diagnosis and management of healthcare problems managed by master's-level clinical nurses in acute care settings. Letter grading.

465B. Tertiary Prevention and Care of Medical-Surgical Patients and Families. (6) Lecture, four hours; clinical, six hours. Requisite: course 465A. Pathophysiological and psychosocial aspects of assessment and management for selected acute and emergent problems of adult patients with complex illness, including multifaceted assessment, health history, and diagnostic reasoning skills and emphasis on social, cultural, and developmental influences. Integration of knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to care of medical and surgical patients. Supervised practicum experience within settings of multidimensional teams directing care of medical-surgical clinical units, with focus on clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Intermediate-level assessment, health maintenance, and management of symptoms across lifespan. Letter grading.

465C. Tertiary Prevention and Care of Geriatric Medical-Surgical Patients and Families. (8) Lecture, four hours; clinical, 12 hours. Requisites: courses 465A, 465B. Examination of nursing assessment and management of acute and chronic health problems of older adults. Theory content in assessment, health history, and diagnostic reasoning on older adults, with emphasis on social, cultural, and developmental influences. Integration of knowledge of pathophysiology, pharmacology, stress and adaptation, adult development theory, therapeutic interventions, and communication concepts as applied to care of older medical and surgical patients, with more complex and comorbid conditions, and their families. Concept of nurses as bedside scientists, with emphasis on critical and contextual thinking skills and diagnostic reasoning. Nursing process, ethical principles, clinical research, evidence-based practice, and clinical thinking that maximize patient safety and quality care for older adults employed during clinical experiences. Diag-

nosis and management of healthcare problems managed by master's-level clinical nurses in acute care settings. Letter grading.

465D. Human Responses to Critical Illness. (4) Lecture, three hours; fieldwork, three hours. Requisites: courses 461, 462, 464, 465A, 465B, 465C. Pathophysiological and psychosocial concepts in acute life-limiting illness and nursing management of critically ill adults, with focus on effect of critical illness on individual and family health. Key diagnostic and therapeutic modalities that promote effective nursing management of individuals with complex critical illnesses addressed. Emphasis on rapid assessment, critical reasoning, prompt intervention, and outcome achievement with fluid replanning for rapidly changing disease conditions. Letter grading.

467. Clinical Internship: Integration. (12) Clinical, 36 hours. Requisites: courses 461, 462, 464, 465D. Supervised practicum experience within setting of multidimensional team, with focus on application of theory in clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Advanced-level assessment, health maintenance, and management of symptomatology across lifespan. S/U grading.

495. Nursing Education Practicum. (2) Seminar, six hours. Supervised student teaching internship in preparation for academic roles. In-depth opportunity to gain skills in role of nurse educator within university setting, including application of instructional strategies and evaluation methods. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA assistant dean and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward MSN degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. Opportunity for individual graduate nursing students to pursue special studies or research interests. May be repeated for credit, but only 4 units may be applied toward graduate degree requirements. S/U grading.

597. Individual Study for Comprehensive Examination. (2 to 4) Tutorial, to be arranged. Opportunity for individual graduate nursing students to prepare for comprehensive examination. May be repeated once for credit, but only 4 units may be applied toward MSN degree requirements. S/U grading.

599. Research for and Preparation of PhD Dissertation. (2 to 12) Tutorial, to be arranged. Individualized faculty supervision of PhD dissertation research by student's chair. May be repeated for credit, but only 8 units may be applied toward PhD degree requirements. S/U grading.

Christine H. Holschneider, MD, Vice Chair, Olive View-UCLA

Michael T. Johnson, MD, Vice Chair, Clinical Affairs
Griselda Gutierrez, MD, Vice Chair, Harbor-UCLA
Sarah J. Kilpatrick, MD, PhD, Vice Chair, Cedars-Sinai
Brian J. Koos, MD, DPhil, Vice Chair, Academic Affairs
Oto Martinez, PhD, Vice Chair, Basic Research
Khalil Tabsh, MD, Vice Chair, Network/Satellite Development

Scope and Objectives

The medical student program in the Department of Obstetrics and Gynecology is designed to provide firm background in the essentials of women's health. The educational objectives are set forth by the Association of Professors of Gynecology and Obstetrics (APGO). Through a combination of didactic instruction and supervised clinical experience, students acquire the relevant clinical skills of history taking and physical examination and learn reproductive physiology from infancy to the postmenopausal period; antepartum, intrapartum, and postpartum obstetric care; and recognition and management of various gynecologic disorders. Third-year students work in ambulatory clinics and on inpatient services during a six-week core clerkship. Greater depth of experience is provided by elective clerkships during the fourth year that emphasize subspecialties such as maternal/fetal medicine, reproductive endocrinology and infertility, gynecologic oncology, and reproductive health.

For further details on the Department of Obstetrics and Gynecology, see <http://obgyn.ucla.edu>.

Obstetrics and Gynecology

Upper Division Course

199. Directed Research in Obstetrics and Gynecology. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

OBSTETRICS AND GYNECOLOGY

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Chairs

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Robin P. Farias-Eisner, MD, PhD, *Vice Chair, Administration*

William Growdon, MD, *Vice Chair, Santa Monica-UCLA*

OPHTHALMOLOGY

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Chairs

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Anne L. Coleman, MD, PhD (*Fran and Ray Stark Foundation Professor of Ophthalmology, Vice Chair*

Alfredo A. Sadun, MD, PhD, *Vice Chair, Doheny Eye Centers-UCLA*

Scope and Objectives

Ophthalmology is the medical science that encompasses knowledge concerning the eyes and the visual system. Derived from many basic and clinical fields, this knowledge must be

synthesized by the physician and applied to the prevention, diagnosis, medical management, and surgical therapy of ocular disease.

In response to the steadily increasing incidence and growing importance of ocular disorders, the Department of Ophthalmology and the Jules Stein Eye Institute are closely coordinated to form a comprehensive center for research in the sciences related to vision, for the care of patients with disease of the eyes and related structures, and for education in the broad field of ophthalmology.

The Department of Ophthalmology provides instruction and electives to medical students during the first, second, third, and fourth years at the Jules Stein Eye Institute and the Doheny Eye Centers UCLA. Through lectures, demonstrations, discussions, and the opportunity to observe patients and review data on cases with a variety of ocular conditions, students gain knowledge and experience in ophthalmology.

For further details on the Department of Ophthalmology and a listing of the courses offered, see <http://www.jsei.org/education/>.

Ophthalmology

Upper Division Course

199. Directed Research in Ophthalmology. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

ORAL BIOLOGY

School of Dentistry

UCLA
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<https://www.dentistry.ucla.edu/learning/masters-science-oral-biology>

Cun-Yu Wang, DDS, PhD, Chair
Fariba S. Younai, DDS, Vice Chair

Professors

Carol A. Bibb, DDS, PhD
Francesco Chiappelli, PhD
Robert H. Chiu, MS, PhD
Dean Ho, MS, PhD
Anahid Jewett, MPH, PhD
Mo K. Kang, DDS, MS, PhD (Jack A. Weichman
Professor of Endodontics)
Diana V. Messadi, DDS, DMSC, MMSc
Ichiro Nishimura, DDS, DMD
Wenyuan Shi, PhD
Igor Spigelman, PhD
Sotirios Tetrasis, DDS, PhD
Cun-Yu Wang, DDS, PhD (Dr. No-Hee Park Professor
of Dentistry)
David T.W. Wong, DMD, DMS (Felix and Mildred Yip
Endowed Professor of Dentistry)

Associate Professors

Shen Hu, PhD
Reuben Kim, DDS, PhD

Yong Kim, PhD, *in Residence*
Renate Lux, PhD, *in Residence*

Assistant Professors

Yeumin Christine Hong, DMD
Ting-Ting Wu, PhD

Adjunct Professors

Carl A. Maida, MA, PhD
Craig D. Woods, DDS, MA

Adjunct Associate Professor

Ki-Hyuk Shin, MS, PhD

Adjunct Assistant Professors

Xuesong He, DDS, PhD
Jiong Li, PhD

Professor of Clinical Dentistry

Fariba S. Younai, DDS

Scope and Objectives

Oral biology is the area of knowledge that deals with the development, structure, and function of the oral tissues and their interrelationships with other organ systems in normal and disease states. It is a multidisciplinary field that includes cell biology, bone biology, molecular biology, biochemistry, neuroscience, immunology, microbiology, and virology. The objective of the graduate program is to provide students with a sound foundation in these areas in order to pursue an academic or research career.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Section of Oral Biology in the School of Dentistry offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Oral Biology. A combined DDS/Oral Biology MS or PhD or advanced certificate training/Oral Biology MS or PhD is also offered.

Oral Biology

Graduate Courses

201A, 201C. Advanced Oral Biology. (3-3) Lecture, three hours. S/U or letter grading:

201A. Ontogenesis. (3) Lecture, three hours. Evolutionary perspective of cellular development from simple molecules that were formed during first billion years of Earth to development of cells, tissues, and organs of invertebrates and vertebrates. Development of vertebrate feeding apparatus from comparative anatomical and physiological point of view, followed by embryogenesis of orofacial and dental structures of humans. S/U or letter grading.

201C. Pathobiology. (3) Lecture, three hours. Molecular basis for pathogenic processes in tissues of oral cavity. Topics include microbially mediated demineralization of hard tissues, soft tissue infections, carcinogenesis, colonization of mucosal substrates by opportunists, etc. S/U or letter grading.

203. Oral Embryology and Histology. (4) Lecture, four hours. Lectures and laboratory instruction in development and histological structure of facial region and oral and peri-oral organs and tissues. Letter grading.

M204. Mechanisms and Relief of Pain. (2) (Same as Neuroscience M233.) Lecture, two hours. Advanced treatment of neuroanatomical, neurophysiological, and biochemical bases of pain perception. Topics include classical pain theories, pain receptors and pathways, endogenous mechanisms of pain modulation, and pharmacological basis for treatment of pain disorders. Letter grading.

205A. Methodology in Research Design and Data Analysis. (2) Lecture, two hours. Designed for graduate oral biology students. Integration of didactic lectures in descriptive and inferential statistics and in research design (emphasis on experimental design), presentations of statistical software, and open discussion of specific needs of oral biology students when they design their research. Letter grading.

205B. Methodology in Evidence-Based Dentistry. (2) Seminar, two hours. Designed for oral biology graduate students. Fundamentals of evidence-based research in dentistry and its implications for practice. Letter grading.

205C. Advanced Seminar: Comparative Effectiveness and Evidence-Based Research. (2) Seminar, one hour; discussion, one hour. Requisites: courses 205A, 205B (may be taken concurrently). Hands-on experience in process of systematic review, as shared mechanism in comparative effectiveness and evidence-based research. Specialized topics include level and quality of evidence assessments, acceptable sampling analysis, meta-analysis and meta-regression, and Bayesian-derived decision making following utility versus logic model. Students work on examples of their choice and interest in oral biology, medicine, and orthodontics. Letter grading.

206. Current Topics in Oral Immunology. (2) Lecture, two hours. Preparation: basic immunology. Discussion and analysis of current research dealing with immunological issues related to oral health, including HIV, opportunistic oral infections, periodontal pathology, oral immunopathology, caries immunology, endodontic immunology, etc. Letter grading.

208. Genomics and Proteomics in Oral Biology Research. (2) Lecture, one hour; discussion, one hour. Introduction to fundamentals and technical aspects of genomics and proteomics and analysis of data derived therefrom. Discussion of implications and applications of genomics and proteomics in diagnostic protocols such as salivary diagnostics. Letter grading.

209. Scientific Ethics. (2) Seminar, two hours. Required course in scientific ethics for graduate students in Oral Biology MS and PhD programs and for NRSA trainees in School of Dentistry. Letter grading.

211. Biology of Temporomandibular Joint. (2) Lecture, two hours. Anatomy, histology, physiology, and biomechanics of temporomandibular joint (TMJ) and related musculature. Pain mechanisms, sensorimotor integration, and motor mechanisms in TMJ function, and current methods of TMJ imaging. S/U or letter grading.

212. Proseminar: Oral Biology Research. (2) Seminar, one hour; discussion, one hour. Introductory course for graduate MS students. Guest seminars on topics of research in oral biology (pain pathways, immunology, bone biology, microbiology, cancer, and salivary genomics), followed by discussions led by course chair. Letter grading.

214. Current Research in Osteoimmunology. (2) Seminar, one hour; discussion, one hour. Exploration of oral bone biology and immunology and how both systems talk to each other. Topics include immune modulation of bone metabolism, osteoblastic niche for hematopoietic progenitors, adult bone marrow stem cell changes, and osteoimmunology in at-risk populations. Letter grading.

215A. Fundamentals of Immunology. (2) Lecture, two hours. Basic cellular and molecular mechanisms involved in responses mediated by immune effectors, with emphasis on immunopathology involved in autoimmunity, cancer, and immunodeficiency syndromes. Letter grading.

215B. Current Advanced Research Topics in Immunology. (2) Seminar, one hour; discussion, one hour. Overview of rapidly changing discoveries in very important field of immunology. Directed and student-led discussions of current cutting-edge research developments in immunology. Letter grading.

226. Craniofacial Growth and Development. (2) Lecture, two hours. Preparation: strong background in histology and embryology. Students acquire, from scientific literature discussed in lecture/seminar format, advanced knowledge of relevant aspects of human biology as they apply to classic and current concepts of principles governing growth and development of craniofacial region. Students required to present seminars on assigned topics that aid their understanding and analysis of course content that has application to their specific and professional fields. Letter grading.

227. Dental Embryology and Histology. (2) Lecture, two hours. Description and interpretation of important stages in development of orofacial apparatus and histological features of its component tissues. Critique of scientific literature relevant to course content and analysis of current state of knowledge about selected features of orofacial apparatus that are of significance to clinical dental specialists. S/U or letter grading.

228. Dental Pharmacology and Therapeutics. (2) Lecture, three hours. Survey of pharmacology, with particular emphasis on how drugs interact with dentistry. General principles of drug action and drug effects on autonomic and central nervous systems. S/U or letter grading.

229A. Culture, Ethnicity, and Health: Implications for Oral Biology and Medicine. (2) Seminar, one hour; discussion, one hour. Examination of sociocultural, biological, and linguistic anthropology to understand factors that influence health and well-being, experience and distribution of illness, prevention and treatment of sickness, healing processes, social relations of therapy management, and cultural importance and utilization of pluralistic medical systems. Theory, perspectives, and methods from clinical medicine, public health, epidemiology, demography, and social sciences. Letter grading.

229B. Anthropological Perspectives on Global Health: Implications for Oral Biology and Medicine. (2) Seminar, one hour; discussion, one hour. What factors determine health, illness, and disease in global context, including political ecology of infectious diseases, child health issues, women's health and reproductive health, global trade in legal and illegal drugs, demography and health transition, structural adjustment, problems associated with globalization of pharmaceutical industry; antibiotic resistance, and globalization and health equity. Letter grading.

234. Seminar: Developmental Neuroendocrineimmunology. (2) Seminar, two hours. Designed for graduate students. Psychological and physiological processes intertwine, and one important aspect of psychoneuroimmunological research is characterization of mechanisms that underlie these interactions. Examination of current literature on neuroimmune interaction from developmental perspective. S/U or letter grading.

M256. Interdisciplinary Response to Infectious Disease Emergencies: Dentistry Perspective. (4) (Same as Community Health Sciences M256, Medicine M256, and Nursing M298.) Lecture, three hours; discussion, one hour. Designed to instill in professional students ideas of common emergency health problems and coordinated response, with specific attention to bioterrorism. Examination of tools to help students prevent, detect, and intervene in infectious disease emergencies. Interdisciplinary sessions also attended by students in Schools of Medicine, Nursing, and Public Health during weeks two through five. Letter grading.

260. Oral Biology Seminar. (1) Seminar, one hour. Discussion of peer-reviewed literature readings in basic sciences related to oral biology. S/U grading.

273. Research in Clinical Immunology and Lymphology. (2) Lecture, one hour; discussion, one hour. Forum for discussion of cutting-edge topics in immunology and lymphology from clinical perspective. Emphasis on immune surveillance and lymphatic drainage of oral pathologies associated with AIDS and other diseases. Letter grading.

275. Molecular and Cell Biology for Oral Biology Graduate Students. (3) Lecture, two hours; literature review, one hour. Advanced course on prokaryotic and eukaryotic molecular and cell biology, with emphasis on applications in dental research. Letter grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U or letter grading.

597. Preparation for PhD Qualifying Examinations. (4 to 8) Tutorial, to be arranged. S/U or letter grading.

598. Thesis Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for and Preparation of PhD Dissertation. (4 to 8) Tutorial, to be arranged. S/U or letter grading.

ORTHOPAEDIC SURGERY

David Geffen School of Medicine

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Chairs

Jeffrey J. Eckardt, MD (*Helga and Walter Oppenheimer Endowed Professor of Orthopaedic Oncology*), Chair
John S. Adams, MD, Vice Chair, Research
Sharon L. Hame, MD, Director, Medical Student Education

Scope and Objectives

The medical student program in the Department of Orthopaedic Surgery is designed to provide experience in understanding the diagnosis and management of disorders of the musculoskeletal system. Through a combination of didactic instruction and supervised clinical experience, students acquire the clinical skills of history taking and physical examination of the musculoskeletal system. Diagnosis and orthopaedic management of bone and soft tissue trauma, skeletal development defects, tumor, spinal disorders, hand and foot disorders, and arthritis are primary objectives. Third-year students work in ambulatory clinics and on inpatient services during their core surgical clerkship. Fourth-year electives provide the opportunity for in-depth experience on rotations at the Reagan UCLA Medical Center and affiliated institutions and emphasize subspecialties such as joint replacement, sports medicine, orthopaedic oncology, metabolic bone disorders, hand and foot surgery, spinal surgery, and pediatric orthopaedics.

For further details on the Department of Orthopaedic Surgery and a listing of the courses offered, contact the Education Office at 310-825-6557 or see <http://ortho.ucla.edu>.

Orthopaedic Surgery Upper Division Course

199. Directed Research in Orthopaedic Surgery. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

PATHOLOGY AND LABORATORY MEDICINE

David Geffen School of Medicine

UCLA

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<http://pathology.ucla.edu/body.cfm?id=398>

Jonathan Braun, MD, PhD, Chair

Professors

Sophia K. Apple, MD
Luciano Barajas, MD, *in Residence*
Linda G. Baum, MD, PhD
Scott W. Binder, MD (*Pritzker Family Endowed Professor of Pathology*)
Jonathan Braun, MD, PhD
David S. Chia, PhD
Gary M. Crooks, MD (*Rebecca Smith Professor of Molecular and Cellular Pathology*)
Kenneth A. Dorshkind, PhD
Thomas A. Drake, MD, *in Residence*
Samuel W. French, MD, *in Residence*
Tomas Ganz, MD, PhD
Ben J. Glasgow, MD (*Wasserman Professor of Ophthalmology*)
Wayne W. Grody, MD, PhD
Cynthia C. Nast, MD
Scott D. Nelson, MD
Jian Yu Rao, MD
Elaine F. Reed, PhD, *in Residence* (*Daljit S. and Elaine Sarkaria Endowed Professor of Diagnostic Medicine*)
Jonathan W. Said, MD
Robert H. Schiestl, PhD
Michael A. Teitell, MD, PhD (*Lya and Harrison Latta Endowed Professor of Pathology*)
James G. Tidball, PhD
Peter J. Tontonoz, MD, PhD
David M. Underhill, PhD, *in Residence*
Harry V. Vinters, MD
Hanlin L. Wang, MD, PhD
Haodong Xu, MD, PhD, *in Residence*
William H. Yong, MD

Professors Emeriti

Anthony M. Adinolfi, PhD
Marcel A. Baluda, PhD
Judith A. Berliner, PhD
Pasquale A. Cancilla, MD
Michael J. Cecka, PhD
Alistair J. Cochran, MD
Walter F. Coulson, MD
Rita B. Effros, PhD
Michael C. Fishbein, MD, *in Residence* (*Frances and Albert Piansky Professor Emeritus of Anatomy*)
Richard A. Gatti, MD (*Rebecca Smith Professor Emeritus of A-T Research*)
Oliver Hankinson, PhD
Paul I. Liu, MD
Xin Liu, MD, PhD
Joseph M. Mirra, MD
Faramarz Naeim, MD

Robert K. Nieberg, MD
 Donald E. Paglia, MD
 Lawrence D. Petz, MD
 David D. Porter, MD
 Dennis Rodgerson, PhD
 Nora Rozengurt, DVM, PhD
 George S. Smith, MD
 Mitsuo T. Takasugi, PhD
 Julien L. Van Lancker, MD
 Elizabeth A. Wagar, MD

Associate Professors

David W. Dawson, MD, PhD, *in Residence*
 Samuel Wheeler French, Jr., MD, PhD, *in Residence*
 Dinesh S. Rao, MD, PhD

Assistant Professors

Maria I. Cobos Sillero, MD, PhD
 Kimberly A. Mislick, MD
 Bogdan Pasanuic, PhD
 Q. Jennifer Zhang, PhD

Adjunct Professors

David W. Gjertson, PhD
 Joseph M. Miller, PhD
 M. Elena Stark, MD, PhD
 Robert B. Trelease, PhD

Adjunct Associate Professors

Christina A. Ghiani, PhD
 Madhuri Wadehra, PhD, *in Residence*

Adjunct Assistant Professors

Bita Behjatnia, MD
 Joel A. Gamo, MD
 James P. Lister, PhD
 Stephen P. Schettler, PhD

Scope and Objectives

Pathology is the branch of medicine concerned with the causes and development of disease. The goal of the cellular and molecular pathology (CMP) graduate program is to provide students with the knowledge to integrate findings at the molecular, cellular, and systemic levels to understand the causes and progression of disease.

Coursework is designed so that students gain an in-depth knowledge of cell and molecular biology, genetics, and disease mechanisms. Didactic instruction is complemented by participation in seminars and training in the design and execution of original laboratory research. As a result, graduates obtain the expertise to translate and answer questions defined in the clinical area to the laboratory bench and vice versa. See <http://pathology.ucla.edu/body.cfm?id=398> for more information.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Pathology and Laboratory Medicine offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Cellular and Molecular Pathology. Applicants interested in studying with faculty in the department are encouraged to apply to an appropri-

ate home area in Graduate Programs in Bioscience. See <http://bioscience.ucla.edu>.

Pathology and Laboratory Medicine

Upper Division Courses

110. Introduction to Cytogenetics. (4) Lecture, one hour; discussion, two hours. Limited to upper division biology students. Cytogenetics is branch of genetics concerned with study of structure and function of cells, especially chromosomes. Coverage of broad range of topics on both clinical aspects and research in cytogenetics. Studies provide important paradigms to understand structure of chromosomes, mechanisms of chromosome segregation, diseases, and problems created for numerical and structural abnormalities of human chromosomes as well as study of new techniques in molecular cytogenetics, including fluorescence *in situ* hybridization (FISH), comparative genomic hybridization (CGH), and array CGH to diagnose constitutional syndromes and cancer. Journal club sessions include discussion of two journal articles per meeting (one clinical and one basic/translational). Presentation of at least one journal article and leading of one group discussion required. Letter grading.

199. Directed Research in Pathology. (2 to 4) Tutorial, 10 hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

207. Gross and Developmental Anatomy for Graduate Students. (12) Lecture/laboratory, three four-hour sessions (16-week semester). Gross anatomy, embryology, and radiological anatomy of human body as taught by lectures, demonstrations, and dissections. Trunk and extremities; head and neck. Letter grading.

M215. Interdepartmental Course: Tropical Medicine. (2) (Same as Medicine M215 and Pediatrics M215.) Lecture, two and one half hours. Preparation: basic courses in microbiology and parasitology of infectious diseases in School of Medicine or Public Health. Study of current knowledge about diseases prevalent in tropical areas of world. Major emphasis on infectious diseases, with coverage of problems in nutrition and exotic noninfectious diseases. Syllabus supplements topics covered in classroom. S/U or letter grading.

222. Hematopoiesis: Basic Biology and Clinical Implications. (4) Lecture, three hours; discussion, one hour. Senior undergraduate students considered on case by case basis. In-depth study of concepts and paradigms in hematopoietic development. Mammalian hematopoiesis and normal development, with focus on molecular regulation of cellular development and equal emphasis on conceptual and experimental aspects of knowledge in field. Discussion of important pathological states within hematopoietic system, as well as established and novel avenues for therapy. Topics include hematopoietic stem cells and niche, transcriptional and epigenetic regulation of hematopoiesis, B- and T-lymphocyte development, myeloid, erythroid, and platelet development, immune responses, myeloid and lymphoid neoplasia, and bone marrow transplantation/gene therapy. S/U or letter grading.

M229. Molecular Mechanisms of Host/Pathogen Interaction. (4) (Same as Microbiology M229.) Lecture, two hours; discussion, two hours. Requisites: Biological Chemistry 254A through 254D. Molecular mechanisms of microbial interactions with eukaryotic host cells that result in disease or pathogen survival. Topics include pathogenesis of common viruses, bacte-

teria, fungi, and parasites, basis of toxin-mediated cellular damage, and immune suppression of microbial tissue damage. Letter grading.

M237. Cellular and Molecular Basis of Disease. (4) (Same as Biological Chemistry M237.) Lecture, two hours; laboratory, two hours. Preparation: one course each in molecular biology, cell biology, and biological chemistry. Discussion of key issues in disease mechanisms, with emphasis on experiments leading to understanding of these mechanisms. Identification of important questions still remaining unanswered. Letter grading.

238. Histology and Pathology for Graduate Students. (2) Laboratory, two hours. Designed for UCLA ACCESS or Cellular and Molecular Pathology PhD students. Basic introductory knowledge of normal tissue, pathologic processes, and animal models as observed by light microscopy. Letter grading.

240. Transplantation Immunology from Benchside to Bedside. (4) Lecture, three hours; laboratory, one hour. Preparation: knowledge of basic immunology. Limited to graduate students. New developments in organ transplantation, updates on basic science of immune mechanisms, integration of basic science principles with clinical practice. Letter grading.

M255. Mapping and Mining Human Genome. (3) (Same as Human Genetics M255.) Lecture, three hours. Basic molecular genetic and cytogenetic techniques of gene mapping. Selected regions of human genomic map scrutinized in detail, particularly gene families and clusters of genes that have remained linked from mouse to human. Discussion of localizations of disease genes. S/U or letter grading.

256. Seminar: Viral Oncology. (2) Seminar, two hours. Advanced research seminar designed to consider current developments in field. Selection of current subjects and publications dealing with tumor viruses, oncogenesis, development, and cellular regulation. S/U or letter grading.

M257. Introduction to Toxicology. (4) (Same as Pharmacology M257.) Requisite: Pharmacology M241. Biochemical and systemic toxicology, basic mechanisms of toxicology, and interaction of toxic agents with specific organ systems.

M258. Pathologic Changes in Toxicology. (4) (Same as Pharmacology M258.) Designed to give students experience in learning normal histology of tissues which are major targets of toxin and the range of pathologic changes that occur in these tissues (liver, bladder, lung, kidney, nervous system, and vascular system).

M259. Molecular Nutrition and Genetics Epidemiology of Obesity and Diabetes. (4) (Same as Epidemiology M258.) Lecture, four hours. Preparation: basic biochemistry, epidemiology, molecular biology, physiology, and statistics courses. Survey of entire landscape of nutritional, biochemical, and genetic aspects of obesity and diabetes and their microvascular and macrovascular complications. Review of descriptive and analytical epidemiology of these seemingly distinct yet clearly clustered disorders, including so-called metabolic syndrome. Study of distributions and determinants of these disorders in Westernized populations to appreciate how and why these epidemics occurred. Through case studies students learn process of generating etiologic hypotheses that can be tested using modern molecular epidemiologic methods. Techniques and principals of molecular genetics relevant to epidemiologic studies. Analysis of real data sets that include both genotype and phenotype information, with emphasis on examination of various gene/environment interactions. S/U or letter grading.

260. Immunopathology. (4) Lecture, two hours; discussion, one hour; laboratory, one hour. Requisite: Microbiology 261. Advanced information for graduate and advanced undergraduate students regarding immune system anatomy, lymphocytic development, acute and chronic inflammation, hypersensitivity, and autoimmunity. Letter grading.

262. Cytogenetics and Genomics. (3) Lecture, three hours. Comprehensive guide so students gain sufficient knowledge in conventional and state-of-art cy-

togenetic and genomic principles and techniques and their utility in clinical and research applications. Focus on relationship between various chromosomal and genomic abnormalities in humans as identified by basic and advanced technologies such as fluorescence in situ hybridization (FISH), chromosomal microarray analysis (CMA), and next-generation sequencing (NGS). All aspects of molecular cytogenetics and cytogenomics through didactic teaching sessions, journal clubs, and interactive discussions. S/U or letter grading.

270. Basic and Clinical Aspects of Developmental Hematology. (4) Lecture, two hours. Graduate- and postgraduate-level course that covers broad range of topics in both basic and clinical aspects of developmental hematology. Pediatric hematologic disorders provide important paradigm to study other developmental systems. Subjects include hematopoiesis, basic stem cell biology, angiogenesis, alternative models to study developmental hematology (zebrafish and *Drosophila*), basic physiology of normal and abnormal red cells, platelets, and white cells, leukemogenesis and novel therapeutics to treat leukemia, basic and clinical stem cell transplantation, state-of-the-art methods in developmental hematology (genomics, proteomics, and gene therapy, design of clinical trials, and biomathematical modeling and statistics in developmental hematology. Letter grading.

M272. Stem Cell Biology and Regenerative Medicine. (4) (Same as Molecular, Cell, and Developmental Biology M272.) Lecture, two hours; discussion, two hours. Designed for graduate students. Presentation of current knowledge of embryonic and adult stem cells and factors that regulate their growth and development. Major emphasis on how advances in cell and molecular biology and tissue engineering can be applied to use of stem cells in regenerative medicine. Bioethical and legal issues related to stem cell research. S/U or letter grading.

280. Clinical Aspects and Molecular Biology of Bone Marrow Failure Syndromes. (4) Lecture, two hours. Limited to graduate students. Coverage of broad range of topics on both clinical aspects and molecular pathogenesis of bone marrow failure syndromes. Studies provide important paradigms to understand fundamental mechanisms of human disease in addition to normal and abnormal blood cell development. Topics include basic biology and clinical features of aplastic anemia, myelodysplastic syndromes, Diamond Blackfan Anemia, Schwachman Diamond Syndrome, Fanconi Anemia, Dyskeratosis Congenita, Paroxysmal Nocturia Hemoglobinuria, flow cytometry, and research approaches to study bone marrow failure syndromes. Journal club sessions include discussion of two journal articles per meeting—one clinical and one basic/translational. Students present at least one journal article and lead group discussion. S/U or letter grading.

294. Basic Concepts in Oncology. (4) Lecture, three hours. Fundamental biological, genetic, and molecular process involved in genesis and growth of cancer cells and diagnosis, characterization, and treatment of cancer. Letter grading.

296. Research Topics in Pathology. (1 to 2) Research group meeting, one to two hours. Limited to departmental graduate students. Advanced study and analysis of current topics in pathology. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

298A-298D. Current Research in Disease Mechanisms. (2 each) Lecture, 90 minutes. Preparation: one course each in molecular biology, cell biology, and biological chemistry. Designed for graduate experimental pathology students. Current research in disease mechanisms, with strong emphasis on experimental approach in pathology. Topics include genetic and metabolic disorders, thyroid disease, immunology, atherosclerosis, infectious diseases, and Alzheimer's disease. S/U or letter grading.

596. Directed Individual Study or Research. (4 to 12) Tutorial, to be arranged. Individual research with members of the staff or of other departments, the latter for purpose of supplementing programs available in department. S/U grading.

597. Preparation for Qualifying Examinations. (2 to 8) Tutorial, to be arranged. Preparation: one year of pathology coursework. Individual study for qualifying examinations. S/U grading.

599. Preparation of PhD Dissertation. (2 to 12) Tutorial, to be arranged. Preparation: completion of qualifying examinations and majority of PhD research. Writing and completion of dissertation. S/U grading.

PEDIATRICS

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Chairs

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Thomas S. Klitzner, MD, PhD (*Jack H. Skirball Professor of Pediatrics*), *Executive Vice Chair, Academic Affairs and Advocacy*

Carlos F. Lerner, MD, *Vice Chair, Clinical Affairs*

Kathy L. Perkins, MD, *Vice Chair, Education*

Peter G. Szilagyi, MD, MPH, *Vice Chair, Research*

Richard Findlay, MD, *Vice Chair, Drew University*

Adam J. Jonas, MD, *Vice Chair, Harbor-UCLA*

Shannon Thyne, MD, *Vice Chair, Olive View-UCLA*

Charles F. Simmons, Jr., MD, *Vice Chair, Cedars-Sinai*

Paul A. Krogstad, MD, PhD, *Associate Vice Chair, Academic Affairs*

Deborah Lehman, MD, *Associate Vice Chair, Education*

Andranik Madikians, MD, *Associate Vice Chair, Clinical Affairs*

Martin G. Martin, MD, MPP, *Associate Vice Chair, Translational Research*

Scope and Objectives

The Department of Pediatrics has faculty members at seven teaching hospitals: Mattel Children's Hospital UCLA and Olive View-UCLA, Harbor-UCLA, Cedars-Sinai, and Santa Monica-UCLA Medical Centers, Venice Family Clinic, and Kaiser-Sunset. For second-year medical students, the fundamentals of pediatric history and physical examination are taught at all sites as part of the pediatric clinical skills course.

For third-year medical students, the required six-week clinical clerkship in pediatrics is offered at the following four sites: a combined experience at Mattel/Olive View-UCLA and Santa Monica-UCLA, Cedars-Sinai Medical Center, Harbor-UCLA, and Kaiser-Sunset. For fourth-year medical students, in-depth subspecialty electives offered by the Department of Pediatrics are listed in the *School of Medicine Handbook of Clinical Courses*, as are advanced clinical clerkships.

For further details on the Department of Pediatrics and a listing of the courses offered, see <https://www.uclahealth.org/Mattel/Pages/research-and-education.aspx>.

Pediatrics

Upper Division Course

199. Directed Research in Pediatrics. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Course

M215. Interdepartmental Course: Tropical Medicine. (2) (Same as Medicine M215 and Pathology M215.) Lecture, two and one half hours. Preparation: basic courses in microbiology and parasitology of infectious diseases in School of Medicine or Public Health. Study of current knowledge about diseases prevalent in tropical areas of world. Major emphasis on infectious diseases, with coverage of problems in nutrition and exotic noninfectious diseases. Syllabus supplements topics covered in classroom. S/U grading.

PHARMACOLOGY

See Molecular and Medical Pharmacology

PHILOSOPHY

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Seana Shiffrin, PhD, *Chair*

Professors

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John P. Carriero, PhD

Brian P. Copenhagen, PhD (*Steven F. and Christine L. Udvar-Hazy Professor*)

Mark D. Greenberg, JD, DPhil

Barbara Herman, MA, PhD (*Gloria and Paul Griffin Professor of Philosophy*)

Pamela Hieronymi, PhD

David B. Kaplan, PhD (*Hans Reichenbach Professor of Scientific Philosophy*)

Gavin Lawrence, DPhil

Calvin G. Normore, PhD

Seana Shiffrin, JD, DPhil

Sheldon R. Smith, PhD

Professors Emeriti

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Robert Merrihew Adams, PhD

Joseph Almog, DPhil

Donald A. Martin, BS

Herbert Morris, LLB, DPhil

Terence D. Parsons, PhD

Associate Professors

Samuel J. Cumming, PhD

Alexander J. Julius, PhD

Assistant Professors

Joshua D. Armstrong, PhD

Adam D. Crager, PhD

Daniela J. Dover, PhD

Katrina J. Elliott, PhD

Gabriel J. Greenberg, PhD

Lecturer

Andrew Hsu, PhD

Scope and Objectives

Philosopher, translated from the Greek, means lover of wisdom. The term has come to mean someone who seeks knowledge, enlightenment, and truth. The Department of Philosophy undergraduate program is not directed at career objectives (although it is traditionally good preparation for law, theology, and graduate work in philosophy). Philosophy is taught to undergraduate students primarily as a contribution to their liberal education. All of the lower and most of the upper division course offerings should be of interest and useful to students who are reflective about their beliefs or who wish to become so. It also provides the occasion to ponder the foundations of almost any other subject to which they are exposed—whether history, religion, government, law, or science.

The principal goal of the graduate program is to produce philosophers of high quality, thinkers informed by the great historical traditions of Western philosophers who can apply the methods of philosophical analysis to a broad range of current philosophical problems. Since all its graduate students hope to teach at the college or university level, the department is also committed to training clear, able, and stimulating teachers.

The department offers programs leading to the Bachelor of Arts and PhD degrees.

Undergraduate Study**Philosophy BA****Preparation for the Major**

Required: Four lower division courses, including Philosophy 7 or 21, 22, 31, and one other lower division philosophy course.

Transfer Students

Transfer applicants to the Philosophy major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one philosophy of mind or skepticism and rationality course, one ethical theory course, one symbolic logic course, and one additional philosophy course.

Refer to the UCLA Transfer Admission Guide at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Thirteen upper division (100 series) or graduate (200 series) philosophy courses (52 units), including Philosophy 100A, 100B, 100C. Seven of the 13 courses must be distributed among the groups into which the undergraduate and graduate courses are divided—history of philosophy; logic, semantics and philosophy of science; ethics and value theory; and metaphysics and epistemology. Students must take two courses in each of three of the groups and one course in the remaining group.

Contract courses (199) may be applied toward the major but not toward a group requirement. A maximum of 8 units of course 199 may be applied toward the major but not toward a group requirement. Courses 100A, 100B, 100C may not be applied toward any group requirement. No course used to satisfy the major or preparation requirements may be taken on a P/NP basis.

Students intending to do graduate work in philosophy should consult both the graduate and undergraduate advisers.

Honors Program**Admission**

To be admitted to the honors program, students must have taken at least three upper division philosophy lecture or seminar courses at UCLA with an overall grade-point average of 3.7.

Requirements

To be awarded honors in philosophy at graduation, Philosophy majors must (1) have a 3.7 grade-point average in UCLA philosophy courses and a 3.7 GPA in upper division UCLA philosophy courses; (2) satisfy the honors directed study requirement by taking Philosophy 198A and 198B in conjunction (usually, but not necessarily concurrently) with two different regular upper division philosophy courses supervised by the instructors of those courses; and (3) receive a grade of A- or better in each course applied toward satisfaction of the honors requirement.

Students may substitute Philosophy 191 for either course 198A or 198B or, alternatively, may complete up to two philosophy graduate seminars in lieu of courses 198A and/or 198B. For an undergraduate or graduate seminar to be applied toward the honors directed study requirement, the consent of both the seminar instructor and the faculty honors adviser is required in advance. Students may also substitute up to one 4-unit Philosophy 199 course in which they produce a substantial paper that represents an original piece of research or its equivalent.

Exceptional work done to satisfy the honors requirement may be submitted to the department chair for consideration for highest honors.

Philosophy Minor

To enter the Philosophy minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (8 units): Philosophy 7 or 21, and 22 or 31.

Required Upper Division Courses (24 units): Five courses, including at least one from each of three of the four groups into which the undergraduate and graduate courses are divided (Philosophy 100A, 100B, 100C apply toward Group I); one additional upper or lower division philosophy course.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Philosophy offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Philosophy. A concurrent degree program (Philosophy PhD/Law JD) is also offered.

Philosophy**Lower Division Courses**

1. Beginnings of Western Philosophy. (5) Lecture, three hours; discussion, one hour. Origins of Greek cosmology and philosophy, beginnings of systematic thought and scientific investigation concerning such questions as origin and nature of the material world, concept of laws of nature, possibility and extent of knowledge. Concentration on pre-Socratic philosophers, particularly Anaximander, Heraclitus, the Pythagoreans, Parmenides, Empedocles, and Greek atomists, during first two thirds of course and on Socrates and some earlier works of Plato in last few weeks. P/NP or letter grading.

2. Introduction to Philosophy of Religion. (5) Lecture, four hours; discussion, one hour. Introductory study of such topics as nature and grounds of religious belief, relation between religion and ethics, nature and existence of God, problem of evil, and what can be learned from religious experience. P/NP or letter grading.

3. Historical Introduction to Philosophy. (5) Lecture, three hours; discussion, two hours. Historical introduction to Western philosophy based on classical texts dealing with major problems, related thematically and studied in chronological order: properties of rational argument, existence of God, problem of knowledge, nature of causality, relation between mind and body, possibility of justice, and others. P/NP or letter grading.

4. Philosophical Analysis of Contemporary Moral Issues. (5) Lecture, three hours; discussion, one hour. Critical study of principles and arguments advanced in discussion of current moral issues. Possible topics include revolutionary violence, rules of warfare, sexual morality, right of privacy, punishment, nuclear warfare and deterrence, abortion and mercy killing, experimentation with human subjects, rights of women. P/NP or letter grading.

5. Philosophy in Literature. (5) Lecture, three hours; discussion, one hour. Philosophical inquiry into such themes as freedom, responsibility, guilt, love, self-knowledge and self-deception, death, and meaning of life through examination of great literary works in Western tradition. P/NP or letter grading.

6. Introduction to Political Philosophy. (5) Lecture, three hours; discussion, one hour. Study of some classical or contemporary works in political philosophy. Questions that may be discussed include What is justice? Why obey the law? Which form of government is best? How much personal freedom should be allowed in society? P/NP or letter grading.

7. Introduction to Philosophy of Mind. (5) Lecture, three hours; discussion, one hour. Introductory study of philosophical issues about nature of the mind and its relation to the body, including materialism, functionalism, behaviorism, determinism and free will, nature of psychological knowledge. P/NP or letter grading.

8. Introduction to Philosophy of Science. (5) Lecture, three hours; discussion, one hour. Study of selected problems concerning the character and reliability of scientific understanding, such as nature of scientific theory and explanation, reality of theoretical entities, inductive confirmation of hypotheses, and occurrence of scientific revolutions. Discussion at nontechnical level of episodes from history of science. P/NP or letter grading.

9. Principles of Critical Reasoning. (4) Nature of arguments: how to analyze them and assess soundness of the reasoning they represent. Common fallacies that often occur in arguments discussed in light of what counts as a good deductive or inductive inference. Other topics include use of language in argumentation to arouse emotions as contrasted with conveying thoughts, logic of scientific experiments and hypothesis-testing in general, and some general ideas about probability and its application in making normative decisions (e.g., betting).

21. Skepticism and Rationality. (5) Lecture, four hours; discussion, one hour. Can we know anything with certainty? How can we justify any of our beliefs? Introduction to study of these and related questions through works of some great philosophers of modern period, such as Descartes, Hume, Leibniz, or Berkeley. P/NP or letter grading.

22. Introduction to Ethical Theory. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 22W. Recommended or required for many upper division courses in Group III. Systematic introduction to ethical theory, including discussion of egoism, utilitarianism, justice, responsibility, meaning of ethical terms, relativism, etc. P/NP or letter grading.

22W. Introduction to Ethical Theory. (5) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Limited to freshmen/sophomores. Not open for credit to students with credit for course 22. Introduction to major ethical theories in Western thought. Examination of works of Plato, Aristotle, Hume, Kant, and Mill. Topics include ideas of virtue, obligation, egoism, relativism, and foundations of morals. Four papers required. Satisfies Writing II requirement. Letter grading.

23. Meaning and Communication. (5) Lecture, three hours; discussion, one hour. Theory of meaning and its relationship to philosophy more generally; nature, origins, and acquisition of language. Additional topics may include nonlinguistic and nonhuman systems of communication; theories of interpretation in law, literature, and art; use of theoretical terms in science. P/NP or letter grading.

31. Logic, First Course. (5) Lecture, four hours; discussion, one hour. Recommended for students who plan to pursue more advanced studies in logic. Elements of symbolic logic, sentential and quantificational; forms of reasoning and structure of language. P/NP or letter grading.

97. Freshman Seminar. (4) Variable topics; consult Schedule of Classes or "Department Announcements" for topics to be offered in a specific term. May be repeated for credit with consent of instructor.

Upper Division Courses

100A. History of Greek Philosophy. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Survey of origins of Greek metaphysics from pre-Socratics through Plato and Aristotle. P/NP or letter grading.

100B. Medieval and Early Modern Philosophy. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Strongly recommended requisite: course 100A. Survey of development and

transformation of Greek metaphysics and epistemology within context of philosophical theology, and transition from medieval to early modern period. Special emphasis on Augustine, Anselm, Aquinas, and Descartes. P/NP or letter grading.

100C. History of Modern Philosophy, 1650 to 1800. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Strongly recommended requisite: course 100B. Courses 100A, 100B, and 100C should be taken in immediately successive terms if possible. Survey of development of metaphysics and theory of knowledge from 1650 to 1800, including Locke and/or Berkeley, Malebranche and/or Leibniz, and culminating in Hume and Kant. Topics may include views of these (and perhaps other) philosophers of the period on mind and body, causality, existence of God, skepticism, empiricism, limits of human knowledge, and philosophical foundations of modern science. P/NP or letter grading.

Group I: History of Philosophy

M101A. Plato—Earlier Dialogues. (4) (Same as Classics M146A.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected topics in early and middle dialogues of Plato. P/NP or letter grading.

M101B. Plato—Later Dialogues. (4) (Same as Classics M146B.) Lecture, three hours; discussion, one hour. Requisite: course M101A. Study of selected topics in middle and later dialogues of Plato. P/NP or letter grading.

M102. Aristotle. (4) (Same as Classics M147.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected works of Aristotle. P/NP or letter grading.

M103A. Ancient Greek and Roman Philosophy. (4) (Same as Classics M145A.) Lecture, three hours. Study of some major Greek and Roman philosophical texts, including those of pre-Socratics, Plato, Aristotle, and Hellenistic philosophers, with emphasis on historical and cultural setting of texts, their literary form, interrelations, and contribution to discussion of basic philosophical issues. P/NP or letter grading.

M103B. Later Ancient Greek Philosophy. (4) (Same as Classics M145B.) Lecture, three hours. Preparation: one course from 1, 100A, M101B, M102, or M103A. Study of some major texts in Greek philosophy of Hellenistic and Roman periods. Readings vary and include works by Stoics, skeptics, philosophers of science, Neoplatonists, etc. P/NP or letter grading.

104. Topics in Islamic Philosophy. (4) Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Development of Muslim philosophy in its great age (from Kindo to Averroes, 850 to 1200), considered in connection with Muslim theology and mysticism. May be repeated for credit with consent of instructor. P/NP or letter grading.

105. Medieval Philosophy from Augustine to Maimonides. (4) Preparation: one philosophy course. Development of early medieval philosophy within framework of Judeo-Christian theology and its assimilation and criticism of Greek philosophical heritage. Focus on problem of universals, existence and nature of God, problem of evil, and doctrines of the Trinity and atonement. Selected writings from Augustine through Maimonides read in English translation.

106. Later Medieval Philosophy. (4) Preparation: one philosophy course. Metaphysics, theory of knowledge, and theology of Aquinas, Duns Scotus, and Ockham, with less full discussion of other authors from the 13th through early 15th century. Selected texts read in English translation.

107. Topics in Medieval Philosophy. (4) Lecture, four hours; discussion, one hour. Preparation: one philosophy course. Recommended requisite: course 105 or 106. Study of philosophy and theology of one medieval philosopher such as Augustine, Anselm, Abelard, Aquinas, Scotus, or Ockham, or study of one single area such as logic or theory of knowledge in

several medieval philosophers. Topic announced each term. May be repeated for credit with consent of instructor. P/NP or letter grading.

C108. Hobbes. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Hobbes' political philosophy, especially *Leviathan*, with attention to its relevance to contemporary political philosophy. May be concurrently scheduled with course C208. P/NP or letter grading.

C109. Descartes. (4) Lecture, four hours; discussion, one hour. Requisites: course 21 or two philosophy courses. Study of works of Descartes, with discussion of issues such as problem of skepticism, foundations of knowledge, existence of God, relation between mind and body, and connection between science and metaphysics. May be concurrently scheduled with course C209. P/NP or letter grading.

C110. Spinoza. (4) Lecture, three hours; discussion, one hour. Requisite: course 21. Study of philosophy of Spinoza. May be concurrently scheduled with course C210, in which case there is weekly discussion meeting, plus fewer readings and shorter papers for undergraduates. Limited to 30 students when concurrently scheduled. P/NP or letter grading.

C111. Leibniz. (4) Lecture, three hours; discussion, one hour. Requisite: course 21. Study of philosophy of Leibniz. May be concurrently scheduled with course C211, in which case there is weekly discussion meeting, plus fewer readings and shorter papers for undergraduates. Limited to 30 students when concurrently scheduled. P/NP or letter grading.

C112. Locke and Berkeley. (4) Lecture, four hours. Preparation: one philosophy course. Study of philosophies of Locke and Berkeley, with emphasis in some cases on one or the other. Limited to 30 students when concurrently scheduled with course C212. P/NP or letter grading.

C114. Hume. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Selected topics from metaphysical, epistemological, and ethical writings of Hume. Limited to 40 students when concurrently scheduled with course C214. P/NP or letter grading.

C115. Kant. (4) Lecture, three hours; discussion, one hour. Requisite: course 21 or 22. Study of Kant's views on related topics in theory of knowledge, ethics, and politics. May be repeated for credit with consent of instructor. Concurrently scheduled with course C215. P/NP or letter grading.

116. 19th-Century Philosophy. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Selected topics in 19th-century thought.

117. Late 19th- and Early 20th-Century Philosophy. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Selected topics in work of one or more of following philosophers: Bolzano, Frege, Husserl, Meinong, G. Moore, early Russell, and Wittgenstein. May be repeated for credit with consent of instructor.

118. Kierkegaard. (4) Preparation: one philosophy course. Philosophical study of some major works of Kierkegaard, with emphasis on interpretation of the texts.

C119. Topics in Modern Philosophy. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Selected topics in one or more philosophies of early modern period, or study in single area such as theory of knowledge or metaphysics in several philosophies. May be repeated for credit with consent of instructor. Concurrently scheduled with course C219. P/NP or letter grading.

Group II: Logic, Semantics, and Philosophy of Science

124. Philosophy of Science: Historical. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Historical introduction to philosophy of science. Several general topics discussed in context of actual episodes in development of natural sciences. May be repeated for credit with consent of instructor.

125. Philosophy of Science: Contemporary. (4) Lecture, three hours; discussion, one hour. Requisite: course 31 or 124. Introduction to contemporary philosophy of science, focusing on problems of central importance. May be repeated for credit with consent of instructor.

126. Philosophy of Science: Social Sciences. (4) Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. Discussion of topics in philosophy of social sciences (e.g., methods of social sciences in relation to physical sciences, value-bias in social inquiry, concept formation, theory construction, explanation and prediction, nature of social laws).

C127A. Philosophy of Language. (4) (Formerly numbered 127A.) Lecture, four hours; discussion, one hour. Enforced requisite: course 31. Syntax, semantics, pragmatics. Semantical concept of truth, sense and denotation, synonymy and analyticity, modalities and tenses, indirect discourse, indexical terms, semantical paradoxes. May be repeated for credit with consent of instructor. Concurrently scheduled with course C228A. P/NP or letter grading.

C127B. Philosophy of Language. (4) (Formerly numbered 127B.) Lecture, four hours; discussion, one hour. Requisite: course 31. Course C127A is not requisite to C127B. Selected topics similar to those considered in course C127A, but at more advanced and technical level. May be repeated for credit with consent of instructor. Concurrently scheduled with course C228B. P/NP or letter grading.

C127C. Philosophy of Language. (4) (Formerly numbered 127C.) Lecture, four hours; discussion, one hour. Requisite: course 31. Recommended: course C127A or C127B. Selected topics similar to those considered in course C127B, but with focus on contemporary figures. May be repeated for credit with consent of instructor. Concurrently scheduled with course C228C. P/NP or letter grading.

128A. Philosophy of Mathematics. (4) Lecture, four hours. Requisites: courses 31, 137, and preferably one additional logic course. Philosophy of mathematics; logicism of Frege and Russell, arithmetic reduced to logic; ramified type theory and impredicative definition (Russell, Poincaré, early Weyl). P/NP or letter grading.

128B. Philosophy of Mathematics. (4) Lecture, four hours. Requisite: course 128A. Intuitionism of Brouwer, Heyting, and later Weyl; proof theory of Hilbert. P/NP or letter grading.

129. Philosophy of Psychology. (4) Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one 4-unit psychology course, one philosophy course. Selected philosophical issues arising from psychological theories. Nature of perception and issues about perceptual psychology and development of important types of representation (e.g., of body, cause, agency) in early childhood. Relevance of computer simulation to accounts of thinking and meaning; relations between semantical theory and learning theory; psychological aspects of theory of syntax. May be repeated for credit with consent of instructor. P/NP or letter grading.

130. Philosophy of Space and Time. (4) Lecture, three hours; discussion, one hour. Preparation: two philosophy courses or one philosophy course and one physics course. Selected philosophical problems concerning nature of space and time. Philosophical implications of space-time theories, such as those of Newton and Einstein. Topics may include nature of geometry, conventionalism, absolutist versus relationist views of space and time, philosophical impact of relativity theory.

131. Science and Metaphysics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: two philosophy courses. Recommended: some background in basic calculus and physics. Intensive study of one or two metaphysical topics on which results of modern science have been thought to bear. Topics may include nature of causation, relativity and direction of time, time-travel, backwards causation, realism, determinism, absolute view of space, etc. May be repeated for credit with consent of instructor. P/NP or letter grading.

132. Logic, Second Course. (4) (Formerly numbered 137.) Lecture, four hours; discussion, one hour. Enforced requisite: course 31 (preferably in preceding term). Symbolic logic: extension of systematic development of course 31. Quantifiers, identity, definite descriptions. P/NP or letter grading.

133. Topics in Logic and Semantics. (4) Lecture, four hours; discussion, one hour. Enforced requisite: course 31. Possible topics include formal theories, definitions, alternative theories of descriptions, many-valued logics, deviant logics. May be repeated for credit with consent of instructor. P/NP or letter grading.

M134. Introduction to Set Theory. (4) (Same as Mathematics M114S.) Lecture, three hours; discussion, one hour. Requisite: course 135 or Mathematics 110A or 131A. Axiomatic set theory as framework for mathematical concepts; relations and functions, numbers, cardinality, axiom of choice, transfinite numbers. P/NP or letter grading.

135. Introduction to Metalogic. (4) Lecture, four hours; discussion, one hour. Requisite: course 31. Metatheory sentential logic and first-order logic. Introduction to formal language, formal deductive systems, and models. Compactness and completeness theorems that concern complexity of notion of logical consequences. Letter grading.

136. Modal Logic. (4) Lecture, four hours. Requisite: course 31. First course in two-term sequence (also see course 176). Topics include various normal modal systems, derivability within the systems, Kripke-style semantics and generalizations, Lemmon/Scott completeness, incompleteness in tense and modal logic, quantificational extensions. Letter grading.

137. Philosophy of Biology. (4) (Formerly numbered 132.) Lecture, four hours. Preparation: one philosophy course. Intensive study of one or two current topics in philosophy of biology, which may include structure of evolutionary theory, fitness, taxonomy, reductionism, concept of biological species, and biological explanation. P/NP or letter grading.

Group III: Ethics and Value Theory

150. Society and Morals. (4) Lecture, three hours; discussion, one hour. Requisite: course 22. Critical study of principles and arguments advanced in discussion of current moral and social issues. Topics similar to those in course 4, but familiarity with some basic philosophical concepts and methods presupposed. May be repeated for credit with consent of instructor.

151A-C151B-151C. History of Ethics. (4-4-4) Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. Each course may be taken independently for credit. P/NP or letter grading. **151A.** Selected Classics in Ancient Ethical Theories: Plato, Aristotle; **C151B.** Modern. Intensive study of Kant's ethical theory. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C245; **151C.** Selected Classics of Medieval Ethics.

153A. Topics in Ethical Theory: Normative Ethics. (4) Lecture, three hours; discussion, one hour. Requisite: course 22. Study of selected topics in normative ethical theory. Topics may include human rights, virtues and vices, principles of culpability and praise-worthiness (criteria of right action). May be repeated for credit with consent of instructor. P/NP or letter grading.

C153B. Topics in Ethical Theory: Metaethics. (4) Lecture, three hours; discussion, one hour. Requisite: course 22. Study and analysis of basic concepts, selected problems, and contemporary issues in metaethics. Topics may include analysis of moral language, justification of moral beliefs, moral realism, skepticism, free will, moral motivation, etc. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C253B. P/NP or letter grading.

154. Topics in Value Theory: Rationality and Action. (4) Lecture, three hours; discussion, one hour. Requisite: course 6 or 7 or 22. Selected topics concerning normative issues in practical rationality or phi-

losophy of action. Topics may include moral and practical dilemmas, nature of reasons for action, rationality of morality and prudence, weakness of will, freedom of will, and decision theory. May be repeated for credit with consent of instructor. P/NP or letter grading.

154B. Topics in Value Theory: Moral Responsibility and Free Will. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Examination of philosophical problems surrounding moral responsibility and free will, using contemporary or classical readings in attempt to better understand kind of freedom required for moral agents. May be repeated for credit. P/NP or letter grading.

155. Medical Ethics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Examination of philosophical issues raised by problems of medical ethics, such as abortion, euthanasia, and medical experimentation. May be repeated for credit with consent of instructor. P/NP or letter grading.

C156. Topics in Political Philosophy. (4) Lecture, three hours; discussion, one hour. Analysis of some basic concepts in political theory. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C247. P/NP or letter grading.

157A-157B. History of Political Philosophy. (4-4) Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. May be repeated with consent of instructor. **157A.** Reading and discussion of classic works in earlier political theory, especially those by Hobbes, Locke, Hume, and Rousseau.

157B. Reading and discussion of classic works in later political theory, especially those by Kant, Hegel, and Marx.

161. Topics in Aesthetic Theory. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Philosophical theories about nature and importance of art and art criticism, aesthetic experience, and aesthetic values. May be repeated for credit with consent of instructor.

166. Philosophy of Law. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Examination, through study of recent philosophical writings, of such topics as nature of law, relationship of law and morals, legal reasoning, punishment, and obligation to obey law. May be repeated for credit. P/NP or letter grading.

Group IV: Metaphysics and Epistemology

170. Philosophy of Mind. (4) Lecture, three hours; discussion, one hour. Preparation: two relevant philosophy courses. Analysis of various problems concerning nature of mind and mental phenomena, such as relation between mind and body, and our knowledge of other minds. May be repeated once for credit with consent of instructor.

172. Philosophy of Language and Communication. (4) Lecture, three hours; discussion, one hour. Theories of meaning and communication; how words refer to things; limits of meaningfulness; analysis of speech acts; relation of everyday language to scientific discoveries. P/NP or letter grading.

174. Topics in Theory of Knowledge. (4) Lecture, three hours; discussion, one hour. Requisite: course 182 or 183. Intensive investigation of one or two selected topics or works in theory of knowledge, such as a priori knowledge, problem of induction, memory, knowledge as justified true belief. Topics announced each term. May be repeated for credit with consent of instructor. P/NP or letter grading.

175. Topics in Philosophy of Religion. (4) Lecture, three hours; discussion, one hour. Requisite: course 21 or 22. Intensive investigation of one or two topics or works in philosophy of religion, such as attributes of God, arguments for or against existence of God, or relation between religion and ethics. Topics announced each term. May be repeated for credit with consent of instructor.

176. Metaphysics of Modality. (4) Lecture, four hours. Requisites: courses 31, 132. Highly recommended: course 136. Second course in two-term sequence (also see course 136). Metaphysical foundations of

modal logic and philosophical basis of model theory of modal logic. What are possible worlds? What is accessibility relation? Is modal logic one logic or one theory? Is its focus logical or metaphysical necessity? Are both notions really distinct? How metaphysically involved is (quantified) modal logic? What is its connection to doctrines of (1) Haecceitism and (2) Aristotelian Essentialism? P/NP or letter grading.

177A. Existentialism. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Analysis of methods, problems, and views of some of the following: Kierkegaard, Nietzsche, Heidegger, Jaspers, Sartre, Marcel, and Camus. Possible topics include metaphysical foundations, nature of mind, freedom, problem of self, other people, ethics, existential psychoanalysis. May be repeated for credit with consent of instructor. P/NP or letter grading.

177B. Historical Studies in Existentialism. (4) Preparation: one philosophy course. Study of central philosophical texts of one of the following: Nietzsche, Heidegger, Jaspers, Buber, Sartre, or Camus. Emphasis on explication and interpretation of the texts. May be repeated for credit with consent of instructor.

178. Phenomenology. (4) Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. Introduction to phenomenological method of approaching philosophical problems via works of some of the following: Brentano, Husserl, Heidegger, Scheler, Sartre, Merleau-Ponty, Ricoeur. Topics include ontology, epistemology, and particularly philosophy of mind.

179. Asian Philosophy. (4) Lecture, three hours; discussion, one hour. Examination of central concepts and arguments in Buddhist or Chinese philosophy. Appropriate parallels to social concepts in Western tradition. May be repeated for credit with consent of department. P/NP or letter grading.

180. Philosophy of Action. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: two philosophy courses. Study of various concepts employed in understanding human action. Topics may include rational choice, desire, intention, weakness of will, and self-deception. May be repeated for credit with consent of instructor. P/NP or letter grading.

181. Philosophy of Perception. (4) Lecture, four hours. Preparation: two philosophy courses. Critical study of main philosophical theories of perception and arguments used to establish them. P/NP or letter grading.

182. Elements of Metaphysics. (4) Lecture, three hours; discussion, one hour. Requisite: course 21. Study of basic metaphysical questions; nature of physical world, of minds, and of universals; and answers provided by alternative systems (e.g., phenomenism, materialism, dualism). P/NP or letter grading.

183. Theory of Knowledge. (4) Lecture, three hours; discussion, one hour. Requisite: course 21. Analysis of concept of empirical knowledge. May be repeated for credit with consent of instructor. P/NP or letter grading.

184. Topics in Metaphysics. (4) Lecture, three hours; discussion, one hour. Requisite: course 21. Intensive investigation of one or two topics or works in metaphysics, such as personal identity, nature of dispositions, possibility and necessity, universals and particulars, causality. Topics announced each term. May be repeated for credit with consent of instructor. P/NP or letter grading.

185. Major Philosophers of 20th Century. (4) Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. Study of writings of one or more major modern philosophers (e.g., Russell, Moore, Wittgenstein, Carnap, Quine). May be repeated for credit with consent of instructor. P/NP or letter grading.

Special Studies

M187. Philosophical Analysis of Issues in Feminist Theory. (4) (Same as Gender Studies M110C.) Lecture, three hours. Requisite for Gender Studies majors: Gender Studies 10; for other students: one phi-

losophy course. Examination in depth of different theoretical positions on gender and women as they have been applied to study of philosophy. Emphasis on theoretical contributions made by new scholarship on women in philosophy. Critical study of concepts and principles that arise in discussion of women's rights and liberation. Philosophical approach to feminist theories. May be repeated for credit with consent of instructor. Letter grading.

191. Variable Topics Research Seminars: Philosophy. (4) Seminar, one hour; discussion, three hours. Variable topics; consult Schedule of Classes or "Department Announcements" for topic to be offered in specific term. Reading, discussion, and development of culminating project. May be repeated for credit with consent of instructor. P/NP or letter grading.

198A-198B. Honors Research in Philosophy. (2-2) Tutorial, two hours. Limited to junior/senior philosophy honors program students. Each course to be taken in conjunction with one upper division philosophy lecture course, either concurrently or in subsequent term, under direct supervision of lecture course instructor. Advanced work related to lecture course, further reading, and preparation of 12- to 15-page paper representing original research. Courses 198A and 198B must be taken in conjunction with two different lecture courses, and both must be taken to satisfy departmental honors requirement. May be repeated for credit. Individual contract required. Letter grading.

198C. Honors Research in Philosophy. (4) Tutorial, four hours. Limited to junior/senior philosophy honors program students. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research in Philosophy. (2 to 4) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper or research project required. Up to 8 units may be applied toward degree requirements, but no 199 course may be substituted for course in one of four groups on basis of similarity of subject matter. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A-200B-200C. Seminar for First-Year Graduate Students. (4-4-4) Seminar, three hours. Limited to and required of all first-year graduate philosophy students. Selected topics in metaphysics and epistemology, history of philosophy, and ethics. S/U or letter grading.

Group I. History of Philosophy

201. Plato. (4) Seminar, four hours. Study of later dialogues. S/U or letter grading.

202. Aristotle. (4) Lecture, four hours. Analysis of major problems in Aristotle's philosophy based on reading, exposition, and critical discussion of relevant texts in English translation. S/U or letter grading.

203. Seminar: History of Ancient Philosophy. (4) Seminar, four hours. Selected problems and philosophers. May be repeated for credit with consent of instructor. S/U or letter grading.

206. Topics in Medieval Philosophy. (4) Lecture, four hours. Study of philosophy and theology of one or several medieval philosophers such as Augustine, Anselm, Abelard, Aquinas, Scotus, or Ockham or study of single area such as logic or theory of knowledge in several medieval philosophers. Topics announced each term. May be repeated for credit with consent of instructor. S/U or letter grading.

207. Seminar: History of Medieval and Renaissance Philosophy. (4) Seminar, four hours. Selected problems and philosophers. May be repeated for credit with consent of instructor. S/U or letter grading.

C208. Hobbes. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Hobbes' political philosophy, especially *Leviathan*,

with attention to its relevance to contemporary political philosophy. May be concurrently scheduled with course C108. S/U or letter grading.

C209. Descartes. (4) Lecture, four hours; discussion, one hour. Study of works of Descartes, with discussion of issues such as problem of skepticism, foundations of knowledge, existence of God, relation between mind and body, and connection between science and metaphysics. May be concurrently scheduled with course C109. S/U or letter grading.

C210. Spinoza. (4) Lecture, three hours. Selected topics in philosophy of Spinoza. May be concurrently scheduled with course C110, in which case there is two-hour biweekly discussion meeting, plus additional readings and longer term paper for graduate students. S/U or letter grading.

C211. Leibniz. (4) Lecture, three hours. Selected topics in philosophy of Leibniz. May be concurrently scheduled with course C111, in which case there is two-hour biweekly discussion meeting, plus additional readings and longer term paper for graduate students. S/U or letter grading.

C212. Locke and Berkeley. (4) Lecture, four hours. Preparation: one philosophy course. Study of philosophies of Locke and Berkeley, with emphasis in some cases on one or the other. Limited to 30 students when concurrently scheduled with course C112. S/U or letter grading.

C214. Hume. (4) Lecture, three hours; discussion, one hour. Selected topics in philosophy of Hume. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C114. S/U or letter grading.

C215. Kant. (4) Lecture, three hours; discussion, one hour. Requisite: course 21 or 22. Study of Kant's views on related topics in theory of knowledge, ethics, and politics. May be repeated for credit with consent of instructor. Concurrently scheduled with course C115. S/U or letter grading.

216. 19th-Century Philosophy. (4) Seminar, four hours. Topics in 19th-century philosophy. May be repeated for credit with consent of instructor. S/U or letter grading.

C219. Topics in Modern Philosophy. (4) Lecture, three hours; discussion, one hour. Selected topics in one or more philosophies of early modern period, or study in single area such as theory of knowledge or metaphysics in several philosophies. May be repeated for credit with consent of instructor. Concurrently scheduled with course C119. S/U or letter grading.

220. Seminar: Topics in History of Philosophy. (4) Seminar, three hours. Selected problems and philosophers which may be from different periods. May be repeated for credit with consent of instructor. S/U or letter grading.

Group II. Logic, Semantics, and Philosophy of Science

221A. Topics in Set Theory. (4) Lecture, three hours. Requisite: Mathematics M114S. Sets, relations, functions, partial and total orderings; well-orderings. Ordinal and cardinal arithmetic, finiteness and infinity, continuum hypothesis, inaccessible numbers. Formalization of set theory: Zermelo/Fraenkel; von Neumann/Gödel theory. May be repeated for credit with consent of instructor. S/U or letter grading.

221B. History of Set Theory. (4) Lecture, four hours. Development of concept of set and axiomatic set theory by examining selected writings of Frege, Cantor, Russell, Zermelo, Gödel, and several others. Origins and significance of certain key ideas, such as set theory as logic, axiomatic set theory as reaction to paradoxes, formal first-order axiomatic set theory as opposed to informal axiomatics, type theory and rank hierarchy, ramification and predicativity, proper classes and sets as small classes, and particular Zermelo/Fraenkel axiomatic theory. Emphasis on actual expressed ideas and views of various influential authors. S/U or letter grading.

222A-222B-222C. Gödel Theory. (4-4-4) Lecture, four hours. S/U or letter grading. **222A.** Preparation: several courses in logic. First in series of three courses leading to Gödel incompleteness theorem and Tarski definition of truth. **222B.** Requisite: course 222A. Second-order arithmetic. Second in series of three courses leading to Gödel incompleteness theorem and Tarski definition of truth. **222C.** Requisite: course 222B. Gödel numbering and Gödel theory. Final course in Gödel theory series.

224. Philosophy of Physics. (4) Seminar, three hours. Selected philosophical topics related to physical theory, depending on interests and background of participants, including space and time; observation in quantum mechanics; foundations of statistical mechanics. May be repeated for credit with consent of instructor. S/U or letter grading.

225. Probability and Inductive Logic. (4) Lecture, three hours. Requisite: course M134 or Mathematics M114S. Topics may include interpretations of probability, Bayesian and non-Bayesian confirmation theory, paradoxes of confirmation, coherence, and conditioning. S/U or letter grading.

226. Topics in Mathematical Logic. (4) Lecture, four hours. Content varies from term to term. May be repeated for credit with consent of instructor. S/U or letter grading.

227. Philosophy of Social Science. (4) Lecture, four hours. Examination of philosophical problems concerning concepts and methods used in social sciences. Topics may include relation between social processes and individual psychology, logic of explanation in social sciences, determinism and spontaneity in history, interpretation of cultures radically different from one's own. Students with primary interest and advanced preparation in social sciences encouraged to enroll. May be repeated for credit with consent of instructor. S/U or letter grading.

C228A. Philosophy of Language. (4) Lecture, four hours; discussion, one hour. Enforced requisite: course 31. Syntax, semantics, pragmatics. Semantical concept of truth, sense and denotation, synonymy and analyticity, modalities and tenses, indirect discourse, indexical terms, semantical paradoxes. May be repeated for credit with consent of instructor. Concurrently scheduled with course C127A. S/U or letter grading.

C228B. Philosophy of Language. (4) Lecture, four hours; discussion, one hour. Requisite: course 31. Course C228A is not requisite to C228B. Selected topics similar to those considered in course C228A, but at more advanced and technical level. May be repeated for credit with consent of instructor. Concurrently scheduled with course C127B. S/U or letter grading.

C228C. Philosophy of Language. (4) Lecture, four hours; discussion, one hour. Requisite: course 31. Recommended: course C228A or C228B. Selected topics similar to those considered in course C228B, but with focus on contemporary figures. May be repeated for credit with consent of instructor. Concurrently scheduled with course C127C. S/U or letter grading.

230. Seminar: Logic. (4) Seminar, four hours. May be repeated for credit with consent of instructor. S/U or letter grading.

231. Seminar: Intensional Logic. (4) Seminar, four hours. Topics may include logic of sense and denotation, modal logic, logic of demonstratives, epistemic logic, intensional logic of *Principia Mathematica*, possible worlds semantics. May be repeated for credit with consent of instructor. S/U or letter grading.

232. Philosophy of Science. (4) Seminar, three hours. Selected topics in philosophy of science. May be repeated for credit with consent of instructor. S/U or letter grading.

233. Seminar: Philosophy of Physics. (4) Seminar, four hours. May be repeated for credit with consent of instructor. S/U or letter grading.

Group III. Ethics and Value Theory

241. Topics in Political Philosophy. (4) Seminar, four hours. Requisites: course 150 or C156 or 157A or 157B or any two philosophy courses. Examination of one or more topics in political philosophy (e.g., justice, democracy, human rights, political obligation, alienation). May be repeated for credit with consent of instructor. S/U or letter grading.

244. Topics in Value Theory: Rationality and Action. (4) Seminar, three hours. Selected topics on normative issues in practical rationality or philosophy of action. Topics may include moral and practical dilemmas, nature of reasons for action, rationality of morality and prudence, weakness of will, freedom of will, and decision theory. May be repeated for credit with consent of instructor. S/U or letter grading.

C245. History of Ethics: Modern. (4) Lecture, three hours; discussion, one hour. Intensive study of Kant's ethical theory. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C151B. S/U or letter grading.

246. Seminar: Ethical Theory. (4) Seminar, four hours. Selected topics. Content varies from term to term. May be repeated for credit with consent of instructor. S/U or letter grading.

C247. Topics in Political Philosophy. (4) Lecture, three hours; discussion, one hour. Analysis of some basic concepts in political theory. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C156. S/U or letter grading.

248. Problems in Moral Philosophy. (4) Seminar, four hours. Intensive study of some leading current problems in moral philosophy. May be repeated for credit with consent of instructor. S/U or letter grading.

C253B. Topics in Ethical Theory: Metaethics. (4) Lecture, three hours; discussion, one hour. Requisite: course 22. Study and analysis of basic concepts, selected problems, and contemporary issues in metaethics. Topics may include analysis of moral language, justification of moral beliefs, moral realism, skepticism, free will, moral motivation, etc. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C153B. S/U or letter grading.

254. Legal Theory Workshop. (1 to 8) Seminar, three hours. Students engage with work in progress on philosophical issues in law of leading scholars from around country. Presentation of works in progress by visiting scholars every two weeks. Study by students of papers to be presented to gain background in relevant topics and to be prepared for speakers' presentations. Presentation of student papers to class for discussion. Substantial analytical paper required. S/U or letter grading.

254A-254B. Legal Theory Workshop. (254A: 3 or 4/254B: 1 or 2) (Formerly numbered M254A.) Seminar, three hours. Course 254A is enforced requisite to 254B. Students engage with work in progress on philosophical issues in law of leading scholars from around country. Presentation of works in progress by visiting scholars every two weeks. Study by students of papers to be presented to gain background in relevant topics and to be prepared for speakers' presentations. Presentation of student papers to class for discussion. Substantial analytical paper required. Concurrently scheduled with Law 555. In Progress (254A) and S/U or letter (254B) grading.

255. Seminar: Aesthetic Theory. (4) Seminar, four hours. Selected topics. May be repeated for credit with consent of instructor. S/U or letter grading.

M256. Topics in Legal Philosophy. (4) (Same as Law M217.) Lecture, three hours. Examination of topics such as concept of law, nature of justice, problems of punishments, legal reasoning, and obligation to obey the law. May be repeated for credit with consent of instructor.

M257. Philosophy Legal Theory. (1 to 8) (Same as Law M524.) Seminar, three hours. Selected topics in philosophy of law. May be repeated for credit with consent of instructor. S/U or letter grading.

M257A-257B. Philosophy Legal Theory. (1 to 8 each) (Same as Law M524.) Seminar, two hours. Course M257A is enforced requisite to 257B. Selected topics in philosophy of law. May be repeated for credit with consent of instructor. In Progress (M257A) and S/U or letter (257B) grading.

258. Contemporary Philosophy of Law. (4) Seminar, three hours. Limited to graduate students. Recent contributions to theoretical literature on contract law. Possible topics include purpose or function of contract law, relationship of contracts to promises, whether fault should play larger (or smaller) role in contract law, remedial approaches to breach including larger role for unjust enrichment, and contract law's treatment of fraud and deception. Readings from legal and philosophical literature. S/U or letter grading.

259. Philosophical Research in Ethics and Value Theory. (2 to 4) Seminar, two hours. Preparation: completion of proposition requirement. Presentation of ongoing research by graduate students. Participants make presentations, analyze and discuss presentations of others, and read and discuss philosophical texts related to presentations. Must be taken for 4 units in quarters in which students present their own research. May be repeated for credit with consent of instructor. S/U grading.

Group IV. Metaphysics and Epistemology

271. Seminar: Topics in Metaphysics and Epistemology. (4) Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

275. Human Action. (4) Preparation: two upper division philosophy courses. Examination of theories, concepts, and problems concerning human actions. Topics may include analysis of intentional actions; determinism and freedom; nature of explanations of intentional actions. May be repeated for credit with consent of instructor.

280. 20th-Century Continental Philosophy. (4) Seminar, three hours. Selected topics in 20th-century continental European philosophy. May be repeated for credit with consent of instructor. S/U or letter grading.

281. Seminar: Philosophy of Mind. (4) Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

282. Seminar: Metaphysics. (4) Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

283. Seminar: Theory of Knowledge. (4) Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

284. Seminar: Philosophy of Perception. (4) Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

285. Philosophy of Psychoanalysis. (4) Seminar, three hours. Examination of topics such as nature and validity of psychoanalytic explanations and interpretations, psychoanalysis and language, metapsychological concepts such as the unconscious, ego, id, superego, defense mechanisms, and psychoanalytic conception of human nature. S/U or letter grading.

286. Philosophy of Psychology. (4) Seminar, four hours. Relevance of computer simulation to accounts of thinking and meaning; relations between semantical theory and learning theory; psychological aspects of theory of syntax; behaviorism, functionalism, and alternatives; physiology and psychology. S/U or letter grading.

287. Seminar: Philosophy of Language. (4) Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

288. Seminar: Wittgenstein. (4) Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

289. Seminar: Philosophy of Religion. (4) Seminar, four hours. May be repeated for credit with consent of instructor. S/U or letter grading.

290. Workshop: Philosophy of Language. (2 or 4) Seminar, two hours. Ongoing discussion of current issues in philosophy of language based on contemporary texts and current research. Presentations of ideas by attending faculty and graduate students with open discussion. May be repeated for credit with consent of instructor. S/U grading.

291. Workshop: Philosophy of Mathematics. (4) Seminar, three hours. Ongoing discussion of current issues in philosophy of mathematics based on contemporary texts and current research. Presentations of ideas by attending faculty and graduate students with open discussion. May be repeated for credit with consent of instructor. S/U or letter grading.

299. Seminar: Philosophical Research. (4) Seminar, three hours. Preparation: advancement to candidacy. Presentation of ongoing research by graduate students or faculty members. Participants make presentations, analyze and discuss presentations of others, and read and discuss philosophical texts related to presentations. May be repeated for credit with consent of instructor. S/U grading.

Special Studies

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching College Philosophy. (2 to 4) Seminar, to be arranged. Seminars, workshops, and apprentice teaching. Selected topics, including evaluation scales, various teaching strategies and their effects, and other topics in college teaching. May be repeated for credit. S/U grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Studies. (2 to 12) Tutorial, to be arranged. Properly qualified graduate students who wish to pursue one problem through reading or advanced study may do so if their proposed project is acceptable to one staff member. May be repeated for credit. S/U or letter grading.

597. Directed Studies for Graduate Examinations. (2 to 8) Tutorial, to be arranged. Preparation for MA comprehensive examination or PhD oral qualifying examinations. S/U grading.

599. Research for PhD Dissertation. (2 to 12) Tutorial, to be arranged. Preparation: advancement to PhD candidacy. May be repeated for credit. S/U grading.

Professors

Katsushi Arisaka, PhD
 Zvi Bern, PhD
 Dolores Bozovic, PhD
 Stuart E. Brown, PhD
 Robijn F. Bruinsma, PhD
 Troy A. Carter, PhD
 Sudip Chakravarty, PhD (*David Saxon Presidential Term Chair in Physics*)
 Ferdinand V. Coroniti, PhD
 Robert D. Cousins, PhD
 Eric D'Hoker, PhD
 Sergio Ferrara, PhD
 Christian Fronsdal, PhD
 Steven R. Furlanetto, PhD
 Walter N. Gekelman, PhD
 Graciela B. Gelmini, PhD
 Andrea M. Ghez, PhD (*Lauren B. Leichtman and Arthur E. Levine Astrophysics Endowed Professor*)
 George Grüner, PhD
 Michael Gutperle, PhD
 Bradley M. Hansen, PhD
 Jay Hauser, PhD
 Károly Holczer, PhD
 Huan Z. Huang, PhD
 Frank S. Jenko, PhD
 David C. Jewitt, PhD
 Hong-Wen Jiang, PhD
 Per J. Kraus, PhD
 Alexander Kusenko, PhD
 James E. Larkin, PhD
 Alexander J. Levine, PhD
 Matthew A. Malkan, PhD
 Jean-Luc Margot, PhD
 Thomas G. Mason, PhD
 Ian S. McLean, PhD
 Mayank R. Mehta, PhD
 Jianwei Miao, PhD
 George J. Morales, PhD
 Warren B. Mori, PhD
 Mark R. Morris, PhD
 Pietro Musumeci, PhD
 William I. Newman, PhD
 Rene A. Ong, PhD
 Seth J. Putterman, PhD
 James Rosenzweig, PhD
 Joseph A. Rudnick, PhD
 David Saltzberg, PhD
 Alice E. Shapley, PhD
 E.T. Tomboulis, PhD
 Tommaso L. Treu, PhD
 Yaroslav Tserkovnyak, PhD
 Jean L. Turner, PhD
 Vladimir V. Vassiliev, PhD
 Gary A. Williams, PhD
 Edward L. Wright, PhD (*David S. Saxon Presidential Professor of Physics*)
 Giovanni Zocchi, PhD

Professors Emeriti

Ernest S. Abers, PhD
 Eric E. Becklin, PhD
 Rubin Braunstein, PhD
 Charles D. Buchanan, PhD
 Marvin Chester, PhD
 W. Gilbert Clark, PhD
 John M. Cornwall, PhD
 Robert J. Finkelstein, PhD
 Roy P. Haddock, PhD
 George J. Igo, PhD
 Steven A. Moszkowski, PhD
 C. Kumar N. Patel, PhD
 Roberto Peccei, PhD
 Claudio Pellegrini, PhD
 William E. Slater, PhD
 Reiner L. Stenzel, PhD
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 Chun Wa Wong, PhD
 Byron T. Wright, PhD
 Benjamin M. Zuckerman, PhD

Associate Professors

Michael P. Fitzgerald, PhD
 Eric R. Hudson, PhD

Christoph Niemann, PhD
 Brian C. Regan, PhD

Assistant Professors

Wesley C. Campbell, PhD
 Paul Hamilton, PhD
 Smadar Naoz, PhD
 Ni Ni, PhD
 Rahul Roy, PhD
 Shenshen Wang, PhD

Adjunct Professors

Elihu Abrahams, PhD
 William A. Barletta, PhD
 David Shriver, PhD
 Slava G. Turyshev, PhD
 Hanguo Wang, PhD

Adjunct Assistant Professor

Martin D. Simon, PhD

Scope and Objectives

Since the time of the ancient Greeks, a natural affinity has existed between astronomy and physics, and the intellectual development of the two disciplines has often proceeded synergistically. Newton's discovery of the laws of mechanics and universal gravitation not only explained motion on Earth, but brought the heavens and Earth into a single quantitative framework in which both are governed by the same laws. The revolutionary discoveries of twentieth-century physics—quantum mechanics and nuclear physics—were rapidly adopted by astronomers to interpret the spectroscopic observations of the stars and to construct accurate models of stellar structure. Einstein's general theory of relativity predicted the expansion of the universe and that most awesome compaction of matter—the black hole.

Today astronomers study the accretion of matter onto supermassive black holes in quasars and search the most distant regions of the universe to learn about the exotic physical conditions that existed when the universe's expansion was only fractions of a second old. By measuring the gravitational interactions on distance scales from galaxies to the vast superclusters of galaxies, astronomers have concluded that most of the universe's matter is dark or nonluminous; physicists have speculated that this dark matter may consist of yet undiscovered exotic particles that are predicted by the most advanced theories of elementary particle physics.

Department of Physics and Astronomy faculty members and students are able to study the universe in the holistic manner which is demanded by the breadth of these two disciplines.

Undergraduate Study

The Department of Physics and Astronomy offers a choice of four undergraduate majors: the BS degree program in Astrophysics, the BS degree program in Biophysics, the BS degree program in Physics, and the BA degree program in Physics. Each course taken to fulfill any of the requirements for the majors must be taken for a letter grade.

PHYSICS AND ASTRONOMY

College of Letters and Science

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Jean L. Turner, PhD, Chair
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 James E. Larkin, PhD, Vice Chair, Astronomy
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Astronomy Courses

The department offers general courses to all University students, including those who are not science oriented.

Astronomy 3 is the fundamental one-term course for students who do not major in physical sciences and should be taken in the first or second year.

Astronomy 4, 5, and 6 develop the topics covered in course 3 to somewhat greater depths but are still aimed at nonscience majors. Course 4 discusses stellar and supermassive black holes; course 5 concentrates on the problem of life in the universe; course 6 discusses the structure and evolution of the universe.

Astronomy 81 and 82 are general survey courses recommended for science majors in their second year. They systematically introduce astrophysics and require a good background in physics and mathematics (at least two terms of the Physics 1 series and two terms of the Mathematics 31 and 32 series).

Students of junior and senior standing in Physics or related sciences are invited to select any of these courses: Astronomy 115, 117, 127, 140, 180.

Physics Courses

Students who wish to use physics to satisfy part of the general education requirements in the physical sciences and who have no mathematics background beyond the high school mathematics required for admission to UCLA may take Physics 10.

Physics 1Q is intended for entering freshman Physics majors and other interested students. Although it is not a required course or a part of or requisite to any general physics sequence of courses, its purpose is to indicate the nature of current research problems in physics on a level intended to be attractive to entering students with a good high school science and mathematics background.

Physics 1A, 1B, and 1C, or 1AH, 1BH, and 1CH form sequences of courses in general physics for majors in Physics.

The department takes into account prior preparation in physics. If students feel their background would permit acceleration, they may be exempted from one course in the 1A, 1B, 1C sequence by taking the final examination with a class at the end of any term. This serves as a placement examination. A satisfactory score on one or both parts of the College Board Advanced Placement Physics C Test may also serve as a placement examination, but placement is not automatic. Students should discuss such possibilities with their departmental adviser.

Physics 6A, 6B, 6C form a one-year sequence of courses in basic physics for students in the biological and health sciences.

Any two or more courses from Physics 1A, 1AH, and 6A, are limited to a total of 6 units of credit.

Astrophysics BS

Preparation for the Major

Required: Astronomy 81, 82; Physics 1A or 1AH, 1B or 1BH, 1C or 1CH, 4AL, 4BL, 17, 18L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Program in Computing 10A or demonstrated ability to program. Systematic study of astrophysics should begin with Astronomy 81 and 82, taken in the second year. **Recommended:** Chemistry and Biochemistry 20A.

Transfer Students

Transfer applicants to the Astrophysics major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two astrophysics courses, two years of calculus, one and one half years of calculus-based physics with laboratory for majors, and one programming course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Astronomy 115, 117, 127, 140, 180; Physics 105A, 105B, 110A, 110B, 115A, 115B, 131. **Recommended:** Physics 108, M122, 124, 132, 140A, 140B.

Honors Program

Senior majors in Astrophysics with a 3.5 grade-point average in all astronomy, mathematics, and physics courses are eligible for the honors program in astrophysics. In addition to completing all courses required for the major, students must complete two terms of Astronomy 199. To receive honors and highest honors at graduation, the grade-point average must remain at 3.5 and 3.75 or better, respectively, and work in course 199 must reflect original research and be accepted by the departmental honors committee.

Biophysics BS

The goal of the Biophysics major is to provide students with the undergraduate background to enable them to enter very good graduate programs in biophysics, molecular biology, and physics. As the molecular biophysics field emerges as an important and rapidly developing area of scientific research and knowledge, the major is designed to provide both the scientific/technical training and the immersion in physics and molecular biology necessary to enable students to understand and integrate these fields intellectually and to have the opportunity to become leaders in bringing the analytic and experimental techniques of both fields to bear on the complicated behavior of microbiological macromolecular systems.

Preparation for the Major

Required: Physics 1A or 1AH, 1B or 1BH, 1C or 1CH, 4AL, 4BL, 17; Chemistry and Biochemistry 20A, 20B, 30A, 30B; Life Sciences 2, 3 or 3H, 4; Mathematics 31A, 31B, 32A, 32B, 33A, 33B. **Recommended:** Life Sciences 1, 23L, Physics 18L.

Transfer Students

Transfer applicants to the Biophysics major with 90 or more units must have completed the following introductory courses prior to admission to UCLA: two years of calculus, one and one half years of calculus-based physics with laboratory for majors, one year of general biology with laboratory for majors, and one year of general chemistry with laboratory for majors.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Physics 105A, 110A, 110B, 115A, 115B, 131, M180G, C187A, C187B; either course 144 or 148; Chemistry and Biochemistry 110A, 153A, 153L; Molecular, Cell, and Developmental Biology 100 or M140 or 165A.

Recommended: Physics 108, 117, Chemistry and Biochemistry CM160A, and guided research in chemistry and biochemistry, molecular, cell, and developmental biology, or physics. An overall 2.0 grade-point average in all upper division courses is required.

Physics BS

The Physics BS major should be taken if students intend to continue toward the PhD in Physics.

Preparation for the Major

Required: Physics 1A or 1AH, 1B or 1BH, 1C or 1CH, 4AL, 4BL, 17, 18L; Chemistry and Biochemistry 20A; Mathematics 31A, 31B, 32A, 32B, 33A, 33B. A detailed brochure on the major is available from the Undergraduate Office, 1-707A Physics and Astronomy Building.

Transfer Students

Transfer applicants to the Physics BS major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of calculus, one and one half years of calculus-based physics with laboratory for majors, and one general chemistry course for majors.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Physics 105A, 105B, 110A, 110B, 112, 115A, 115B, 115C, 131. The remainder of the course of study consists of a plan, to be worked out by students in consultation with their designated departmental adviser, that details which courses they take to complete the degree. There are four overall requirements: (1) the plan must be worked out five terms before students expect to graduate; (2) the plan must include two courses from Physics 118 and 180A through 180Q, which should be taken in the senior year; (3) there must be three additional upper division courses in the plan, preferably selected from Physics 108, 114, 117, M122, 123, 124, 126, 127, 128, 132, 140A, 140B, 144, 150, C186, C187A, 188A; (4) there must be written rationale for the plan. Except

for the Physics 180 laboratories, the courses need not be in the Physics and Astronomy Department. However, it is expected that the courses fit into a coherent structure. It is important that the structure and rationale are thought out carefully, as the plan must be endorsed by the designated adviser and be approved by the departmental academic affairs committee. Preapproved plans of study are available from the undergraduate advisers. A C average is required in all courses taken to satisfy the major requirements.

Students preparing for graduate school should take additional courses in physics and mathematics. Physics 108, 114, 117, M122, 123, 124, 126, 132, 140A, and 140B are recommended.

Honors Programs

The department offers three honors programs leading to graduation with honors or highest honors in physics. Students are eligible after completing the preparation for the major and four upper division physics courses with an overall grade-point average of 3.0 and a 3.5 GPA in upper division physics and mathematics courses. Contact the Undergraduate Office for a complete description of the programs and an application.

Physics BA

The Physics BA major is intended to provide a strong background in physics, yet allow students flexibility to study other fields as well. It should be of particular interest to students who want to double major or who want to teach science. Students who intend to continue work toward the PhD in Physics are advised to work for the BS in Physics as described earlier.

Preparation for the Major

Required: Physics 1A or 1AH, 1B or 1BH, 1C or 1CH, 4AL, 4BL, 17, 18L; Chemistry and Biochemistry 20A; Mathematics 31A, 31B, 32A, 32B, 33A, 33B. A detailed brochure on the major is available from the Undergraduate Office, 1-707A Physics and Astronomy Building.

Transfer Students

Transfer applicants to the Physics BA major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of calculus, one and one half years of calculus-based physics with laboratory for majors, and one general chemistry course for majors.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Physics 105A, 105B, 110A, 110B, 112, 115A, 115B, 115C, 131, one course from the 180 series. A C average in the upper division physics courses is required.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many

cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Physics and Astronomy offers the Master of Arts in Teaching (MAT) degree in Astronomy, Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Astronomy, Master of Arts in Teaching (MAT) degree in Physics, and Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Physics.

Astronomy

Lower Division Courses

3. Nature of Universe. (5) Lecture, three hours; discussion, two hours. Not open to students with credit for or currently enrolled in course 81 or 82. No special mathematical preparation required beyond that necessary for admission to UCLA in freshman standing. Course for general UCLA students, normally not intending to major in physical sciences, on development of ideas in astronomy and what has been learned of nature of universe, including recent discoveries and developments. P/NP or letter grading.

4. Black Holes and Cosmic Catastrophes. (4) Lecture, three hours; discussion, one hour. Essentially nonmathematical course for general UCLA students that discusses black holes and related cosmic catastrophes. White dwarfs, neutron stars, and black holes are compact objects formed in violent events that terminate lives of stars and are associated with some of most energetic and explosive phenomena in astronomy: planetary nebulae and novae (white dwarfs), supernovae, pulsars, galactic X-ray sources, and gamma ray bursts. Supermassive black holes form in nucleus of young galaxies, and gravitational accretion of matter onto black holes powers most energetic objects in universe—quasars. Universe was born in ultimate cosmic explosion—Big Bang—that may have derived its energy from quantum mechanical vacuum. P/NP or letter grading.

5. Life in Universe. (4) Lecture, four hours; discussion, one hour. Preparation: prior introduction to astronomy. Life on Earth and prospects for life elsewhere in context of evolution of universe from simple to complex. Course material primarily from astronomy and biology but includes some chemistry, geology, and physics. Selected topics treated in some depth, but with little or no formal mathematics. P/NP or letter grading.

6. Cosmology: Our Changing Concepts of Universe. (4) Lecture, three hours; discussion, one hour. Exposition of ideas about structure and evolution of universe and its contents. Special and general relativity; black holes, neutron stars, and other endpoints of stellar evolution. Expanding universe, cosmic microwave background radiation, dark matter. Big Bang and inflation. P/NP or letter grading.

7. Astronomy and Media. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Designed to help nonmajors develop skills to continually learn about science through media. Detailed study of research currently in media, including meteor impacts, greenhouse effect, NASA, cosmology, and extraterrestrial life. Investigation of forces that influence science reporting. P/NP or letter grading.

81. Astrophysics I: Stars and Nebulae. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, and Physics 1A or 1AH. Open to qualified sophomore and upper division students. Survey of our knowledge about stars: their distances, masses, luminosities, temperatures, and interrelations between these parameters. Methods and importance for astrophysics. Variable stars. Planetary and gaseous nebulae. P/NP or letter grading.

82. Astrophysics II: Stellar Evolution, Galaxies, and Cosmology. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, and Physics 1A or 1AH. Recommended: course 81, Physics 1B and 1C (or 1BH and 1CH). Open to qualified sophomore and upper division students. Basic principles of stellar structure and evolution. Red giants, white dwarfs, novae, supernovae, neutron stars, and black holes. Pulsars and galactic X-ray sources. Milky Way galaxy and interstellar medium. Extragalactic astronomy, galaxy clustering, active galactic nuclei, and quasars. Introduction to cosmology: Hubble law, thermal history of Big Bang, and earliest moments of universe. P/NP or letter grading.

88A-88Z. Lower Division Seminars. (2 each) Seminar, two hours. Limited to freshmen. Variable topics; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

88A. Cosmic Evolution. (2) Seminar, two hours. Limited to freshmen. Varied astronomical and physical processes of evolution; discussion of how, over billions of years, basic mechanisms of cosmic evolution have transformed universe from fiery origin at Big Bang into abode for intelligent life. P/NP or letter grading.

Upper Division Courses

115. Statistical Mechanics and Its Application to Astrophysics. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 32B, 33A, 33B, Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH). Particle distributions, partition functions, black body radiation, Saha equation, degeneracy. Applications to stellar atmospheres, stellar interiors, and interstellar medium. P/NP or letter grading.

117. Radiation and Fluids in Astrophysics. (4) Lecture, three hours. Prerequisite: course 115. Designed for junior/senior Astrophysics and Physics majors. Emission and absorption of radiation by matter; spectroscopy, spectral lines, and radiative transfer. Hydrodynamics and shock waves. Applications to stars, to interstellar and intergalactic media, and to early universe. P/NP or letter grading.

127. Stellar Atmospheres, Interiors, and Evolution. (4) Lecture, three hours; discussion, one hour. Recommended requisites: courses 115, 117. Designed for senior Astrophysics and Physics majors. Physical conditions in stellar interiors. Energy production in stars. Stellar evolution from star formation through normally observed stages to white dwarfs, neutron stars, and black holes. Novae, supernovae, other variable stars, chromospheres and coronae of sun and stars. Evolution of binary stars. Analysis of stellar atmospheres. P/NP or letter grading.

140. Stellar Systems and Cosmology. (4) Lecture, three hours. Designed for senior Astrophysics and Physics majors. Properties of star clusters and galaxies, with particular emphasis on Milky Way galaxy. Clusters and superclusters of galaxies. Extragalactic distance scale. Quasars and active galaxies. Topics in cosmology, including expansion of universe, microwave background, galaxy formation from primordial fluctuations, and observational constraints on Big Bang. P/NP or letter grading.

180. Astrophysics Laboratory. (4) Lecture, two hours; laboratory, four hours. Designed for juniors/seniors in Astrophysics, Physics, or related field. Lectures cover statistical methods in astrophysics, one- and two-dimensional random processes, and numerical methods. Laboratory experiments involve radio astronomy, interferometry, narrowband solar imaging, and visual photometry. Emphasis on use of computers for automatic collection of data and for processing two-dimensional astronomical images. P/NP or letter grading.

190. Research Colloquia in Astrophysics. (2) Seminar, two hours. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

194. Research Group Seminars: Astrophysics. (1) Research group meeting, one hour. Designed for undergraduate students who are part of research group/laboratory. Discussion of research of faculty members or students with regard to understanding methodology in field and/or laboratory equipment. May be repeated for credit. P/NP grading.

196. Research Apprenticeship in Astrophysics. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors with overall 3.0 grade-point average. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP grading.

197. Individual Studies in Astronomy. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198. Honors Research in Astrophysics. (2 to 4) Tutorial, 12 hours. Limited to juniors/seniors with minimum overall 3.0 grade-point average. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Astronomy. (2 to 4) Tutorial, two hours. Limited to junior/senior Astrophysics and Physics majors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

270. Astrophysical Dynamics. (4) Lecture, three hours. Orbital dynamics: two-body problem, three-body problem, resonances, tides, migration. Galactic potentials. Milky Way structure and observed properties of galaxies. Collisionless Boltzmann equation and relaxation processes. Stability of stellar systems. Spiral structure. Letter grading.

271A. Electromagnetic Radiation in Astrophysics I. (4) Lecture, three hours. Fundamentals of radiation field and Maxwell equations. Covariant formulation of fields and particles. Fundamentals of radiative transfer. Radiation from accelerated charges and mechanisms of continuous radiation. Line radiation. Thermal, statistical, and ionization equilibrium. Letter grading.

271B. Electromagnetic Radiation in Astrophysics II. (4) Lecture, three hours. Advanced topics in radiation relevant to astrophysics. Radiative scattering and diffusion. Radiative transfer in extended media. Curve of growth analysis and abundance determinations. Photo-dissociation, line emission, radiative recombination cross-sections. Dust processes. Polarized light, Stokes parameters. Letter grading.

272. Stellar Astrophysics. (4) Lecture, three hours. Observations of stars. Equations of stellar structure and stellar models. Nuclear energy sources. Star formation. Binary stars. Main sequence stellar evolution. Compact objects: white dwarfs, neutron stars, and black holes. Brown dwarfs. Letter grading.

273. Diffuse Matter in Space. (4) Lecture, three hours. Basic equations of fluid dynamics with applications to shocks, winds, and accretion. Fluid instabilities. Fundamentals of magnetohydrodynamics. Interstellar medium: molecular clouds, warm and hot phases of interstellar medium, HII regions. Particulate interstellar matter. Letter grading.

274. Extragalactic Astrophysics I. (4) Lecture, three hours. Observational foundations of Big Bang. Friedmann equation. Cosmic inflation. Cosmic microwave background. Big Bang nucleosynthesis. Structure formation. Observations and theory of galaxy evolution. Galaxy clusters. Intergalactic medium. Letter grading.

275. Extragalactic Astrophysics II. (4) Lecture, three hours. Perturbation theory in expanding universe. Cosmological recombination. Nonlinear structure for-

mation. Dark matter halos. Cosmological simulations. Galaxy surveys through cosmic time. Stellar populations. Models of galaxy formation. Galaxies and supermassive black holes. Letter grading.

276. Instrumentation and Observational Techniques. (4) Lecture, three hours. Telescopes, optical principles, cameras, and spectrographs. Optical detectors; photomultiplier tubes, CCDs. Infrared detectors and arrays. Radio detectors. X-ray and gamma-ray detectors. Interferometry and aperture synthesis. Data analysis techniques. Statistical methods. Letter grading.

277A-277B. Astronomy Research Project. (6-6) Tutorial, to be arranged. Designed for second-year graduate astronomy students. Two-term research project planned in conjunction with faculty adviser on any suitable research topic in astronomy or astrophysics, culminating in written report at end of second term. S/U (277A) and letter (277B) grading.

278. Special Topics in Astronomy. (2 or 4) Seminar, to be arranged. Informal course with lecture/seminar format, focusing on one or set of specific topics in astronomy. S/U (2-unit course) or letter (4-unit course) grading.

279. Seminar: Current Astronomical Research. (2) Seminar, one hour. Astronomy and astrophysics colloquium with lectures on current research by local and visiting researchers. S/U grading.

281. Quantum Mechanics for Astrophysics. (4) Lecture, four hours. Designed for departmental graduate students. Quantum mechanical topics in areas of interest for astrophysics applications. Hydrogen atom, radiative transitions, complex atoms, molecular spectroscopy including electronic, vibrational, and rotational transition, nuclear reaction theory. Letter grading.

282. High-Energy Astrophysics. (4) Lecture, three hours. Interactions of high-energy photons with matter. Telescopes and detectors (X-ray, gamma-ray, and radio). Accretion. Supernovae and gamma-ray bursts. Compact objects. Active galactic nuclei. Particle acceleration and cosmic rays. Dark matter, gravitational waves, neutrino astronomy. Letter grading.

283. Numerical and Statistical Methods. (4) Lecture, three hours. Topics selected by instructor in mathematical, numerical, and statistical methods of relevance to modern astrophysical research. Topics include Fourier transforms, filtering, and power spectra, numerical algorithms, N-body codes, maximum likelihood, Bayesian inference, and error estimation. Letter grading.

284. Order of Magnitude Astrophysics. (4) Lecture, three hours. Practice in real-time problem solving covering all fields of astrophysics. Topics selected by instructor. Students work together and individually to solve problems on blackboard using basic physics and order of magnitude estimations. Letter grading.

M285. Origin and Evolution of Solar System. (4) (Same as Earth, Planetary, and Space Sciences M285.) Lecture, four hours. Dynamical problems of solar system; chemical evidences from geochemistry, meteorites, and solar atmosphere; nucleosynthesis; solar origin, evolution, and termination; solar nebula, hydromagnetic processes, formation of planets and satellite systems. Content varies from year to year. May be repeated for credit. S/U grading.

286. Exoplanets: Properties, Origin, and Evolution. (4) Lecture, three hours. Detection and statistics of extrasolar planets. Theories of planet formation. Structural and dynamical evolution of planets. Signatures and consequences of evolution. Interior and atmospheric structure. Relationship between planets and smaller bodies. Habitable zones. Letter grading.

296. Research Topics in Astronomy. (2) Discussion, two hours. Advanced study and analysis of current topics in astronomy. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

M297. Research Tutorial: Astroparticle Physics. (2 or 4) (Same as Physics M297.) Tutorial, one hour; discussion, two hours. Required of each graduate student doing research in this field. Seminar and discussion by faculty, postdoctoral fellows, and graduate students on topics of current interest in astroparticle physics. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596A. Directed Individual Studies. (4 to 10) Tutorial, to be arranged. May be repeated at discretion of department. S/U grading.

596L. Advanced Study and Research at Lick Observatory. (4 to 12) Tutorial, to be arranged. Designed for graduate students who require observational experience, as well as those working on observational problems for their thesis. May be repeated at discretion of department. S/U grading.

599. PhD Research and Writing. (10 to 12) Tutorial, to be arranged. May be repeated at discretion of department. S/U grading.

Physics

Lower Division Courses

1A. Physics for Scientists and Engineers: Mechanics. (5) Lecture/demonstration, four hours; discussion, one hour. Recommended preparation: high school physics, one year of high school calculus or Mathematics 31A and 31B. Enforced requisites: Mathematics 31A, 31B. Enforced corequisite: Mathematics 32A. Recommended corequisite: Mathematics 32B. Motion, Newton laws, work, energy, linear and angular momentum, rotation, equilibrium, gravitation. P/NP or letter grading.

1AH. Physics for Scientists and Engineers: Mechanics (Honors). (5) Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: Mathematics 31A, 31B. Enforced corequisite: Mathematics 32A. Recommended corequisite: Mathematics 32B. Enriched preparation for upper division physics courses. Same material as course 1A but in greater depth; recommended for Physics majors and other students desiring such coverage. P/NP or letter grading.

1B. Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields. (5) Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: course 1A, Mathematics 31B, 32A. Enforced corequisite: Mathematics 32B. Recommended corequisite: Mathematics 33A. Damped and driven oscillators, mechanical and acoustic waves. Electrostatics: electric field and potential, capacitors, and dielectrics. Currents and DC circuits. Magnetic field. P/NP or letter grading.

1BH. Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields (Honors). (5) Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: course 1AH or 1A, Mathematics 31B, 32A. Enforced corequisite: Mathematics 32B. Recommended corequisite: Mathematics 33A. Enriched preparation for upper division physics courses. Same material as course 1B but in greater depth; recommended for Physics majors and other students desiring such coverage. P/NP or letter grading.

1C. Physics for Scientists and Engineers: Electrodynamics, Optics, and Special Relativity. (5) Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: courses 1A, 1B, Mathematics 32A, 32B. Enforced corequisite: Mathematics 33A. Recommended corequisite: Mathematics 33B. Ampere law, Faraday law, inductance, and LRC circuits. Maxwell equations in integral and differential form. Electromagnetic waves. Light, geometrical, and physical optics. Special relativity. P/NP or letter grading.

1CH. Physics for Scientists and Engineers: Electrodynamics, Optics, and Special Relativity (Honors). (5) Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: courses 1AH or 1A, 1BH or 1B, Mathematics 32A, 32B. Enforced corequisite: Mathematics 33A. Recommended corequisite: Mathematics 33B. Enriched preparation for upper division physics courses. Same material as course 1C but in greater depth; recommended for Physics majors and other students desiring such coverage. P/NP or letter grading.

1Q. Contemporary Physics. (2) Review of current problems in physics, with emphasis on those being studied at UCLA. Significance of the problems and their historical context. P/NP grading.

4AL. Physics Laboratory for Scientists and Engineers: Mechanics. (2) Laboratory, three hours. Enforced requisite: course 1A or 1AH. Enforced corequisite: course 1B or 1BH. Experiments on measuring gravity, accelerated motion, kinetic and potential energy, impulse and momentum, damped and driven oscillators, resonance and vibrating strings. Computer data acquisition and analysis. Introduction to error analysis, including distributions and least-squares fitting procedures. Letter grading.

4BL. Physics Laboratory for Scientists and Engineers: Electricity and Magnetism. (2) Laboratory, three hours. Enforced requisites: courses 1A or 1AH, 1B or 1BH. Enforced corequisite: course 1C or 1CH. Experiments on electric forces, fields, and potentials. Magnetic fields. Linear and nonlinear devices. Resistors, capacitors, and inductors. Modern circuits. Geometrical and physical optics. Letter grading.

6A. Physics for Life Sciences Majors: Mechanics. (5) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisites: Mathematics 3A, 3B. Enforced corequisite: Mathematics 3C. Not open for credit to students with credit for course 6AH. Motion, Newton laws, energy, linear and angular momentum, rotation, equilibrium, gravity, biological applications. P/NP or letter grading.

6AH. Physics for Life Sciences Majors: Statics and Dynamics (Honors). (5) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisites: Mathematics 3A, 3B. Enforced corequisite: Mathematics 3C. Not open for credit to students with credit for course 6A. Statics and dynamics of forces, energy, and momentum, with applications to biological and biochemical systems. Physics of states of matter (solids, liquids, and gases) and of surfaces and interfaces as they apply to biological organisms. P/NP or letter grading.

6B. Physics for Life Sciences Majors: Waves, Electricity, and Magnetism. (5) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: course 6A or 6AH. Not open for credit to students with credit for course 6BH. Mechanical waves, sound, electricity and magnetism, electromagnetic waves, biological applications. P/NP or letter grading.

6BH. Physics for Life Sciences Majors: Sound, Light, and Hydrodynamics (Honors). (5) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: course 6A or 6AH. Not open for credit to students with credit for course 6B. Sound and electromagnetic waves, interference, diffraction, radioactivity, and hydrodynamics, with applications to biological and biochemical systems. P/NP or letter grading.

6C. Physics for Life Sciences Majors: Light, Fluids, Thermodynamics, Modern Physics. (5) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: course 6B. Not open for credit to students with credit for course 6CH. Geometrical and physical optics, fluid statics and dynamics, thermodynamics. Selected topics from foundations of quantum mechanics; atomics, nuclear and particle physics; relativity; medical detectors; biological applications. P/NP or letter grading.

6CH. Physics for Life Sciences Majors: Electricity, Magnetism, and Transport (Honors). (5) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: course 6BH. Not open for

credit to students with credit for course 6C. Electrostatics in vacuum and in water. Electric current with applications to electrophysiology. Magnetism, especially NMR. Diffusion and heat flow, with applications to biological and biochemical systems. P/NP or letter grading.

10. Physics. (4) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 1A, 1AH, 6A, or 6AH. Special mathematical preparation beyond that necessary for admission to University in freshman standing not required. Topics include planetary motion, Newton laws, gravitation, electricity and magnetism, wave motion, light, sound, and heat, relativity, quantum mechanics, atoms, and subatomic particles. As time permits, development of physical ideas placed in cultural and historical perspective. P/NP or letter grading.

11. Revolutions in Physics. (4) Lecture, three hours; discussion, one hour. Survey of modern physics intended for general UCLA students. Overview of classical physics from late 19th century and its growing set of dilemmas. Revolutions of relativity and quantum mechanics that have led to much deeper understanding of structure and evolution of our Universe. Specific topics include special and general relativity, cosmology (Big Bang), quantization of light, nucleus and radioactivity, origin of elements, and quantum mechanics. P/NP or letter grading.

17. Elements of Quantum Mechanics and Statistical Mechanics. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32A, 32B. Enforced corequisite: Mathematics 33A. Photons, photoelectric effect, uncertainty principle Bohr atom, Schrödinger equation, hydrogen atom, Gaussian and Poisson distributions, temperature, entropy, Maxwell/Boltzmann distribution, kinetic theory of gases, laws of thermodynamics, black body radiation. P/NP or letter grading.

18L. Modern Physics Laboratory. (4) Lecture, one hour; laboratory, six hours. Enforced requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 4AL, 4BL, 17. Experiments on radioactivity, scattering, Planck constant, superconductivity, superfluidity. Letter grading.

87. Introduction to Biophysics. (4) Seminar, three hours. Enforced requisites: courses 1A, 1B, and 1C, or 1AH, 1BH, and 1CH, or 6A, 6B, and 6C, Chemistry 20A, 20B, Life Sciences 1, 3, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A. Specific examples of diverse biological design such as scaling of metabolic activity, bone and muscle mass, cell size, cell membranes and pumps, heart and blood circulation, swim bladders, insect vision, magnetic bacteria, etc., studied quantitatively using elementary mathematics and physical principles. P/NP or letter grading.

88. Lower Division Seminar: Current Topics in Physics. (2) Limited to freshmen/sophomores. Intensive exploration of a particular theme or topic based on current research. Consult Schedule of Classes for topics to be offered in a specific term. P/NP or letter grading.

98A. Workshop: Numerical Computational Physics. (1) Laboratory, one hour. Introductory presentations on three most common mathematical software packages—Mathematica, Mathcad, and MATLAB. After some familiarization with most common software functions, development of student personal preferences and assessment of advantages and strong points of each by solving problems in computational physics. P/NP grading.

98XA. PEERS Collaborative Learning Workshops for Life Sciences Majors. (1) Laboratory, three hours. Corequisite: associated undergraduate lecture course in physics for life sciences majors. Development of problem-solving skills and intuition in collaborative learning environment. May be repeated three times, but only 1 unit may be applied toward graduation. P/NP grading.

98XB. PEERS Collaborative Learning Workshops for Physical Sciences and Engineering Majors. (1) Laboratory, three hours. Corequisite: associated undergraduate lecture course in physics for physical sciences and engineering majors. Development of problem-solving skills and intuition in collaborative learning environment. May be repeated three times, but only 1 unit may be applied toward graduation. P/NP grading.

Upper Division Courses

105A. Analytic Mechanics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A. Corequisite: Mathematics 33B. Newtonian mechanics and conservation laws, gravitational potentials, calculus of variations, Lagrangian and Hamiltonian mechanics, central force motion, linear and nonlinear oscillations. P/NP or letter grading.

105B. Analytic Mechanics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 105A. Relativity with four vectors, noninertial reference frames, dynamics of rigid bodies, coupled oscillators, normal modes of oscillation, vibrating strings, and wave propagation. P/NP or letter grading.

108. Optical Physics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 110B. Interaction of light with matter; dispersion theory, oscillator strength, line widths, molecular scattering. Coherence theory, Kirchhoff formulation of diffraction theory, crystal optics, optical rotation, electro and magneto optical effects. Additional topics of fundamental or current interest. P/NP or letter grading.

110A. Electricity and Magnetism. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 131, Mathematics 32B, 33A, 33B. Electrostatics and magnetostatics. P/NP or letter grading.

110B. Electricity and Magnetism. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 110A, Mathematics 32B, 33A, 33B. Faraday law and Maxwell equations. Propagation of electromagnetic radiation. Multipole radiation and radiation from an accelerated charge. Special theory of relativity. P/NP or letter grading.

112. Thermodynamics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Corequisite: course 115B. Fundamentals of thermodynamics, including first, second, and third laws. Statistical mechanical point of view and its relation to thermodynamics. Some simple applications. P/NP or letter grading.

114. Mechanics of Wave Motion and Sound. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 105A, 105B, Mathematics 32B, 33A, 33B. Vibrating systems and wave propagation in gases, liquids, and solids, including elements of hydrodynamics and elasticity. Applications in ultrasonics, low-temperature physics, solid-state physics, architectural acoustics. P/NP or letter grading.

115A. Quantum Mechanics. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 17, 105A, 131. Corequisite: course 105B. Classical background. Basic ideas of quantum nature of light, wave-particle duality, Heisenberg uncertainty principle, Bohr atom, physical operators. Schrödinger equation. One-dimensional square well and harmonic oscillator problems. Boundary values. Classical correspondences. Letter grading.

115B. Quantum Mechanics. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 115A, 131. Formal theory: commutator algebra, Hermitian operators, generalized uncertainty principle, Ehrenfest relations. Three-dimensional problems.

Central potentials. Angular momentum. Hydrogen atom. Identical particles and Pauli exclusion principle. Electrons in an electromagnetic field. Letter grading.

115C. Quantum Mechanics. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 115B. Matrix mechanics. Addition of angular momentum. Time-independent and time-dependent perturbation theory. Fermi Golden Rule. Applications. Scattering theory. Letter grading.

116. Electronics. (4) Lecture, three hours; laboratory, three hours. Alternating current circuits, transmission line circuits, transistor and IC circuits to generate, modify, and detect electrical signals, introduction to digital circuits, analysis of noise and methods to reduce its influence in electrical measurements.

117. Electronics for Physics Measurement. (4) Lecture, three hours; laboratory, two hours. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Hands-on experimental course to develop understanding of design principles in modern electronics for physics measurements. Broad introduction to analog and digital electronics from practical viewpoint, followed by examination of typical circuits for scientific instrumentation and study of methods of computer data acquisition and signal processing. P/NP or letter grading.

118. Electronics for Physical Measurements. (4) Lecture, three hours; laboratory, four hours. Requisites: courses 1A, 1B, 1C, 117, Mathematics 32A, 32B, 33A. Provides students with opportunity to apply basic knowledge of circuit design for purpose of building stand-alone circuits with function related to control or measurement. Examples of physics-oriented projects include radio-frequency detection and measurement of mechanical resonances of bar, FM transmitter, speed of sound using radio-frequency pulsed ultrasound, sun-following pointers, cosmic ray detector. P/NP or letter grading.

M122. Introduction to Plasma Electronics. (4) (Same as Electrical Engineering M185.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 110A or Electrical Engineering 101A. Senior-level introductory course on electrodynamics of ionized gases and applications to materials processing, generation of coherent radiation and particle beams, and renewable energy sources. Letter grading.

123. Atomic Structure. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Corequisite: course 115C. Theory of atomic structure. Interaction of radiation with matter. P/NP or letter grading.

124. Nuclear Physics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Corequisite: course 115C. Nuclear properties, nuclear forces, nuclear structure, nuclear decays, and nuclear reactions. P/NP or letter grading.

126. Elementary Particle Physics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Corequisite: course 115C. Introduction to physics of elementary particles. The four basic interactions: strong, electromagnetic, weak, and gravitational. Properties of baryons, mesons, quarks, and leptons; conservation laws, symmetries and broken symmetries; the Standard Model; experimental techniques; new physics at the new accelerators. P/NP or letter grading.

127. General Relativity. (4) Lecture, three hours; discussion, one hour. Requisites: courses 105B, 110A, 110B, 131. Recommended: courses 115A, 115B, 115C. Introduction to general relativity. Principle of equivalence and curved spacetime, local initial frames, vectors and three-dimensional surfaces in curved spacetime. Schwarzschild metric, perihelion precession, bending of light by sun, and gravitational redshift. Star-system applications, black holes, gravitational waves. Introduction to cosmology, including Robertson-Walker metric and expanding universe solution to Friedman equations. Dark energy and cosmological constant. P/NP or letter grading.

128. Cosmology and Particle Astrophysics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 115A, 115B, 126. Introduction to cosmology and high-energy particle astrophysics, based on latest developments of both experiment and theory. Special emphasis on unified picture of universe that emerges from particle physics, astronomy, and cosmology. Extensive discussion of unsolved problems and future prospects to help students determine their opportunities in future. Letter grading.

131. Mathematical Methods of Physics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Vectors and fields in space, linear transformations, matrices, and operators; Fourier series and integrals. P/NP or letter grading.

132. Mathematical Methods of Physics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 131, Mathematics 32B, 33A, 33B. Functions of a complex variable, including Riemann surfaces, analytic functions, Cauchy theorem and formula, Taylor and Laurent series, calculus of residues, and Laplace transforms. P/NP or letter grading.

140A. Introduction to Solid-State Physics. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 112. Introduction to basic theoretical concepts of solid-state physics with applications. Crystal symmetry; cohesive energy; diffraction of electron, neutron, and electromagnetic waves in a lattice; reciprocal lattice; phonons and their interactions; free electron theory of metals; energy bands. Letter grading.

140B. Properties of Solids. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 140A. Elementary discussion of properties of solids. Use of theory of electrons and the lattice to examine properties of semiconductors, metals, and superconductors, together with magnetic and dielectric properties of materials. Properties of noncrystalline solids. Letter grading.

144. Polymer Physics. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 105A, 110A, and 112 or Chemistry 110A. How physical properties of polymers can be derived from mathematical models of chains and coils. Comparison of these models to calculations based on random walk problem and used to predict mechanical characteristics of large molecules. Study of networks of polymers and polymeric fluids, with focus on their viscoelastic properties. Discussion of movement of individual polymers within melts. Study of examples of more complex structures, such as polymer fractals. Consideration of applications of this work to biology, with focus on their potential role in evolution and current hypotheses on origins of life. P/NP or letter grading.

150. Physics of Charged-Particle and Laser Beams. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 110A, 110B, 115A, 115B. Physics of charged-particle and laser beams presented as a unified subject. Basic physics of charged-particle beams, covering relativistic particle motion in electromagnetic fields, transverse focusing, acceleration mechanisms, linear and circular accelerators, and advanced topics. Some fundamentals of laser physics, including gain and broadening mechanisms, linear light optics, laser resonators, and advanced topics and applications. P/NP or letter grading.

M155. Energy in Modern Economy. (4) (Same as Environment M155.) Lecture, three hours. Requisites: courses 1A and 1B (or 6A and 6B), Mathematics 3A and 3B (or 31A and 31B), Statistics 12 or 13. Examination of physics of energy, history of energy development, and role that energy plays in our economy, particularly in transportation and power grid. Prospects for decreasing availability of fossil fuels and impact of global warming on energy development. Current and potential future government and social responses to energy issues. P/NP or letter grading.

160. Numerical Analysis Techniques and Particle Simulations. (4) Lecture, three hours; computer terminals, six hours. Preparation: minimum knowledge of computer programming (Fortran). Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 105A, 105B, 110A, 110B. Introduction to field of computer modeling of physical systems using particle models; numerical models and methods, methods of diagnosing results, experience with running interesting physical problems. P/NP or letter grading.

180A. Nuclear Physics Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

180B. Physical Optics and Spectroscopy Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

180C. Solid-State Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

180D. Acoustics Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

180E. Plasma Physics Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

180F. Elementary Particle Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

M180G. Soft Matter Laboratory. (4) (Same as Chemistry M120.) Laboratory, four hours. P/NP or letter grading.

180Q. Quantum Optics Laboratory. (4) Lecture, two hours; laboratory, six hours. Requisite or corequisite: course 115C. Limited to junior/senior Astrophysics and Physics majors. Use of techniques of quantum optics to demonstrate concepts of quantum mechanics, including superposition, quantum measurement, hidden variable theories, and Bell's inequality. Examination and use of modern optics, including lasers, optics, fibers, polarization manipulation, and photon counting. Letter grading.

C185. Foundations of Physics. (4) Lecture, three hours. Historical development and philosophical sources of classical and modern physics. Concurrently scheduled with course C285. Letter grading.

C186. Neurophysics: Brain-Mind Problem. (4) (Formerly numbered 186.) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, 1C, 4AL, 4BL, 6A, 6B, 6C, Chemistry 14A or 20A, Mathematics 3A, 3B, 3C, 31A, 32A, 32B, 33A. How does mind emerge from brain? Provides summary of basic biophysics of neurons, synapses, and plasticity. Introduction to commonly used experimental and theoretical techniques of measuring, quantifying, and modeling neural activity, and their relative strengths and weakness and use of them to understand link between neural circuits, their emergent neural dynamics, and behavior in example model systems. Discussion of mechanisms of interaction between neural circuits and their role in cognition, learning, and sleep. Computer laboratory component where students learn to write simple codes to quantify neural activity patterns. Concurrently scheduled with course CM286. P/NP or letter grading.

C187A. Biological Physics I: Life at Rest. (4) (Formerly numbered 187.) Lecture, three hours. Enforced requisites: courses 105A, 110A, 115A, Chemistry 110A, Molecular, Cell, and Developmental Biology 100 (or M140 or 165A). Equilibrium phenomena. Application of basic mechanics, optics, and thermodynamics to biological design: structure of skeleton, scaling of bone and muscle mass, swim bladders, and animal vision. Application of elementary statistical physics, electrostatics, and elasticity to structure of proteins, DNA, and biomembranes. Concurrently scheduled with course C287A. P/NP or letter grading.

C187B. Biological Physics II: Life in Motion. (4) Lecture, three hours. Enforced requisites: courses 105A, 110A, 115A, C187A, Chemistry 110A, Molecular, Cell, and Developmental Biology 100. Nonequilibrium phenomena. Application of mechanics, hydrodynamics, diffusion, and electrical transport to dynamical phenomena. Macroscopic phenomena: swimming, flying, thermoregulation, blood circulation, breathing, electrical transport along membranes.

Physics of cells: Brownian motion, molecular motors, and cytoskeleton. Concurrently scheduled with course C287B. P/NP or letter grading.

188. Special Courses in Physics. (4) Lecture, three hours; discussion, one hour. Limited to junior/senior Astrophysics and Physics majors. Departmentally sponsored temporary courses such as pilot courses or those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

188A. Physics of Energy. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, 1C, 17, Mathematics 31A, 31B, 32A, 32B, 33A. Description of underlying physics of energy. Energy systems are based on well-known undergraduate-level physics principles such as mechanics, electromagnetism, and thermodynamics. Some understanding of fluid mechanics, quantum physics, statistical mechanics, nuclear physics also helpful, but those concepts introduced as needed. Understanding energy is of primary importance to our world today, as we face serious challenges to finding adequate energy sources to meet world demand, and as energy production is often accompanied by undesirable environmental and social side-effects. P/NP or letter grading.

188B. Computational Physics and Astronomy Laboratory. (4) Lecture, one hour; laboratory, six hours. Requisites: courses 105A, 105B, 110A, 110B, 112 (or Astronomy 115), 115A, 115B. Prior experience in working with computers helpful but not required. Designed to give first-hand experience in solving physics and astronomy problems on computers. Project-based course, with projects selected from core areas of classical mechanics, electrodynamics, quantum physics, statistical physics, and astronomy. Introduction to problems and to required numerical methods in lectures so students can write programs in one modern programming language of their choice (Python recommended) and carry out numerical experiments with it, with results documented in reports. P/NP or letter grading.

188L. Special Laboratory Courses in Physics. (4) Lecture, one hour; laboratory, two hours. Limited to junior/senior departmental majors. Departmentally sponsored temporary laboratory courses such as pilot courses or those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

190. Research Colloquia in Physics. (2) Seminar, two hours. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

191. Variable Topics Research Seminars: Physics and Astronomy. (4) Seminar, three hours. Participating research seminar on advanced topics in physics. Reading, discussion, and development of culminating project. Content varies from year to year. May be repeated for credit by petition. P/NP or letter grading.

192. Undergraduate Practicum in Physics. (2 to 4) Seminar, three hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students. Students assist in preparation of materials and development of innovative programs with guidance of faculty members in small course settings. May be repeated for credit. P/NP or letter grading.

193. Journal Club Seminars: Physics. (2) Seminar, one hour. Limited to undergraduate students. Seminars are linked to speaker-series seminars offered by department on weekly basis. Supplemental reading from literature on speaker's topic, as well as active participation and discussion to understand what kind of questions modern-day physicists actually ask and how they go about answering them. May be repeated for credit. P/NP grading.

194. Research Group Seminars: Physics and Astronomy. (1) Research group meeting, one hour. Designed for undergraduate students who are part of research group/laboratory. Discussion of research of

faculty members or students with regard to understanding methodology in field and laboratory equipment. May be repeated for credit. P/NP grading.

196. Research Apprenticeship in Physics. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors with overall 3.0 grade-point average. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP grading.

197. Individual Studies in Physics. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198. Honors Research in Physics. (2 to 4) Tutorial, 12 hours. Limited to juniors/seniors with overall 3.0 grade-point average. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Physics. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

201Q. Modern Physics Research Areas. (2) Review of modern physics research areas, with emphasis on those actively pursued at UCLA. S/U grading.

210A. Electromagnetic Theory. (4) Boundary value problems in electrostatics and magnetostatics. Multipole expansions; dielectrics and macroscopic media; Maxwell equations and conservation laws. Wave guides and resonators; simple radiating systems.

210B. Electromagnetic Theory. (4) Electromagnetic potentials and Hertz vectors. Cylindrical waves. Spherical waves. Debye potentials. Multipole radiation. Classical relativistic electrodynamics. Radiation from moving charges.

213A. Advanced Atomic Structure. (4) Group representation theory. Angular momentum and coupling schemes. Interaction of radiation with matter.

213B. Advanced Atomic Structure. (4) N-j symbols, continuous groups, fractional parentage coefficients, n electron systems.

213C. Molecular Structure. (4) Application of group theory to vibrational and electronic states of molecules. Molecular orbital theory. Raman effect. Angular momentum and coupling in molecules.

214A. Advanced Acoustics. (4) Propagation of waves in elastic and fluid media. Reflection, refraction, diffraction, and scattering of waves in fluids. Attenuation mechanisms in fluids.

214B. Advanced Acoustics. (4) Propagation in non-homogeneous fluids and in moving fluids. Radiation pressure, acoustic streaming, and attenuation in large amplitude sound fields. Propagation of sound in liquid helium. Mechanisms resulting in attenuation for elastic waves in solids.

215A. Statistical Physics. (4) Lecture, three hours. Microstates and macrostates, statistical ensembles, entropy and other thermodynamic functions, equilibrium, variational principles, functional integration methods. Applications: ideal gas, oscillators, rotors, elasticity, paramagnetism. Indistinguishable particles, Fermi/Dirac and Bose/Einstein distributions. Applications: electron gas, neutron stars, white dwarfs, Bose/Einstein condensation. Kinetics. S/U or letter grading.

215B. Advanced Statistical Mechanics. (4) Lecture, three hours. Symmetry characterization of phases of matter, phase transitions, Landau theory, order parameters. Applications: superfluidity, liquid crystals, superconductivity, Higgs mechanism. Scaling theory of critical phenomena, correlation functions, critical exponents, renormalization group methods. Gold-

stone models and topological defects, spin waves, sound waves, Kosterlitz/Thouless transition. S/U or letter grading.

215C. Quantum Statistical Mechanics and the Many Body Problem. (4) Lecture, three hours. Classical methods for interacting systems; quantum field theory techniques in statistical mechanics; Green's function approach; Coulomb gas; imperfect Bose gas; electron/photon interaction; superconductivity; phase transitions; theory of Fermi liquid. S/U or letter grading.

M215D. Nonequilibrium Statistical Mechanics and Molecular Biophysics. (4) (Same as Chemistry M223C.) Lecture, three hours. Requisites: course 215A, or Chemistry C215B and C223B. Fundamentals of nonequilibrium thermodynamics and statistical mechanics applied to molecular biophysics. S/U or letter grading.

220. Classical Mechanics. (4) Lecture, three hours. Lagrangian formulation, action, symmetries, conservation laws; Hamiltonian formulation, canonical structure, symmetries. Applications: harmonic oscillators, rotating solids. Special relativistic mechanics, Maxwell field, and dynamics of charged particles. Nonlinear dynamics and global behavior. S/U or letter grading.

221A-221B-221C. Quantum Mechanics. (4-4-4) Lecture, three hours. S/U or letter grading. **221A.** Fundamentals of quantum mechanics, operators and state vectors, equations of motion. **221B.** Requisite: course 221A. Rotations and other symmetry operations, perturbation theory. **221C.** Formal theory of collision processes, quantum theory of radiation, introduction to relativistic quantum mechanics.

222A-222B-222C. Plasma Physics. (4-4-4) Properties of a Coulomb gas with and without a magnetic field: equilibrium, oscillations, instabilities, fluctuations, collective phenomena, transport properties, and radiation. Description via single-particle orbit theory, magnetohydrodynamics, and kinetic equations of various types.

223. Advanced Classical Mechanics. (4) Requisite: course 220. Topics such as nonlinear mechanics, ergodic theory, mechanics of continuous media.

224. Introduction to the Strong Interaction. (4) Evidence concerning the strong interaction, particularly as exemplified in nucleon/nucleon and pion/nucleon systems. Isospin, scattering matrix, density matrix and polarization, properties of pions, one pion exchange potential, phase shift analysis.

225A-225B. Advanced Nuclear Physics. (4-4) Requisites: courses 221A, 221B. Normally preceded by course 224. Advanced course in structure of complex nuclei, nuclear models, scattering and reactions.

226A-226B-226C. Elementary Particle Physics. (6-6-6) Lecture, four hours. Requisites: courses 221A, 221B, 221C, 230A, 230B (230A, 230B may be taken concurrently). Modern theories of elementary particle physics beginning with symmetry principles and conserved quantities, classic V-A theory of weak interactions, gauge field theories (Abelian and non-Abelian), spontaneous symmetry breaking, $SU(2) \times U(1)$ electroweak interactions of leptons, quarks, W s, Z^0 and γ , quark theory of hadrons and quantum chromodynamics.

226D. Beyond the Standard Model. (4) Lecture, three hours. Requisites: courses 226A, 226B, 226C, 230A, 230B, 230C. Discussion of possible extensions of the current standard model of electroweak and strong interactions, including axions, technicolor, grand unified theories, supersymmetry, supergravity, and superstrings. S/U grading.

226E. Particle Astrophysics: Exploring Earliest and Extreme Universe. (4) Lecture, three and one half hours. Requisites: courses 210A, 210B, 221A, 221B. Recommended: course 226A. Introduction to high-energy astrophysics and discussion of latest developments in both experimentation and theory. Special emphasis on unified picture of universe that emerges from particle physics, astronomy, and cosmology. S/U or letter grading.

230A-230B-230C. Quantum Field Theory. (6-6-6) Lecture, four hours. Requisites: courses 221A, 221B, 221C. Modern quantum field theory, including free and interacting field quantization, operator and path integral formulation, renormalization theory and renormalization group methods, gauge theories, quantum electrodynamics and quantum chromodynamics, spontaneous symmetry breakdown, mass generation, and anomalies. S/U or letter grading.

230D. Quantum Field Theory. (4) Lecture, four hours. Requisites: courses 221A, 221B, 221C. Topics in modern quantum field theory, including solitons, instantons, and other topological defects, large N methods, finite temperature field theory, lattice field theory, effective field theory methods and chiral Lagrangians, conformal field theory, and topological aspects of anomalies. S/U or letter grading.

231A. Methods of Mathematical Physics. (4) Lecture, three hours. Not open for credit to students with credit for Mathematics 266A. Linear operators, review of functions of a complex variable, integral transforms, partial differential equations. S/U or letter grading.

231B. Methods of Mathematical Physics. (4) Lecture, three hours. Not open for credit to students with credit for Mathematics 266B. Ordinary differential equations, partial differential equations, and integral equations. Calculus of variations. S/U or letter grading.

231C. Methods of Mathematical Physics. (4) Lecture, three hours. Not open for credit to students with credit for Mathematics 266C. Perturbation theory. Singular integral equations. Numerical methods. S/U or letter grading.

232A-232B. Relativity. (4-4) Special and general theories, with applications to elementary particles and astrophysics.

232C. Special Topics in General Relativity. (4) Lecture, four hours. S/U or letter grading.

233. Introduction to High-Energy Astrophysics. (4) Introductory lectures on modern high-energy astrophysics. High-energy radiation processes. Neutron stars. Pulsars. X-ray sources. Black holes. Supermassive rotators and quasars.

235. Group Theory and Quantum Mechanics. (4) Requisite: course 221A. Group representation theory and applications to quantum mechanics of atoms, molecules, and solids.

M236. Geometry and Physics. (4) (Same as Mathematics M217.) Lecture, three hours. Interdisciplinary course on topics at interface between physics quantum fields and superstrings and mathematics of differential and algebraic geometry. Topics include supersymmetry, Seiberg/Witten theory, conformal field theory, Calabi/Yau manifolds, mirror symmetry and duality, integrable systems. S/U grading.

237A. String Theory. (4) Lecture, four hours. Requisites: courses 221A, 221B, 221C, 230A. Historical introduction to string theory, including classical bosonic string and its symmetries, light cone quantization, covariant quantization, conformal field theory, Polyakov path integral, tree level amplitudes, and loop amplitudes. S/U grading.

237B. String Theory. (4) Lecture, four hours. Requisite: course 237A. Topics may include toroidal compactification, t-duality and d-branes, supersymmetric strings, orbifolds, Calabi/Yau compactifications and physics in four dimensions, and strings at strong coupling and dualities. S/U or letter grading.

241A. Solid-State Physics. (4) Lecture, four hours. Requisites: courses 140A, 140B, 215A, 221C. Symmetry, free electrons, electrons in periodic potential, experimental measurement of band structure and Fermi surface parameters, cohesive energy, lattice vibrations, thermal properties. Letter grading.

241B. Solid-State Physics. (4) Lecture, three hours. Requisite: course 241A. Transport theory with applications, electron/electron interactions. S/U or letter grading.

241C. Solid-State Physics. (4) Lecture, three hours. Requisite: course 241B. Semiconductors, magnetism, phase transitions, superconductivity. S/U or letter grading.

242A-242B. Advanced Solid-State Theory. (4-4) Requisites: courses 241A, 241B, 241C (may be taken concurrently). Many body methods in solid-state physics.

243A-243K. Special Topics in Solid-State Physics. (4 each) Lecture, three hours. S/U or letter grading. **243A. Disordered Systems; 243B. Magnetic Resonance; 243C. Quantum Criticality; 243D. Magnetism; 243E. Superconductivity; 243F. Macromolecules; 243G. Nanosystems; 243H. Optical Interactions; 243I. Nonlinear Optics; 243J. Topological Phases; 243K. Low-Temperature Physics.**

M243L. Condensed Matter Physics of Cells. (4) (Same as Biomathematics M243.) Seminar, four hours. Designed for graduate students. Basic paradigms of condensed matter physics and applications to biophysical modeling. S/U or letter grading.

250. Introduction to Acceleration of Charged Particles. (4) Lecture, three hours. Requisites: courses 210A, 210B, 215A. Principles of charged-particle acceleration, including principles of synchrotrons and storage rings, beam parameter determination, statistical behavior of beams and beam cooling techniques, synchrotron light sources, colliding beam storage rings, medical accelerators, and free electron lasers.

260. Seminar: Problems in Plasma Physics. (4) Seminar, four hours. S/U or letter grading.

261. Seminar: Special Problems in Theoretical Physics. (4) Seminar, four hours. S/U or letter grading.

262. Seminar: Physics of the Solid State. (2 to 4) Seminar, three hours. S/U or letter grading.

264. Seminar: Advanced Physical Acoustics. (4) Seminar, four hours. S/U or letter grading.

266. Seminar: Propagation of Waves in Fluids. (2 to 4) Seminar, three hours. S/U or letter grading.

268. Seminar: Spectroscopy. (2 to 4) Seminar, three hours. S/U or letter grading.

269A. Seminar: Nuclear Physics. (2 to 4) Seminar, three hours. S/U or letter grading.

269B. Seminar: Elementary Particle Physics. (2 to 4) Seminar, three hours. S/U or letter grading.

269C. Seminar: Accelerator Physics. (2 to 4) Seminar, three hours. Physics principles governing design and performance analysis of particle accelerators, using existing accelerators as examples and emphasizing interplay among design goals, component performance, and operational experience. S/U grading.

280E. Advanced Plasma Laboratory. (4) Lecture, two hours; laboratory, four hours. Requisites: courses M122, 180E. Laboratory experiments on behavior of plasmas in magnetic fields. Study of basic physics of particle motions, distribution functions, and fluid dynamics. Plasma waves and nonlinear phenomena. Advanced probe, microwave and plasma diagnostics.

C285. Foundations of Physics. (4) Lecture, three hours. Historical development and philosophical sources of classical and modern physics. Concurrently scheduled with course C185. Letter grading.

CM286. Neurophysics: Brain-Mind Problem. (4) (Formerly numbered C286.) (Same as Molecular, Cellular, and Integrative Physiology M286.) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, 1C, 4AL, 4BL, 6A, 6B, 6C, Chemistry 14A or 20A, Mathematics 3A, 3B, 3C, 31A, 32A, 32B, 33A. How does mind emerge from brain? Provides summary of basic biophysics of neurons, synapses, and plasticity.

Introduction to commonly used experimental and theoretical techniques of measuring, quantifying, and modeling neural activity, and their relative strengths and weakness and use of them to understand link between neural circuits, their emergent neural dynamics, and behavior in example model systems. Discussion of mechanisms of interaction between neural circuits and their role in cognition, learning, and sleep. Computer laboratory component where students learn to

write simple codes to quantify neural activity patterns. Concurrently scheduled with course C186. S/U or letter grading.

C287A. Biological Physics I: Life at Rest. (4) Lecture, three hours. Enforced requisites: courses 105A, 110A, 115A, Chemistry 110A, Molecular, Cell, and Developmental Biology 100 (or M140 or 165A). Equilibrium phenomena. Application of basic mechanics, optics, and thermodynamics to biological design: structure of skeleton, scaling of bone and muscle mass, swim bladders, and animal vision. Application of elementary statistical physics, electrostatics, and elasticity to structure of proteins, DNA, and biomembranes. Concurrently scheduled with course C187A. S/U or letter grading.

C287B. Biological Physics II: Life in Motion. (4) Lecture, three hours. Enforced requisites: courses 105A, 110A, 115A, C287A, Chemistry 110A, Molecular, Cell, and Developmental Biology 100. Nonequilibrium phenomena. Application of mechanics, hydrodynamics, diffusion, and electrical transport to dynamical phenomena. Macroscopic phenomena: swimming, flying, thermoregulation, blood circulation, breathing, electrical transport along membranes. Physics of cells: Brownian motion, molecular motors, and cytoskeleton. Concurrently scheduled with course C187B. S/U or letter grading.

290. Research Tutorial: Plasma Physics. (2 or 4) Three terms required of each graduate student doing research in this field, ordinarily during second or third year. Seminar and discussion by staff and students directed toward problems of current research interest in plasma physics group, both experimental and theoretical. May be repeated for credit. S/U grading.

291. Research Tutorial: Elementary Particle Theory. (2 or 4) Requisites: courses 226A, 230A, 230B. Required of each graduate student doing research in this field, ordinarily during second or third year. Seminar and discussion by staff, postdoctoral fellows, and graduate students. May be repeated for credit. S/U grading.

292. Research Tutorial: Spectroscopy, Low-Temperature, and Solid-State Physics. (2 or 4) Required of each graduate student doing research in these fields, ordinarily during second or third year. Seminar and discussion by staff and students on problems of current research interest in spectroscopy, low-temperature, and solid-state physics. May be repeated for credit. S/U grading.

293. Research Tutorial: Current Topics in Physics. (2) Lecture, one hour. Seminar and discussion by staff and students on current topics in physics, both experimental and theoretical (topics not limited to one field of physics). Strongly recommended for graduate students in physics. May be repeated for credit. S/U grading.

294. Research Tutorial: Accelerator Physics. (2 or 4) Lecture, one hour; discussion, two hours. Required of each graduate student doing research in this field. Seminar and discussion by faculty, postdoctoral fellows, and graduate students on topics of current interest in accelerator physics. May be repeated for credit. S/U grading.

295. Research Tutorial: Soft Matter/Biological Physics. (2) Tutorial, one hour. Required of each graduate student doing research in this field. One-hour presentation by students either on their ongoing research or on agreed on topic. Students answer critical questions and participate in critical examination of research. May be repeated for credit. S/U grading.

296. Research Topics in Physics. (2) Advanced study and analysis of current topics in physics. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

M297. Research Tutorial: Astroparticle Physics. (2 or 4) (Same as Astronomy M297.) Lecture, one hour; discussion, two hours. Required of each graduate student doing research in this field. Seminar and discussion by faculty, postdoctoral fellows, and graduate students on topics of current interest in astroparticle physics. May be repeated for credit. S/U grading.

298. Research Tutorial: Experimental Elementary Particle Physics. (2 or 4) Limited to six students. Required of each graduate student doing research in this field, ordinarily during second or third year. Seminar and discussion by staff and students on current problems in experimental elementary particle physics. May be repeated for credit. S/U grading.

299. Research Tutorial: Nuclear Physics. (2 or 4) Required of each graduate student doing research in this field, ordinarily during second or third year. Seminar and discussion on nuclear physics by staff and students, in both experiment and theory. May be repeated for credit. S/U grading.

M370A. Integrated Science Instruction Methods. (4) (Same as Chemistry M370A and Earth, Planetary, and Space Sciences M370A.) Lecture, two hours; discussion, one hour; laboratory, one hour. Preparation: one introductory lower division year (including laboratory) each of chemistry, life sciences, and physics and at least two Earth science courses, preferably one with field experience. Classroom management, lesson design, assessment, history of science education. S/U or letter grading.

M370B. Integrated Science Instruction Methods. (4) (Same as Chemistry M370B and Earth, Planetary, and Space Sciences M370B.) Lecture, two hours; discussion, one hour; laboratory, one hour. Requisite: course M370A or Chemistry M370A or Earth, Planetary, and Space Sciences M370A. Application of learning theory to science instruction and classroom management, including use of technology, collaborative learning, laboratory safety, ethical issues, field experiences, and professional development. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

490. Scientific Writing. (2) Seminar, 90 minutes. Practical guidelines for improved scientific writing and oral presentation. Writing of several short papers with subsequent analysis in class. Short blackboard and/or viewgraph presentations. Topics vary. S/U grading.

495. Teaching College Physics. (2) Seminar/discussion (five or more one-hour meetings during term, plus intensive training week at beginning of Fall Quarter). Required of all new teaching assistants. Special course for teaching assistants designed to deal with problems and techniques of teaching college physics. Ideas and techniques learned are applied and evaluated in the sections of each teaching assistant. May be repeated for credit. S/U grading.

596. Directed Individual Studies. (2 to 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

597. Preparation for Master's Comprehensive Examination or PhD Qualifying Examinations. (4) Tutorial, to be arranged. May be repeated twice for credit. S/U grading.

598. Master's Thesis Research and Writing. (4) Tutorial, to be arranged. May be repeated twice for credit. S/U or letter grading.

599. PhD Research and Writing. (4 to 12) Tutorial, to be arranged. May be repeated for maximum of 18 units. S/U grading.

PHYSICS AND BIOLOGY IN MEDICINE

*Interdepartmental Program
David Geffen School of Medicine*

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Magnus Dahlbom, PhD, *Graduate Adviser*

Faculty Committee

Magnus Dahlbom, PhD (*Molecular and Medical Pharmacology*)

Dieter R. Enzmann, MD (*Radiological Sciences*)

Michael McNitt-Gray, PhD (*Radiological Sciences*)
Michael E. Phelps, PhD (*Biomathematics, Molecular and Medical Pharmacology, Pathology*)

Michael L. Steinberg, MD (*Radiation Oncology*)

Scope and Objectives

The Physics and Biology in Medicine MS/PhD Program is a CAMPEP-accredited interdepartmental graduate program supported by the Departments of Molecular and Medical Pharmacology, Radiation Oncology, and Radiological Sciences. It offers training in four specialties: medical imaging, molecular and cellular oncology, molecular imaging, and therapeutic medical physics. Specialized facilities for training and research are available in the departmental laboratories, as well as in the Crump Institute for Molecular Imaging, Center for Medical Countermeasures against Radiation, and Center for Computer Vision and Imaging Biomarkers, among others. Highly specialized equipment includes state-of-the-art medical imaging modalities such as MRI, CT angiography, and PET/CT in both clinical and preclinical settings, as well as advanced radiotherapy treatment and planning facilities. The program prepares students for careers as independent researchers or professional medical physicists, and graduates pursue academic, industrial, governmental, and clinical careers, regardless of which specialty they pursue.

Graduates in physics and biology in medicine can expect to engage in any combination of research, teaching, clinical service, and consultation. Biomedical physicists are usually employed in hospitals frequently associated with a medical school, where they are members of the academic staff. They are also in demand in high-technology private industry engaging in research and development of diagnostic equipment. In government agencies, biomedical physicists are involved in the formulation and enforcement of regulations applied to the use of radiation in healthcare delivery.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate

Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Physics and Biology in Medicine Program offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Physics and Biology in Medicine.

Physics and Biology in Medicine

Upper Division Course

199. Directed Research in Biomedical Physics. (2 to 4) (Formerly numbered Biomedical Physics 199.) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Physics and Chemistry of Nuclear Medicine. (4) (Formerly numbered Biomedical Physics 200A.) Lecture, three hours; discussion, one hour. Nuclear structure, statistics of radioactive decay, nuclear radiations and their interaction with matter, nuclear decay processes, nuclear reactions, and compartment models. Physical and chemical properties of radioactive preparations used in nuclear medicine. Basic principles of nuclear medicine imaging, SPECT, and PET. S/U or letter grading.

200B. Nuclear Medicine Instrumentation. (4) (Formerly numbered Biomedical Physics 200B.) Lecture, one hour; laboratory, three hours. Requisite: course 200A. Introduction to nuclear medicine instrumentation, including well ionization chambers, probe and well scintillation detectors, scintillation cameras, and single photon and positron emission computed tomography. S/U or letter grading.

201. Medical Radiation Accelerator Design. (4) (Formerly numbered Biomedical Physics 201.) Lecture, three hours. Requisite: course 216. Overview of physical principles involved in design of current particle accelerators (electron, proton, heavy particle) and analysis of characteristics of current accelerators and facility design. S/U or letter grading.

202A-202B-202C. Applications of Medical Physics to Clinical Problems. (4-1-4) (Formerly numbered Biomedical Physics 202A-202B-202C.) Selected studies in clinical use of radioisotopes:

202A. Nuclear Medicine. (4) (Formerly numbered Biomedical Physics 202A.) Clinic, four hours. Requisite: course 200B. S/U or letter grading.

202B. Mammography. (1) (Formerly numbered Biomedical Physics 202B.) Clinic, one hour. Requisites: courses 200A, 205. Technical aspects of producing quality mammographic images and discussion of strategies for reducing artifacts and lowering patient dose. Review of specialty systems and regulatory aspects related to mammography systems. S/U grading.

202C. Radiation Therapy. (4) (Formerly numbered Biomedical Physics 202C.) Clinic, four hours. Requisites: courses 203, 204, 208B, 221. S/U or letter grading.

203. Physics of Radiation Therapy. (4) (Formerly numbered Biomedical Physics 203.) Lecture, three hours; discussion, one hour. Requisite: course 216. Radiation quantities and units. Radiation dosimetry, clinical applications in treatment planning. Methods of measuring radiation quantities. Calibration of radiation therapy equipment. Letter grading.

204. Introductory Radiation Biology. (4) (Formerly numbered Biomedical Physics 204.) Lecture, four hours. Effect of ionizing radiation on chemical and biological systems. S/U or letter grading.

205. Physics of Diagnostic Radiology. (4) (Formerly numbered Biomedical Physics 205.) Lecture, three hours; laboratory, one hour. Production of X rays, basic interactions between X rays and matter, X-ray system components, physics principles of medical radiography, radiographic image quality, fluoroscopy, image intensifiers, special procedures, X-ray protection. Laboratory experiments illustrate basic theory. S/U or letter grading.

206. Advanced Instrumentation. (4) (Formerly numbered Biomedical Physics 206.) Lecture, three hours; discussion, one hour. Requisite: course 205. Introduction to recent advances in digital diagnostic imaging systems, with topics centered on instrumentation including digital subtraction angiography (DSA) methods of producing three-dimensional images. S/U or letter grading.

207. Monte Carlo Methods with Applications for Radiological Sciences. (4) (Formerly numbered Biomedical Physics 207.) Lecture, two hours; laboratory, one hour. Requisites: courses 200A, 205, 216. Introduction to Monte Carlo methods, with application to radiation transport of charged and uncharged particles. Specific applications in radiological sciences. Letter grading.

208A. Medical Physics Laboratory: Medical Imaging. (4) (Formerly numbered Biomedical Physics 208A.) Discussion, two hours; laboratory, four hours. Requisite: course 205. Hands-on experience performing acceptance testing and quality control checks of imaging equipment such as fluoroscopy, digital subtraction angiography, mammography, ultrasound, magnetic resonance imaging, computed tomography, and computed radiography. S/U or letter grading.

208B. Medical Physics Laboratory: Radiation Therapy. (4) (Formerly numbered Biomedical Physics 208B.) Discussion, two hours; laboratory, four hours. Requisite: course 203. Hands-on experience calibrating treatment planning and radiation therapy equipment. S/U or letter grading.

209. Signal and Image Processing for Biomedicine. (4) (Formerly numbered Biomedical Physics 209.) Lecture, three hours. Preparation: basic calculus or linear algebra and undergraduate probability. Mathematics and statistical fundamentals prevalent in biomedical physics studies. Notion and basic descriptions of linear shift-invariance and point spread functions in continuous and discrete time. Sampling theory and Fourier analysis. Signal representation of vector spaces, projection theorem, and least-squares approximations. Discussion of signal subspace methods, correlation and independence, principal component analysis, and independent component analysis. Basic ideas in inverse problems and optimization. Application in medical and signal processing. Development of geometric and informatics intuitions behind mathematics and statistics. Light derivations and MATLAB programming. S/U or letter grading.

210. Computer Vision in Medical Imaging. (4) (Formerly numbered Biomedical Physics 210.) Lecture, three hours; discussion, one hour. Recommended requisites: Mathematics 155, Program in Computing 10A. Study of image segmentation, feature extraction, object recognition, classification, and visualization with biomedical applications. Topics include region-growing, edge detection, mathematical morphology, clustering, neural networks, and volume rendering in lectures, case studies, and programming projects. S/U or letter grading.

211. Medical Ultrasound. (4) (Formerly numbered Biomedical Physics 211.) Lecture, 90 minutes; laboratory, two hours. Preparation: one calculus course. Production of real-time ultrasound images, transducer modeling and design, Doppler and color flow instrumentation, biohazards of ultrasound, ultrasound phantom design, and ultrasound tissue characterization techniques. Laboratory included. S/U or letter grading.

212. Biochemical Basis of Positron-Emission Tomography (PET). (4) (Formerly numbered Biomedical Physics 212.) Lecture, three hours; discussion, one hour. Introduction to biochemical processes and application of radioisotopes to study metabolism noninvasively by positron-emission tomography (PET). Validation of kinetic models to derive quantitative information from PET. Introduction to clinical and experimental application of PET. S/U or letter grading.

213. Quantitative Autoradiography. (4) (Formerly numbered Biomedical Physics 213.) Lecture, three hours; discussion, one hour. Application of quantitative autoradiography for estimating brain and heart functions. Topics include 2-deoxyglucose method for metabolic rate; iodoantipyrine method for blood flow; amino acid method for protein synthesis; quantitative receptor autoradiography; neuroanatomy and neurophysiology of autoradiogram and PET scan interpretation. S/U or letter grading.

214. Medical Image Processing Systems. (4) (Formerly numbered Biomedical Physics 214.) Lecture, three hours; discussion, one hour. Requisites: courses 209, 210. Advanced image processing and image analysis techniques applied to medical images. Discussion of approaches to computer-aided diagnosis and image quantitation, as well as application of pattern classification techniques (neural networks and discriminant analysis). Examination of problems from several imaging modalities (CT, MR, CR, and mammography). S/U or letter grading.

215. Breast Imaging Physics and Instrumentation. (4) (Formerly numbered Biomedical Physics 215.) Lecture, three hours; laboratory, two hours. Requisite: course 205. Special requirements of mammography, design of dedicated mammography X-ray units from generators and tubes through screen/film cassettes. Stereotactic biopsy units, cost/benefit controversy of screening mammography, digital mammography, computer-aided diagnosis, telemammography, breast MRI, and breast ultrasound. S/U or letter grading.

216. Fundamentals of Dosimetry. (4) (Formerly numbered Biomedical Physics 216.) Lecture, three hours; laboratory, one hour. Review of fundamental interactions of radiation and matter and introduction to fundamentals of radiation dosimetry. Overview of dosimetry instrumentation as well as radiation sources. S/U or letter grading.

217. Statistics and Data Analysis in Biomedical Physics. (2) (Formerly numbered Biomedical Physics 217.) Lecture, two hours; laboratory, one hour. Requisites: Mathematics 31A, 31B, 32A, 32B, 33A, 33B. Introduction to computer-based statistical concepts, data analysis, and experimental design within biomedical physics research. Standard statistical packages and various statistical computing algorithms on relevant data sets within radiological sciences. Letter grading.

218. Radiologic Functional Anatomy. (2) (Formerly numbered Biomedical Physics 218.) Lecture, two hours. Introduction to human anatomy, cell biology, and physiology as visualized through microscopy, molecular imaging, radiography, CT, MRI, ultrasonography, PET, and SPECT. Letter grading.

M219. Principles and Applications of Magnetic Resonance Imaging. (4) (Formerly numbered Biomedical Physics M219.) (Same as Bioengineering M219.) Lecture, three hours; discussion, one hour. Basic principles of magnetic resonance (MR), physics, and image formation. Emphasis on hardware, Bloch equations, analytic expressions, image contrast mechanisms, spin and gradient echoes, Fourier transform imaging methods, structure of pulse sequences, and various scanning parameters. Introduction to advanced techniques in rapid imaging, quantitative imaging, and spectroscopy. Letter grading.

220A-220D. Laboratory Rotations in Biomedical Physics. (2-2) (Formerly numbered Biomedical Physics 220A-220D.) Laboratory, two hours. Laboratory projects to provide students with introduction to field. One oral and one written presentation required. S/U grading. **220A.** Biophysics; **220B.** Medical Imaging; **220C.** Therapeutic Medical Physics; **220D.** Radiation Biology and Experimental Radiation Therapy.

221. Applied Health Physics. (4) (Formerly numbered Biomedical Physics 221.) Lecture, three hours; discussion, one hour. Requisite: course 216. Basics of radiation safety as applied to medical applications. Introduction to all regulatory issues pertaining to medical uses of radioactivity. Letter grading.

222. Advances in Medical Magnetic Resonance: Clinical MR Spectroscopy and Fast MRI Techniques. (4) (Formerly numbered Biomedical Physics 222.) Lecture, three hours; laboratory, one hour. Requisite: course 219. Basic principles of NMR spectroscopy, localized spectroscopic sequences on whole-body environment, single/multishot localization, water/fat suppression, chemical shift imaging sequences, processing with multidimensional Fourier transforms, gradient/spin-echo based echo-planar imaging, diffusion/perfusion imaging techniques. Letter grading.

223. Seminar: Radiation Biology. (4) (Formerly numbered Biomedical Physics 223.) Seminar, four hours. Exploration of physiologic and molecular mechanisms that impact on response of normal and malignant tissues to ionizing radiation, with particular emphasis on critical and high in-depth analysis of approaches through which such responses can be modified in therapeutic setting. Understanding of rationale for integrating biological information into process of treatment planning and delivery. S/U grading.

225. Contrast Mechanisms and Quantification in Magnetic Resonance Imaging. (4) (Formerly numbered Biomedical Physics 225.) Lecture, four hours. Requisite: course M219. Introduction to magnetic resonance contrast mechanisms and quantification techniques in magnetic resonance imaging. Topics include exogenous and endogenous contrast mechanisms, measuring tissue perfusion and permeability, advanced diffusion and q-space analysis, chemical exchange and magnetization transfer imaging, and relaxometry. Letter grading.

227. Human Disease: Current and Future Role of Biomedical Physics. (4) (Formerly numbered Biomedical Physics 227.) Lecture, three hours; discussion, one hour. Present and future roles of biomedical physics in diagnosis and treatment of human disease, with focus on interdisciplinary nature of this field. Exploration of two diseases in depth with detailed description of roles of physics-based diagnostic imaging and therapeutic options for each disease. Description of current and future technologies, as well as techniques that exploit interaction between diagnosis and therapy. Letter grading.

229. Advanced Topics in Magnetic Resonance Imaging. (4) (Formerly numbered Biomedical Physics 229.) Lecture, four hours. Enforced requisite: course M219. Designed for students interested in pursuing research related to development or translation of new magnetic resonance imaging (MRI) technique. Basic tools and understanding of recent MRI developments that have had high impact on field, involve novel pulse sequence design or image reconstructions, and enable imaging of anatomy or function in way that surpasses what is currently possible with any modality. Topics include in-depth sequence simulation, RF pulse design, rapid image acquisition, parallel imaging, compressed sensing, image reconstruction and processing, motion encoding and compensation, chemical-shift imaging and understanding, and understanding/avoiding artifacts. Programming exercises in Matlab to provide hands-on experience. Letter grading.

M230. Computed Tomography: Theory and Applications. (4) (Formerly numbered Biomedical Physics M230.) (Same as Biomathematics M230.) Lecture, four hours. Computed tomography is three-dimensional imaging technique being widely used in radiology and is becoming active research area in biomedicine. Basic principles of computed tomography (CT), various reconstruction algorithms, special characteristics of CT, physics in CT, and various biomedical applications. S/U or letter grading.

231. Advanced Treatment Planning in Radiation Therapy. (3) Lecture, four hours. Enforced requisites: courses 203, 216. Designed to provide theoretical and practical understanding of treatment planning techniques utilized in radiation therapy. Topics include clinical treatment planning work flow, general planning principles and strategies, and specific considerations for various treatment delivery modalities and advanced treatment techniques. Detailed discussion on dose calculation algorithms and inversed planning and optimization. Clinical treatment planning demonstration using commercial treatment planning systems used to provide practical understanding of clinical applications and implementation. S/U or letter grading.

M248. Introduction to Biological Imaging. (4) (Formerly numbered Biomedical Physics M248.) (Same as Bioengineering M248 and Pharmacology M248.) Lecture, three hours; laboratory, one hour; outside study, seven hours. Exploration of role of biological imaging in modern biology and medicine, including imaging physics, instrumentation, image processing, and applications of imaging for range of modalities. Practical experience provided through series of imaging laboratories. Letter grading.

260A-260B-260C. Seminars: Biomedical Physics. (1-1-1) (Formerly numbered Biomedical Physics 260A-260B-260C.) Seminar, one hour. Joint critical study by students and instructors in fields of knowledge pertaining to biomedical physics. Periodic contributions by visiting scientists. Discussion of research in progress. Student presentations required in spring term. May be repeated. S/U (260A, 260B) and letter (260C) grading.

M266. Advanced Magnetic Resonance Imaging. (4) (Formerly numbered Biomedical Physics M266.) (Same as Neuroscience M267 and Psychiatry M266.) Lecture, four hours. Starting with basic principles, presentation of physical basis of magnetic resonance imaging (MRI), with emphasis on developing advanced applications in biomedical imaging, including both structural and functional studies. Instruction more intuitive than mathematical. Letter grading.

268. Radiopharmaceutical Chemistry. (4) (Formerly numbered Biomedical Physics 268.) Lecture, two hours; discussion, two hours. Current concepts in radioactive pharmaceutical agents in clinical use, including promising investigational agents. Utilization of short-lived, cyclotron-produced isotopes in radiopharmaceuticals. Rational design of radiodiagnostic agents. Letter grading.

269. Seminar: Medical Imaging. (1) (Formerly numbered Biomedical Physics 269.) Seminar, one hour. Continuous registration required of students in medical imaging specialty. Topics of current interest in medical imaging, with lecturers from department, other universities, and private industry. S/U or letter grading.

M285. Functional Neuroimaging: Techniques and Applications. (3) (Formerly numbered Biomedical Physics M285.) (Same as Bioengineering M284, Neuroscience M285, Psychiatry M285, and Psychology M278.) Lecture, three hours. In-depth examination of activation imaging, including MRI and electrophysiological methods, data acquisition and analysis, experimental design, and results obtained thus far in human systems. Strong focus on understanding technologies, how to design activation imaging paradigms, and how to interpret results. Laboratory visits and design and implementation of functional MRI experiment. S/U or letter grading.

286. Image Registration Techniques. (4) (Formerly numbered Biomedical Physics 286.) Lecture, four hours. Preparation: strong mathematical background. Examination of state-of-art image registration methods that exist today. Mathematical descriptions of each different class of registration methods and two-dimensional/three-dimensional/four-dimensional implementation details. Programming of registration methods in Matlab/C/C++/CUDA/JAVA interfaces so students learn all registration methods currently investigated. Letter grading.

M424. Functional Magnetic Resonance Imaging Journal Club. (2) (Formerly numbered Biomedical Physics M424.) (Same as Psychiatry M424.) Discussion, 90 minutes. Limited to 10 students. Current topics in functional neuroimaging, with emphasis on novel applications, analysis, and acquisition methods. Presentation and critique of student papers. Overall emphasis on magnetic resonance imaging. Example areas include tractography through diffusion tensor imaging, jittered event-related experimental designs, parallel receiver MR imaging, integrated electrophysiological and image acquisition. S/U grading.

495. Special Studies in Biomedical Physics. (4) (Formerly numbered Biomedical Physics 495.) Seminar, two hours; laboratory, four hours. Teaching assistance in graduate laboratory courses under supervision of faculty member. S/U grading.

596. Research in Biomedical Physics. (4 to 12) (Formerly numbered Biomedical Physics 596.) Tutorial, to be arranged. Directed individual study or research. Only one 596 course may be applied toward MS degree requirements. May be repeated for credit. S/U or letter grading.

597. Preparation for PhD Qualifying Examinations. (4) (Formerly numbered Biomedical Physics 597.) Tutorial, to be arranged. May not be applied toward MS degree requirements. May not be repeated. S/U grading.

598. Research for and Preparation of MS Thesis. (4 to 12) (Formerly numbered Biomedical Physics 598.) Tutorial, to be arranged. Two 598 courses (or 598 and 596 combined) may be applied toward MS degree requirements. May be repeated. S/U grading.

599. Research for PhD Dissertation. (4 to 12) (Formerly numbered Biomedical Physics 599.) Tutorial, to be arranged. Preparation: successful completion of screening examinations. Research for and preparation of PhD dissertation. May be repeated. S/U grading.

problems and its extensive interaction with mathematical, physical, biochemical, and engineering sciences, as well as with other branches of biology.

Within the prescribed curriculum, students may specialize in cellular and molecular physiology, theoretical and mathematical physiology, and organ systems and integrative phenomena, including neuroscience and behavioral physiology.

The Department of Physiology offers post-doctoral training in research and welcomes students interested in articulated MD/PhD programs.

Applicants interested in pursuing graduate study may apply directly to the interdepartmental Molecular, Cellular, and Integrative Physiology PhD Program. See <https://www.mcip.ucla.edu>.

Physiology

Upper Division Courses

100. Elements of Human Physiology. (6) Lecture. Designed for first-year dental students. Major organic body functions. With special supplementation, suitable introduction to field for graduate students for whom 201A, 201B course sequence was too extensive. P/NP or letter grading.

199. Directed Research in Physiology. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M210. Molecular and Cellular Mechanisms of Neural Integration. (5) (Same as Neuroscience M230 and Physiological Science M210.) Lecture, four hours; discussion, one hour. Requisite: Neuroscience M202. Introduction to mechanisms of synaptic processing. Selected problems of current interest, including regulation and modulation of transmitter release, molecular biology and physiology of receptors, cellular basis of integration in sensory perception and learning, neural nets and oscillators, and molecular events in development and sexual differentiation. Letter grading.

220. Methods in Cell Physiology. (6) Linear circuit analysis, including admittance, transfer admittance, transfer function, and filters using transform methods. Application of these concepts to electronic analog circuits in lectures and laboratory, with emphasis on operational amplifiers. Applications to electrophysiology include microelectrode amplifiers, voltage clamp and patch clamp techniques, with circuit analysis and noise considerations. Digital electronics cover logic gates, sequential circuits, and A/D and D/A conversion, with introduction to sampling theory.

221. Cell Physiology: Excitability. (6) Requisite: course 220. In-depth coverage of general properties of excitable cells, linear cable properties, nonlinear conductance changes, and generation and propagation of the nerve impulse. Voltage gating and gating currents, as well as relationship between macroscopic conductance and single channel properties discussed in analytical detail using original publications.

298. Current Topics in Physiology. (2 to 4) Lecture, one hour; discussion, one hour. Designed for graduate students. Students read primary literature in a specified area and conduct or participate in discussions on these papers. May be repeated for credit. S/U or letter grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. S/U grading.

PHYSIOLOGICAL SCIENCE

See Integrative Biology and Physiology

PHYSIOLOGY

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Nancy L. Wayne, PhD, Vice Chair, Instruction

Scope and Objectives

Physiology is the science of the functional activities of the human body. This covers a wide range, including observations on humans and experiments on animals and model systems in order to understand principles. Physiology is the science most directly relevant to human medicine in all its specialties and to understanding all environmental factors affecting human life. It is also a pure science of great challenge because of the complexity of its

- 597. Preparation for MS Comprehensive Examination or PhD Qualifying Examinations. (2 to 12)** Tutorial, to be arranged. S/U grading.
- 598. Thesis Research for MS Candidates. (2 to 12)** Tutorial, to be arranged. S/U grading.
- 599. Dissertation Research for PhD Candidates. (2 to 12)** Tutorial, to be arranged. S/U grading.

POLITICAL SCIENCE

College of Letters and Science

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Professors

Joel D. Aberbach, PhD
Richard D. Anderson, Jr., PhD
Matthew A. Barreto, PhD
Kathleen Bawn, PhD
Michael S.Y. Chwe, PhD
James D. DeNardo, PhD
Joshua F. Dienstag, PhD
Barbara Geddes, PhD
Miriam A. Golden, PhD
Deborah W. Larson, PhD
Jeffrey B. Lewis, PhD
Michael F. Lofchie, PhD
Susanne Lohmann, PhD
Kirstie M. McClure, PhD
Barry O'Neill, PhD
Karen J. Orren, PhD
Anthony R. Pagden, PhD
Mark A. Peterson, PhD
Daniel N. Posner, PhD (*James S. Coleman Professor of International Development Studies*)
Raymond A. Rocco, PhD
Ronald L. Rogowski, PhD
Michael L. Ross, PhD
Mark Q. Sawyer, PhD
Thomas Schwartz, PhD
David O. Sears, PhD
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John R. Zaller, PhD

Professors Emeriti

Leonard Freedman, PhD
Robert S. Gerstein, PhD
Edward Gonzalez, PhD
Edmond Keller, PhD
Roman Kolkowicz, PhD
Carole Pateman, DPhil
David C. Rapoport, PhD
Richard N. Rosecrance, PhD
Richard L. Sklar, PhD
Marc Trachtenberg, PhD
David A. Wilson, PhD
Charles E. Young, PhD

Associate Professors

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Davide Panagia, PhD
Melvin L. Rogers, PhD (*Scott Waugh Endowed Professor in Division of Social Sciences*)
Michael F. Thies, PhD
Robert F. Trager, PhD
Brian D. Walker, PhD

Assistant Professor

Christopher N. Tausanovitch, PhD

Adjunct Assistant Professor

James A. Desveaux, PhD

Scope and Objectives

The undergraduate major in the Department of Political Science aims to provide understanding of basic political processes and institutions as these operate in different national and cultural contexts. It also covers the interaction between nation states, the changing character of the relations between citizens and governments, and the values and criteria by which the quality of political life is judged. The program may be individually focused to serve the needs of the liberal arts major, the student seeking preparation for graduate work in political science, public administration, law, and other professional fields, and the student preparing for specialized roles in political and public organizations.

The graduate program leads to the PhD degree in Political Science (a master's degree may be earned in the process of completing PhD requirements). It is designed to give students a strong foundation in the discipline while enabling them to acquire additional skills for advancing their professional careers.

Undergraduate Study

Political Science BA

Political Science Premajor

All students intending to major in Political Science must enroll as Political Science premajors. After completion of preparation for the major courses, they need to petition to enter the major in the Undergraduate Office, 4269 Bunche Hall.

Preparation for the Major

Required: Four lower division courses from Political Science 10, 20, 30, 40, 50. Students must also take Political Science 6 or 6R. Statistics 10 or 12 may be substituted for course 6 or 6R.

Students must complete all premajor courses with a 2.0 grade-point average by the time they attain 135 units. Admission to the major is granted only after successful completion of all lower division requirements.

Transfer Students

Transfer applicants to the Political Science major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one statistics course and four courses from political theory, world politics, game theory, American politics, or comparative politics.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Ten upper division courses (40 units) selected from Political Science M105 through 199, each taken for a letter grade. Students are

required to maintain a 2.0 overall grade-point average in all upper division political science courses.

Upper division political science courses are organized into six fields: (I) political theory, (II) international relations, (III) American politics, (IV) comparative politics, (V) methods and models, and (VI) race and ethnic politics.

In fulfilling the requirement of 10 upper division political science courses, students must satisfy the following:

1. A concentration in one field consisting of at least three upper division courses in that field
2. A distribution requirement of at least one upper division course in each of three different fields outside the field of concentration; multifield courses from the concentration field may not satisfy a distribution field
3. Four additional political science courses to comprise the total of 10

Courses 191H, 195CE, 198, and 199 may not be applied toward either the concentration or distribution requirement.

Honors Program

The department honors program is open to seniors and to students who (1) have completed five upper division political science courses (two of which are in one field), (2) have a 3.5 grade-point average in upper division political science courses, and (3) are eligible for College of Letters and Science honors. Students should have substantial experience in writing research papers before they enter the honors program or course 191H.

Students wishing to qualify for graduation with departmental honors must complete courses 191H and 198, in which a senior thesis is written. Successful completion of the honors program is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Political Science offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Political Science.

Political Science

Lower Division Courses

6. **Introduction to Data Analysis. (5)** Lecture, three or four hours; discussion, one hour (when scheduled). Not open for credit to students with credit for course 6R. Introduction to collection and analysis of political data, with emphasis on application of statistical reasoning to study of relationships among political vari-

ables. Use of computer as aid in analyzing data from various fields of political science, among them comparative politics, international relations, American politics, and public administration. P/NP or letter grading.

6R. Introduction to Data Analysis—Research Version. (5) Lecture, three or four hours; discussion, one hour (when scheduled). Enforced corequisite: course 50R. Not open for credit to students with credit for course 6. Introduction to collection and analysis of political data, with emphasis on application of statistical reasoning to study of relationships among political variables. Use of computer as aid in analyzing data from comparative politics. P/NP or letter grading.

10. Introduction to Political Theory. (5) Lecture, three hours; discussion, one hour. Exposition and analysis of selected political theorists and concepts from Plato to the present. P/NP or letter grading.

20. World Politics. (5) Lecture, three hours; discussion, one hour. Required of all students concentrating in Field II. Introduction to problems of world politics. P/NP or letter grading.

30. Politics and Strategy. (5) Lecture, three or four hours; discussion, one hour (when scheduled). Introduction to study of strategic interaction in political applications. Use of game theory and other formal modeling strategies to understand politics. P/NP or letter grading.

40. Introduction to American Politics. (5) Lecture, three hours; discussion, one hour. Basic institutions and processes of democratic politics. Treatment of themes such as constitutionalism, representation, participation, and leadership coupled with particular emphasis on the American case. P/NP or letter grading.

50. Introduction to Comparative Politics. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 50R. Comparative study of constitutional principles, governmental institutions, and political processes in selected countries. P/NP or letter grading.

50R. Introduction to Comparative Politics—Research Version. (5) Lecture, three or four hours; discussion, one hour (when scheduled). Enforced corequisite: course 6R. Not open for credit to students with credit for course 50. Comparative study of constitutional principles, governmental institutions, and political processes in selected countries, with emphasis on presentation and evaluation of quantitative evidence. P/NP or letter grading.

60. Diversity and Disagreement: How to Succeed in Politics without Really Trying. (5) Lecture, three or four hours; discussion, one hour (when scheduled). To study question of can't we all just get along, students play games of cooperation, coordination, collaboration, and competition and examine whether and how diversity, disagreement, and democracy influence game play, to understand under what conditions diversity feeds productively or counterproductively into group effort. Development of self- and other-awareness of emergent properties of disagreement to appreciate how different kinds of social organization promote or undercut social cognition and collective action. Such understanding needs to develop bottom-up through experiential and interactive learning, active and analytical learning, systems thinking, and real-world application. P/NP or letter grading.

Upper Division Courses

M105. Economic Models of Public Choice. (4) (Same as Economics M135.) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: any lower division political science course. Enforced requisite: Economics 11. Designed for juniors/seniors. Analysis of methods and consequences of arriving at collective decisions through political mechanisms. Topics include free-rider problem, voting and majority choice, demand revelation, and political bargaining. P/NP or letter grading.

M107. Women and Politics. (4) (Same as Gender Studies M117.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to rapidly growing body of empirical and theoretical scholarship on women and politics in both national and international contexts. Topics may include women's movement in U.S. and globally; women's electoral participation; representation of women in Congress and in legislatures worldwide; women as heads of government and state; feminist critiques of political science; women and human rights; ERA; struggle for suffrage; mothers as political actors; women and military; women, development, and globalization. P/NP or letter grading.

Field I: Political Theory

M111A. Ancient and Medieval Political Theory. (4) (Same as Classics M121.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exposition and critical analysis of major thinkers such as Plato, Aristotle, Thucydides, St. Augustine, Aquinas, Machiavelli, and More and questions such as forms of government, citizenship, justice, happiness, rhetoric, religion, emotion. P/NP or letter grading.

111B. Early Modern Political Theory. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exposition and critical analysis of major thinkers such as Machiavelli, More, Montaigne, Hobbes, Locke, Rousseau, Smith, Condorcet, and Kant and questions such as representation, property, autonomy, and political economy. P/NP or letter grading.

111C. Late Modern Political Theory. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exposition and critical analysis of major thinkers such as Bentham, De Tocqueville, Hegel, Mill, Marx, Nietzsche, Arendt, and Foucault and questions such as alienation, power, participation, and difference. P/NP or letter grading.

112A. Democratic Theory. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Critical analysis of selected major authors, issues, and arguments in contemporary democratic theory.

M112B. Invention of Democracy. (5) (Same as Classics M125.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Democracy was invented in ancient Greece as political form grounded on equality before law, citizenship, and freedom. It came into existence as struggle by *demos*, people, aware of its excellence and proud of its power, *kratos*. It became only regime capable of including all members of community while disregarding wealth, status, and diverging interests. Examination of history and theory of ancient democracy. P/NP or letter grading.

113A. Problems in 20th-Century and Contemporary Political Theory. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study and interpretation of theorists who have focused their analyses on social and political problems of 20th century. P/NP or letter grading.

113B. Politics, Theory, and Film. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended requisite: course 10. Designed for juniors/seniors. Intense and individualized examination of politically significant films with respect to central issues in political theory such as power and truth in light of relevant political theorists. P/NP or letter grading.

114. American Political Thought. (4) (Formerly numbered 114A.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exposition and critical analysis of American political thinkers from Puritan period to present. P/NP or letter grading.

M115A. Ethics and Governance. (4) (Same as Public Policy M122.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of applied ethics and governance, taking case-based approach, mixing normative and positive

perspectives. Is action X morally right or wrong? How do people reason about whether action X is morally right or wrong? How do governance structures influence how people reason about whether action X is morally right or wrong? How can we design governance structures that encourage people to act ethically, contribute to public goods, and lead productive and fulfilled lives? May be applied toward Field I or III. P/NP or letter grading.

M115B. Political Ethics. (4) (Same as Public Policy M126.) Lecture, three or four hours; discussion, one hour (when scheduled). Course M115A is not requisite to M115B. Designed for juniors/seniors. Study of major issues in morality, or lack thereof, of political life. Coverage of both readings in moral and political theory and real-world examples such as Watergate, terrorism, civil rights politics, and presidential campaigns. Topics include basic ethical theory, role-relative ethics, Machiavellian amorality, democratic responsibility and representation, ethics of compromise, dirty hands problems, international ethics. Letter grading.

M115C. Citizenship and Public Service. (4) (Same as Civic Engagement M115.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended requisite: course 10. Designed for juniors/seniors. Study of ways in which political thinkers have conceived of ideas of citizenship and public service, how these ideas have changed over time, and frameworks for thinking about citizenship in era of markets and globalization. P/NP or letter grading.

115D. Diversity, Disagreement, and Democracy: Can't We All Just Get Along? (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Can't we all just get along? Study of diversity, disagreement, and democracy. Diversity covers individual differences, cultural differences, and human universals; groupism, factionalism, and identity politics; multiculturalism and one-world ethics. Disagreement includes moral, ideological, and party-political disagreement; resolvable and irresolvable kinds of disagreement; groupthink and group polarization; herding and information cascades. Democracy stands for political mechanisms of information aggregation; political mechanisms to resolve differences, or to keep peace among people with irresolvable differences; emergence and spread of democracy, liberty, and rule of law. Letter grading.

115E. Humanist Practice and Civic Culture. (4) Seminar, three hours. Enforced requisites: courses 10, M115C. Designed for juniors/seniors. Exploration of connection between humanist practices (philosophy, sociability, science, republican self-fashioning) and promotion of civic ethos—culture that would promote flourishing civil society. How has humanism informed our Western understanding of republicanism and civic responsibility? What aspects of our humanist heritage maintain relevance for world that many describe as posthumanist? What form of civic culture is most appropriate for North American citizens in 21st century? P/NP or letter grading.

116A. Marxism. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Critical analysis of origins, nature, and development of Marxist political theory. P/NP or letter grading.

116B. Continental Political Thought. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of important text in continental political theory, including relationship between politics and reason, skepticism, and political freedom. P/NP or letter grading.

117. Jurisprudence. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Development of law and legal systems; consideration of fundamental legal concepts; contributions and influence of modern schools of legal philosophy in relation to law and government. Letter grading.

118. Laws of War and Peace from Conquest of America to Declaration of Human Rights (1948). (4) Lecture, three hours; discussion, one hour (when scheduled). Enforced requisite: course 10. Designed for juniors/seniors. Examination of theories of international relations and international law, with special emphasis on warfare, from conquest of America to end of World War II. P/NP or letter grading.

119. Special Studies in Political Theory. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one course in Field I. Requisite: course 10. Designed for juniors/seniors. Intensive examination of one or more special problems appropriate to political theory. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change. P/NP or letter grading.

M119A. Modern Receptions of Ancient Political Thought. (4) (Same as Classics M124.) Lecture, three hours. Designed for juniors/seniors. Study of how Western culture has conceived and reinterpreted political thought of ancient Greeks and Romans. Topics include examination of influential case(s) of modern reception of classical antiquity. P/NP or letter grading.

Field II: International Relations

120A. Foreign Relations of U.S. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of factors and forces entering into formation and implementation of American foreign policy, with special emphasis on contemporary problems. P/NP or letter grading.

120B. World Politics and U.S. Foreign Policy after September 11. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Video lectures by leading scholars as well as live lectures and discussion on complex problems such as terrorism, nuclear proliferation, and Arab-Israeli conflict. P/NP or letter grading.

M120C. U.S. Intelligence Agencies in Theory and Practice. (4) (Same as Public Policy M118.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Examination of U.S. intelligence agencies from Cold War to present. Particularly in light of 9/11 and Iraq war, few organizations are more important and less understood. Course separates fact from fiction, comparing how intelligence agencies are portrayed in popular entertainment to how they operate in practice. Fundamentals of intelligence collection (from satellites to spies) and analytic tradecraft; key challenges such as role of ethics in intelligence; performance of U.S. intelligence agencies during Cold War; and intelligence community's ability to adapt to rise of terrorism. Application of general concepts to specific case studies of Cuban missile crisis, 2003 Iraq war, and September 11, 2001, terrorist attacks. P/NP or letter grading.

121A. Studies in Formulation of American Foreign Policy. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of formation of American foreign policy with respect to individual cases. Consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

M121B. Crisis Decision Making in U.S. Foreign Policy. (4) (Same as Public Policy CM117.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended requisites: courses 120A, 137A. In-depth look at theory and practice of U.S. foreign policy-making. Assessment of competing theories of international relations and application to specific case studies. Weekly role plays of foreign policy-makers and final crisis simulation exercise. Letter grading.

122A. World Order. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Study of problems of international system seen as community capable of cooperation and development. P/NP or letter grading.

M122B. Global Environment and World Politics. (4) (Same as Environment M161.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended requisite: course 20. Politics and policy of major global environmental issues such as climate change, integrating law, policy, and political science perspectives. P/NP or letter grading.

123A. International Law. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Study of nature and place of international law in conduct of international relations. P/NP or letter grading.

123B. International Organizations. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Overview of both theory and functioning of international organizations in promoting international cooperation. Required readings include both statistical and formal models. P/NP or letter grading.

124A. International Political Economy. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Study of political aspects of international economic issues. P/NP or letter grading.

124C. Politics of Latin American Economic Development. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Interaction of international and domestic factors in political and economic evolution of Latin America. P/NP or letter grading.

125A. Arms Control and International Security. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Arms control in context of international security in nuclear age. Nuclear arms race; relationship between deterrence doctrines and nuclear war; roles of technology and ideology; nuclear proliferation; outer space. P/NP or letter grading.

M125B. U.S. National Security Policy. (4) (Same as Public Policy CM123.) Lecture, three hours; outside study, nine hours. Limited to juniors/seniors. Examination of contemporary U.S. national security challenges and how policymakers develop strategies to address them. Exploration of Cold War legacy, development of American national security strategic doctrine, and U.S. foreign policymaking process from 1945 to present. Examination of broad spectrum of issues confronting today's foreign policy leaders, from threats to vital U.S. interests (WMD proliferation and terrorism), to regional security and economic challenges (Iraq, China), to humanitarian intervention and nation-building (Darfur, Afghanistan). Students draft analytic options memos and deliver oral presentations on how to handle six current national security minicases. Provides overview of current challenges and hones student analytic skills to examine these challenges from strategic policy perspective. Letter grading.

126. Peace and War. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Theory and research on causes of war and conditions of peace.

127A. Atlantic Area in World Politics: Western Europe. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. External relations of United Kingdom, West Germany, France, Italy, and other European members of NATO, in regard to European security in context of Atlantic Alliance. P/NP or letter grading.

128A. U.S./Soviet Relations. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Survey of relations between the U.S. and former Soviet Union from Revolutions of 1917 to collapse of the U.S.S.R. in 1991.

128B. International Relations of Post-Communist Russia. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisites: courses 20, 128A. Designed for juniors/seniors. Survey of foreign policy of post-Communist Russia, with special emphasis on Russia's relations with NATO, the former communist states of East Central Europe, China, and the Commonwealth of Independent States.

129. Diplomacy and War. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20 or 137A. Designed for juniors/seniors. Analysis of role of diplomacy in great power politics, history of diplomatic institutions, advantages of public and private diplomacy, bilateral and multilateral settings, and theory and practice of deterrence and coercion. Use of game theoretic reasoning and historical analysis. Prior exposure to both useful but not required. P/NP or letter grading.

132A-M132B. International Relations of Middle East. (4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **132A.** Requisite: course 20. Contemporary regional issues and conflicts, with particular attention to inter-Arab politics, Arab-Israeli problem, and Persian Gulf area. **M132B.** (Same as Honors Collegium M157.) Role of great powers in Middle East, with emphasis on American, Soviet, and West European policies since 1945.

134. Foreign Policy Decision Making and Tools of Statecraft. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 120A. Designed for juniors/seniors. Contrasts purposive and process models of individual and group decision making. Impact of strategic interaction and situational factors on foreign policy decision making. Implications for policy choice of tools of statecraft (i.e., threats/promises, military/economic/diplomacy). P/NP or letter grading.

135. International Relations of China. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Relations of China with its neighbors and other powers, with emphasis on contemporary interests and policies of China vis-à-vis U.S. P/NP or letter grading.

137A. International Relations Theory. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of various theoretical approaches to international relations. P/NP or letter grading.

138A. International Politics, 1815 to 1914. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Classic period of European great power politics, beginning with peace settlement at end of Napoleonic wars and ending with coming of World War I. P/NP or letter grading.

138B. International Politics, 1914 to the Present. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. First World War, failure of peace settlement, origins of Second World War, Cold War, and post-Cold War period. P/NP or letter grading.

139. Special Studies in International Relations. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisites: two courses in Field II, or course 20 and one course in Field II. Designed for juniors/seniors. Intensive examination of one or more special problems appropriate to international relations. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change. P/NP or letter grading.

Field III: American Politics

140A-140B-140C. National Institutions. (4-4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. **140A. Congress.** Study of those factors which affect character of the legislative process and capacity of representative institutions to govern in contemporary society. **140B. The Presidency.** Study of nature and problems of presidential leadership, emphasizing impact of the bureaucracy, congress, public opinion, interest groups, and party system on the presidency and national policy-making. **140C. Supreme Court.** Introduction to American constitutional development and role of Supreme Court as interpreter of the U.S. Constitution. Reading of Supreme Court cases as well as various historical and current commentaries.

M141A-141E. Electoral Politics. (4 each) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading:

M141A. Political Psychology. (4) (Same as Psychology M138.) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Examination of political behavior, political socialization, personality and politics, racial conflict, and psychological analysis of public opinion on these issues. P/NP or letter grading.

141B. Public Opinion and Voting Behavior. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Study of character and formation of political attitudes and public opinion. Role of public opinion in elections, relationship of political attitudes to the vote decision, and influence of public opinion on public policy formulation. P/NP or letter grading.

141C. Political Behavior Analysis. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisites: courses 6, 40, 141B. Designed for juniors/seniors. Advanced course in use of quantitative methods in study of political behavior, especially in relation to voting patterns, political participation, and techniques of political action. Students conduct computer-aided analyses of issues and problems treated in course 141B and similar courses. P/NP or letter grading.

M141D. Mass Media and Elections. (4) (Same as Communication Studies M161.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Assessment of manner in which Americans' political beliefs, choices, and actions are influenced by mass media presentations, particularly during election campaigns. Topics include processes of political attitude formation and change, different types of media "effects," and role of the media in the American political process. P/NP or letter grading.

141E. Elections, Media, and Strategy. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 30. Designed for juniors/seniors. Analysis of elections and media, including game-theoretic analysis, Downs' spatial model of elections, valence characteristics in elections, campaign finance, endogeneity problems in social sciences, liberal bias in media, industrial organization of news industry, and effects of media on voter decisions. May be applied toward Field III or V. P/NP or letter grading.

142A. Political Parties and Interest Groups. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Organization and activities of political parties in the U.S. Attention to historical development of the parties, nature of party change, campaign functions and electoral role of the parties, membership problems and party activists, political finance, and policy formulation practices. P/NP or letter grading.

M142D. Understanding Public Issue Life Cycle. (4) (Same as Public Policy M127.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended preparation: courses 10, 40, and one course from Economics 1, 2, 5, 11, or 101. Examination of how public issue life cycle is shaped by (1) economic and political incentives of various actors—business, news media, mass public, organized interests, Congress, the president, regulatory agencies, and courts and (2) ideology, cognitive biases, and ethical reasoning. P/NP or letter grading.

143A. Subnational Government: American State Government. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Examination of governments of states of federal union as major sources of public policy in U.S., with government of California as principal topic. P/NP or letter grading.

143B. Metropolitan Governance. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of how political, social, economic, and cultural factors influence metropolitan governance in both U.S. central cities

and suburban areas. Study of some major issues in metropolitan governance through classic and contemporary readings on political power, political economy of cities, and racial/ economic segregation, as well as political incorporation and racial/ethnic coalitions. P/NP or letter grading.

143C. Politics of American Suburbanization. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of political, social, and economic evolution of American suburbs, particularly in post-WWII era. Dominant themes focus primarily on historical patterns and implications of U.S. racial/ethnic inclusion and exclusion; class conflict and gender roles; classic and contemporary theories of metropolitan governance; and civic/political implications of American suburbanization. Select topics and case studies include housing, schools, and taxes; immigrant and ethnic minority suburbanization; suburban sprawl and uneven growth; suburban decline; and regionalism. P/NP or letter grading.

145A-145E. Public Law and Judicial Process. (4 each) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. P/NP or letter grading:

145A. Anglo-American Legal System. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Evolution of English common law courts and their legal system, with emphasis on development of basic concepts of law which were received from that system in U.S. and remain relevant today. P/NP or letter grading.

145B. Constitutional Law—Separation of Powers. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Constitutional questions concerning separation of powers, federalism, and relationship between government and property. P/NP or letter grading.

145C. Constitutional Law—Civil Liberties. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Protection of civil and political rights and liberties under constitution. P/NP or letter grading.

145D. Judicial Oversight of Bureaucracy. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Legal controls of administration action. Substantive and procedural limits on administrative discretion imposed by legislation, executive and judicial agencies, and sources of legal powers of administrative bodies within these limits. P/NP or letter grading.

145E. Constitutional Law—Rights of Accused. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Constitutional rights of persons suspected, accused, and convicted of crimes, with attention to how protections have changed through history. P/NP or letter grading.

146B-146D-146E. Organization Theory, Public Policy, and Administration. (4-4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading:

146B. Bureaucracy and Public Management. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: familiarity with American government. Requisite: course 40. Designed for juniors/seniors. Nature of bureaucracy in modern government, with emphasis on U.S.; explanation of why government agencies behave as they do. Focus on real and imagined problems with bureaucratic rule; evaluation of commonly proposed solutions for these problems. Examples from schools, armies, welfare bureaus, regulatory agencies, and intelligence services, among others. P/NP or letter grading.

146D. Theories of Organization and Decision Making. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Examination of theoretical frameworks for studying public and private bureaucracies,

with emphasis on ideologies, values, behavioral patterns, and concepts of organization. P/NP or letter grading.

146E. National Policy Development and Implementation. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Investigation of complex process of policy development and implementation in U.S., including roles of federal, state, and local agencies as well as private organizations. Subsections offered on particular policy areas, with topics announced in preceding term. P/NP or letter grading.

147A-147B-147C. American Political Development. (4-4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. P/NP or letter grading:

147A. Overview. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Introduction to historical development of American politics and ideas and institutions that drive durable change over time. Examination of theories, concepts, and analytical tools at center of developmental inquiry. P/NP or letter grading.

147B. Period Inquiry. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Examination of one period in American political history. Critical features fostering stability and change. Discussion of contributions to structure and content of contemporary American politics. Possible periods, Founding, Reconstruction, Progressive Era, New Deal, and Cold War. Consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

147C. Institutional Development. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Examination of one American political institution and its development over time, or interaction of American politics and some aspect of culture and society. Assessment of broader political environment of politics, isolating points of contact, conflict, and pressure for change. Possible topics include party development, Constitution, business regulation, and politics and religion. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change. P/NP or letter grading.

149. Special Topics in American Government and Politics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisites: course 40, two courses in Field III. Designed for juniors/seniors. Intensive examination of one or more special problems appropriate to American politics. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change. P/NP or letter grading.

Also see course 117

Field IV: Comparative Politics

150. Political Violence. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of one or several different uses of violence in revolutionary process: demonstrations, mass uprisings, coup d'état, assassination, and terrorism. P/NP or letter grading.

151A-151B-151C. African Politics. (4-4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Letter grading:

151A. Government and Politics of Africa. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Comparative study of government and politics in contemporary Africa, with special attention to state/society relations, interaction of politics and economic development, political institutions, and conflict and conflict resolution. Letter grading.

151B. Political Economy of Africa. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of interactions of economic and political factors in African development, with special attention to political basis of

inappropriate economic policy during early post-independence period and change toward a more appropriate economic strategy in recent times. Letter grading.

151C. Special Topics in African Politics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Consult Schedule of Classes for topics to be offered in a specific term. Letter grading.

153A. Comparative Government and Politics of Western Europe: West European Government and Politics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 50. Designed for juniors/seniors. Comparison of constitutional and political structure of West European states, with particular attention to contemporary problems. P/NP or letter grading.

154A-154B. Government and Politics in Latin America. (4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Comparative study of governmental and political development, organization, and practices. P/NP or letter grading. **154A. States of Middle America.** Enforced requisite: course 50 or 50R; **154B. States of South America.**

156A. Government and Politics of Post-Communist States: Russia. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Intensive study of institutions and political development in Russia, with special attention to legacy of Soviet Union. P/NP or letter grading.

157. Government and Politics in the Middle East. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Comparative study of government in the Arab States, Turkey, Israel, and Iran. P/NP or letter grading.

158. Southeast Asian Politics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 50. Designed for juniors/seniors. Survey of political environment in major Southeast Asian states. Use of comparative analysis to address major problems confronting region, including democratization, economic growth, drug trade, deforestation, and security threats. Letter grading.

159A-159B. Government and Politics of China. (4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors:

159A. Chinese Revolution and Age of Mao Zedong. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of modern Chinese politics from decline of Manchu dynasty and rise of revolutionary nationalism to death of Mao Zedong, with emphasis on socioeconomic foundations and political dynamics of revolution in modern China.

159B. China in Age of Reform. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of China's political and ideological transformation in post-Mao era. Assessment of impact of changing socioeconomic conditions on revolutionary policies and programs of Chinese Communist Party. Exploration of etiology of 1989 Tiananmen crisis and consequences for China of collapse of Communism in East Europe and the Soviet Union.

160. Government and Politics of Japan. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 50. Designed for juniors/seniors. Structure and operation of contemporary Japanese political system, with special attention to domestic political forces and problems.

163A. Discourse before Democracy. (4) (Formerly numbered 163.) Lecture, three or four hours; discussion, one hour (when scheduled). Regularities in language used to talk or write about politics across states preceding emergence of universal adult franchises. Problems of collective action in oppression, contribution of shared identities to organizing collective action, role of discourse in cueing awareness of shared identity, evidence across time and space of

association between discursive distancing and undemocratic rule (monarchy, exclusive republics, dictatorship). Letter grading.

163B. Colonialism, Discourse, and Democracy. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Transformation of language used to talk or write about politics during era of European colonialism and resulting shifts in identity ensuing in political change. Theories of democracy, dynamics of colonial encounter between Europeans and peoples living outside Europe, problems of collective action in tyranny and democracy, consequences of sharing identity for collective action, transformation of discourse in response to colonialism and ensuing enfranchisement in Europe, North America, and Southwest Pacific, spread of enfranchisement following discursive transformations in Russia and in selected states emerging in formerly colonized territories. Letter grading.

164A. Roots of Democracy. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of development of democracy around world from its beginnings in ancient Greece to present day. Techniques of comparative politics used to evaluate major arguments about why different countries become democratic at different times, and why some remain authoritarian. P/NP or letter grading.

164B. Fascism and Right-Wing Extremism: Historical and Present Day. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Historical rise of Fascism in Germany, Italy, Japan, and Eastern Europe; its social support and ideology. Focus on Germany, including Nazi economic policy (Tooze, *Wages of Destruction*). Do today's xenophobic movements in Europe and U.S. resemble earlier Fascism in ideology and social base? P/NP or letter grading.

165. Islam and Politics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Religious and spiritual foundations of Islamic legal and political institutions; legitimacy of historical and contemporary Islamic regimes, movements, and ideologies; political strategies of Islamic activism. P/NP or letter grading.

166. Comparative Constitutional Design. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Comparison of major institutional structures such as presidentialism versus parliamentarism, unicameralism versus bicameralism, two-party versus multiparty systems, federal versus unitary systems, plurality versus proportional electoral systems, etc. Method of analysis is rational choice (political actors are assumed to optimize their results given institutional constraints and action of other actors). Result is that institutions affect political outcomes in systematic ways. P/NP or letter grading.

M167C. Political Economy of Development. (4) (Same as International Development Studies M120.) Lecture, three or four hours; discussion, one hour (when scheduled). Political economy approach to puzzle of why some countries are rich and others are poor and why, among latter, some have been able to achieve rapid rates of economic growth and others have not. Explanation and review of logic behind most important arguments that have been advanced to account for differences across countries in rates and levels of economic development. May be applied toward either Field IV or V. Letter grading.

167D. Political Institutions and Economic Development. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one statistics course. Designed for juniors/seniors. Data analytic approach to question of why some countries are rich and others are poor, with special attention to evidence about how governments and political institutions affect economic development. May be applied toward either Field IV or V. Letter grading.

168. Comparative Political Analysis. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisites: two courses in Field IV, or course 50 and one course in Field IV. Designed for ju-

niors/seniors. Major approaches to study of comparative politics. Concepts and methodology of comparative analysis. Letter grading.

169. Special Studies in Comparative Politics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: two courses in Field IV. Designed for juniors/seniors. Intensive examination of one or more special problems appropriate to comparative politics. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change. P/NP or letter grading.

Field V: Methods and Models

170A. Studies in Statistical Analysis of Political Data. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Enforced requisite: course 6 or 6R. Designed for juniors/seniors. Use of statistical methods to interpret data and test theories from various fields in political science and use of quantitative evidence in construction of convincing and truthful arguments related to world of politics. Consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

171A. Applied Formal Models: Collective Action and Social Movements. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 30. Designed for juniors/seniors. How do social and political movements convince people to participate? Consideration of various theoretical perspectives, including game-theoretic, social network, structural, and identity approaches, illustrated by case studies. P/NP or letter grading.

171B. Collective Choice and Majority Rule. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 30. Designed for juniors/seniors. How do different ways of counting and casting votes affect political decisions? When can voting rules be manipulated by leaders and voters? Examples from legislative, electoral, and judicial politics. P/NP or letter grading.

171C. Legislative Strategy. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 30. Designed for juniors/seniors. How do politicians get policy changes passed by legislatures, city councils, and other voting bodies? Applications of game-theoretic reasoning to common strategies and tactics in legislative settings. P/NP or letter grading.

171D. Negotiation. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 30. Designed for juniors/seniors. Study of negotiation and bargaining in different contexts. Experimental exercises with emphasis on various aspects of negotiation, including coalition formation, honesty, and role of agents. P/NP or letter grading.

172. Strategy and Conflict. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Enforced requisite: course 30. Designed for juniors/seniors. Intermediate topics in game theory applied to political problems, with special attention to strategic consequences of incomplete information and information asymmetries. P/NP or letter grading.

173. Special Topics in Methods and Models. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 30. Designed for juniors/seniors. Intensive examination of one or more special problems related to methods and models in political science. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change. P/NP or letter grading.

Field VI: Race and Ethnic Politics

M180A. African American Political Thought. (4) (Same as African American Studies M114C and Labor and Workplace Studies M114C.) Lecture, three or four hours; discussion, one hour (when scheduled). Intensive introduction to African American political thought, with focus on major ideological trends and political philosophies as they have been applied and interpreted by African Americans. Debates and conflicts in black political thought, historical contest of Af-

rican American social movements, and relationship between black political thought and major trends in Western thought. P/NP or letter grading.

M180B. African American Freedom Narratives. (4) (Same as African American Studies M114D.) Lecture, three or four hours; discussion, one hour (when scheduled). Historical, psychological, and thematic interpretation of selected narratives and storytelling in African American culture and politics. P/NP or letter grading.

M180C. Malcolm X and Black Liberation. (4) (Same as African American Studies M114E.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Analysis of black radicalism in mid-20th century, with special attention to contribution of Malcolm X and black nationalism to African American liberation movement. P/NP or letter grading.

181A. Politics of Latino Communities. (4) (Formerly numbered 181.) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one 140-level course or one upper division course on race or ethnicity from history, psychology, or sociology. Requisite: course 40. Designed for juniors/seniors. Focus on understanding relationships of power and interaction between institutional contexts of Latino life, such as economy, state, and cultural system on one hand and structure of everyday life in Latino households, neighborhoods, and communities on other. P/NP or letter grading.

181B. Latino Politics in U.S. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one 140-level course or one upper division course on race or ethnicity from history, psychology, or sociology. Requisite: course 40. Designed for juniors/seniors. Examination of history and contemporary role of Latinos as minority group in U.S. political system. Topics include Latino immigration and migration, civil rights movement, citizenship and voting, anti-immigrant attitudes, and political relationships between Latinos and non-Latinos. Analysis of data on Latino public opinion, voting behavior, and political attitudes on broad range of topics. P/NP or letter grading.

M182. Ethnic Politics: African American Politics. (4) (Same as African American Studies M144.) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one 140-level course or one upper division course on race or ethnicity from history, psychology, or sociology. Requisite: course 40. Designed for juniors/seniors. Emphasis on dynamics of minority group politics in U.S., touching on conditions facing racial and ethnic groups, with black Americans being primary case for analysis. Three primary objectives: (1) to provide descriptive information about social, political, and economic conditions of black community, (2) to analyze important political issues facing black Americans, (3) to sharpen students' analytical skills. P/NP or letter grading.

M183. Equal Rights and Unequal Education. (4) (Same as Education M186 and Public Policy M186.) Lecture, four hours. Exploration of contradictions between American beliefs about equal opportunity and racial equality and inequalities that exist in public education. Three major topic areas in education as vehicles for understanding philosophical and empirical complexities of issues surrounding equality in American education and life. Examination of issues from legal, sociological, political, and philosophical perspectives. Arguments range from Martin Luther King to Ronald Reagan, and legal cases include Plessy versus Ferguson to Brown versus Board of Education, as well as cases still pending in courts. Letter grading.

M184A. Black Experience in Latin America and Caribbean I. (4) (Same as African American Studies M154C.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Culture, history, politics, and identity of African Americans in Spanish and Lusophone Caribbean, South America, and Central America. Exploration of issues of identity in context of Afro/Latino migration to U.S. P/NP or letter grading.

M184B. Black Experience in Latin America and Caribbean II. (4) (Same as African American Studies M154D.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of issues regarding race and ethnicity in Latin America, with emphasis on comparisons to U.S. and within Latin America. Covers populations of African and indigenous origins, with emphasis on former. P/NP or letter grading.

Special Studies

190. Research Colloquia in Political Science. (1) Seminar, one hour. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

190H. Honors Research Colloquia in Political Science. (1) Seminar, one hour. Designed to bring together students writing departmental honors theses in seminar setting with one or more faculty members to discuss their thesis work in progress. Led by one supervising faculty member. P/NP grading.

191A-191E. Variable Topics Research Seminars for Majors. (4 each) Seminar, three hours. Preparation: two upper division courses in field in which seminar is offered. Limited to junior/senior Political Science majors with 3.25 grade-point average in upper division political science courses. Consult Schedule of Classes for topics to be offered in specific term. Reading, discussion, and development of culminating project. May be applied toward distribution or concentration requirement. May be repeated for credit. P/NP or letter grading. **191A.** Political Theory; **191B.** International Relations; **191C.** Politics; **191D.** Comparative Government; **191E.** Methods and Models.

M191DC. CAPPP Washington, DC, Research Seminars. (8) (Same as Communication Studies M191DC, History M191DC, and Sociology M191DC.) Seminar, three hours; laboratory, 24 hours. Limited to CAPPP Program students. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

191H. Research Design Seminar for Honors Thesis. (4) Seminar, four hours. Preparation: one course in 191 series, 3.5 grade-point average in upper division political science courses, eligibility for Letters and Science honors. Required of all students who wish to write honors thesis. Students define their research topic, select suitable research method, determine appropriate sources of information, prepare research proposal, find thesis director, begin their research, and submit progress reports or preliminary drafts. Class sessions emphasize critical and constructive discussions of students' topics, methods, and problems in research, as well as general consideration of political science research topics and methods of current or continuing interest. May be repeated for credit. Letter grading.

193. Journal Club Seminars: Political Science. (1) Seminar, two hours. Limited to undergraduate students. Discussion of readings selected from current literature of field. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit. P/NP grading.

194. Research Group Seminars: Political Science. (2) Seminar, three hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field of research of faculty members or students. May be repeated for credit. P/NP grading.

M194DC. CAPPP Washington, DC, Research Seminars. (4) (Same as History M194DC and Sociology M194DC.) Seminar, three hours. Limited to CAPPP Quarter in Washington students and other students

enrolled in UC Washington Center programs. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

195CE. Community and Corporate Internships in Political Science. (4) Tutorial, to be arranged; field-work, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. May be repeated for credit with consent of Center for Community Learning. No more than 8 units may be applied toward major; units applied must be taken for letter grade. May not be applied toward concentration or distribution requirements. Individual contract with supervising faculty member required. P/NP or letter grading.

M195DC. CAPPP Washington, DC, Internships. (4) (Same as History M195DC and Sociology M195DC.) Tutorial, four hours. Limited to junior/senior CAPPP Program students. Internships in Washington, DC, through Center for American Politics and Public Policy. Students meet on regular basis with instructor and provide periodic reports of their experience. Individual contract with supervising faculty member required. P/NP grading.

198. Honors Research in Political Science. (1 to 4) Tutorial, two hours. Requisite: course 191H. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research in Political Science. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for maximum of 16 units. Individual contract required. P/NP or letter grading.

Graduate Courses

Formal Theory and Quantitative Methods

200A. Statistical Methods I. (4) Lecture, three hours. Introduction to statistical analysis of political data. Methods of data analysis, estimation, and inference. Letter grading.

200B. Statistical Methods II. (4) Lecture, three hours. Recommended preparation: knowledge of elementary calculus. Requisite: course 200A. Applications of multiple regression in political science. S/U or letter grading.

200C. Statistical Methods III. (4) Lecture, three hours. Preparation: knowledge of elementary calculus. Requisites: courses 200A, 200B. Corequisite: course 200CL. Statistical modeling of political processes. Topics include simultaneous equations models, discrete choice models, time-series models. S/U or letter grading.

200CL. Statistical Methods Laboratory III. (4) Laboratory, three hours. Requisites: courses 200A, 200B. Corequisite: course 200C. Study of theory and application of linear regression analysis in political and social sciences. Starting with basic knowledge of probability theory and statistics, investigation of computation and interpretation of regression results, their statistical justifications, diagnostics for violations of assumptions, stability of results under perturbations of data and models, and extensions into nonstandard

situations. Topics may include classical linear model, statistical inference and hypothesis testing, vector geometry of regression, diagnostics, weighted least squares, cross validation and model selection, resampling, outliers, missing data, errors in variables, transformations, robust regression, logistic regression, and modern computing packages. Letter grading.

200D. Quantitative Methods in Politics. (4) Seminar, three hours. Preparation: knowledge of calculus, basic probability, and statistics, including linear regression and experience with computing in R. Recommended requisite: course 200C. Focus on causal inference in social science settings, particularly where randomized experiments may be difficult or impossible to implement. Introduction to commonly used estimation techniques, with focus on conditions under which they produce causal estimates. Emphasis on understanding and maximizing credibility of causal claims researchers can make given pragmatic limitations. S/U or letter grading.

200E. Advanced Topics in Quantitative Methods. (4) Seminar, three hours. Topics vary each year and have included instrumental variables, principal components and scaling, models of selection, models of duration, ecological inference, and hierarchical models. Student-led presentations on relevant statistical theory and applications. Monte Carlo simulations and replications of well-known studies used to demonstrate how various models work and how they are applied in practice. S/U or letter grading.

201A. Introduction to Formal Political Analysis. (4) Seminar, three hours. Survey of formal political theory to enhance literacy and provide analytical tools without presupposing mathematical background. Model building, collective goods, unanimity and the social contract, voting rules, paradoxes and impossibility theorems, stability, individual liberty and decentralization, strategic manipulation representation, vote trading.

201B. Theory of Collective Choice. (4) Seminar, three hours. Recommended preparation for political science students: course 201A. Open to any student of politics, economics, philosophy, or mathematics with ability for deductive reasoning. Introduction to abstract, deductive study of voting systems and other collective-choice processes. Axiomatic method applied to politics and political economy, concept of rationality, and agenda control, choice-set or solution concepts.

202. Mathematics for Political Science. (4) Lecture, three hours. Preparation: working knowledge of high school algebra. Survey of mathematical methods useful in political science. Topics include differential and integral calculus, differential equations, optimization, and linear algebra.

203A. Economic Theory and Methods for Political Science I. (4) Discussion, three hours. Preparation: knowledge of elementary calculus. Introduction to techniques of economic analysis and survey of major topics in formal political economy. Investigation of models of regulation, trade protection, collective bargaining, and economic growth as time permits.

203B. Economic Theory and Methods for Political Science II. (4) Discussion, three hours. Requisite: course 203A. Continuing survey of microeconomic techniques used in formal political science, with focus on market failures and on modeling individual choice in nonmarket situations. Specific topics include externalities, public goods and allocation mechanisms, collective action, spatial models, structure-induced equilibrium, and information asymmetries.

204A. Game Theory in Politics I. (4) Seminar, three hours. Survey of game theory, with emphasis on utilizing mathematical models to understand political and economic phenomena. Applications concern political participation, public goods, legislatures, industrial regulation, bureaucracies, interest groups, and party competition. Designed to help students become informed consumers of game-theoretical literature in political science. S/U or letter grading.

204B. Game Theory in Politics II. (4) Seminar, three hours; fieldwork, eight hours. Requisite: course 204A. Intermediate game theory course. Topics include

games of incomplete information, cheap talk games, and bargaining theory. Applications concern political participation, public goods, legislatures, bureaucracies, conflict, and communication. Designed to help students use game theory in their research. S/U or letter grading.

204C. Game Theory in Politics III. (4) Seminar, three hours; fieldwork, eight hours. Requisites: courses 204A, 204B. Advanced game theory course, with emphasis on new and/or advanced techniques. Topics include timing games, stochastic games, and mechanism design. Applications concern bureaucracies, conflict mediation, and political transitions. Designed to help students use advanced game theory in their research. S/U or letter grading.

M208B. Topics in Applied Game Theory. (4) (Same as Economics M215.) Lecture, three hours. Preparation: calculus or introductory probability. Designed for graduate economics and political science students. Survey and applications of major solution concepts to models of bargaining, oligopoly, cost allocation, and voting power. S/U or letter grading.

M208D. Multivariate Analysis with Latent Variables. (4) (Same as Psychology M257 and Statistics M242.) Lecture, three hours. Introduction to models and methods for analysis of data hypothesized to be generated by unmeasured latent variables, including latent variable analogues of traditional methods in multivariate analysis. Causal modeling: theory testing via analysis of moment structures. Measurement models such as confirmatory, higher-order, and structured-means factory analytic models. Structural equation models, including path and simultaneous equation models. Parameter estimation, hypothesis testing, and other statistical issues. Computer implementation. Applications. S/U or letter grading.

M208E. Bayesian Econometrics. (4) (Same as Economics M232A.) Lecture, three hours. Requisites: Economics 231A, 231B. Subjective probability, introduction to decision theory, Bayesian analysis of regression, sensitivity analysis, simplification of models, criticism. May be repeated for credit. S/U or letter grading.

209. Special Topics in Formal Theory and Quantitative Methods. (4) Seminar, three hours. S/U or letter grading.

Political Theory

210A-210B. Introduction to Political Theory. (4-4) Lecture, three hours. Exploration of major texts and issues in political theory. **210A.** Classical and Medieval Formulations from Plato through Aquinas; **210B.** Early Modern Period from Machiavelli through the Enlightenment.

212. Seminar: Political Theory. (4) Seminar, three hours. S/U or letter grading.

214. Political Theory in Transnational Context. (4) Seminar, three hours; discussion, one hour (when scheduled). Critical analysis of selected text from postcolonial, spatial, feminist, postmodern, and post-structuralist theories that assess impact of processes of globalization on such major concepts and problems of traditional social and political theory as sovereignty, citizenship, rights, community, representation, and democracy. S/U or letter grading.

215. Liberalism and Its Critics. (4) Seminar, three hours; discussion, one hour (when scheduled). Examination of works of one or more major contemporary liberal theorists (Rawls, Dworkin, Habermas, Nussbaum, etc.) in light of alternatives which have been proposed to the liberal position (communitarianism, post-structuralism, group rights theories, etc.). S/U or letter grading.

M216. Toleration, Pluralism, and Diversity. (4) (Same as Public Policy M248.) Seminar, three hours. Prior experience in political or legal theory helpful. Exploration of both abstract concepts of toleration and contemporary disputes. S/U or letter grading.

217. Selected Texts in Political Theory. (4) Seminar, three hours. Critical examination of major texts in political theory, with particular attention to their philosophic system, their relations to contemporary politi-

cal and intellectual currents, and importance of system for present-day political analysis. S/U or letter grading.

218. Selected Topics in Political Theory. (4) Seminar, three hours. Critical examination of major problem in political theory. S/U or letter grading.

219. Workshop: Political Theory. (4) Discussion, three hours. S/U or letter grading.

International Relations

220A. International Relations Core Seminar I. (4) Seminar, three hours. Introduction to international relations theory: main schools of thought, methods of analysis, and research styles. Letter grading.

220B. International Relations Core Seminar II. (4) Seminar, three hours. Further analysis of academic work in international relations and introduction to design of research project in this area. Letter grading.

220C. International Relations Research Seminar. (4) Seminar, three hours; tutorial meetings, to be arranged. Design, implementation, and presentation of research project in international relations within combination of seminar and tutorial settings. Letter grading.

222. Seminar: Strategic Interaction. (4) Seminar, three hours. A strategic move influences the other person's choice by affecting his expectations of how we will behave. Discussion of theories of deterrence, coercive diplomacy, crisis management, war termination, and negotiation. Use of various theoretical approaches to explaining strategic interaction, including psychology, bargaining theory, and game theory.

223. Politics and Strategies of Modern War. (4) Seminar, three hours. Analysis of various national security problems in both their military/technical and political dimensions. Letter grading.

225. American Foreign Policy. (4) Discussion, three hours. Discussion of approaches used to explain foreign policy-making at individual, small group, bureaucratic, and domestic politics levels. Application to selected cases in American foreign policy.

226. Making of American Foreign Policy. (4) Seminar, three hours. Intensive analysis of policy formulation process and substance of selected contemporary problems in foreign policy. Political and institutional factors affecting foreign policies; analysis of policy options. S/U or letter grading.

227. Foreign Policy Process. (4) Seminar, three hours. Requisites: courses 120A, 220A, 220B. Political science and policy science approaches to national foreign policy process, with primary focus on formulation and implementation of American foreign policy. S/U or letter grading.

230. Contending Perspectives on International Political Economy. (4) Discussion, three hours. Survey of various theoretical approaches to international political economy.

231. International Political Economy I. (4) Seminar, three hours. Interaction between international trade and investment and domestic political economics of both industrialized and industrializing societies.

232. International Political Economy II. (4) Seminar, three hours. Designed to develop PhD students' skills in setting up and solving simple institutional design, political economy macro, signaling, and participation models, as well as two-level game models of domestic politics and international conflict and cooperation, with emphasis on applications in international political economy and comparative politics.

233A-233B-233C. Political Economy Workshops (4-4-4). Discussion, two hours. Preparation: successful completion of major field examinations. Workshops for students writing or preparing to write dissertations. Reading and discussion of research in progress presented by UCLA faculty, visiting scholars, and advanced graduate students. Research paper of publishable length and quality required. S/U or letter grading.

234A-234B-234C. Workshops: National Security, Foreign Policy, and International Relations (0-0-12). Discussion, two hours. Preparation: successful completion of major field examinations. Course 234A is requisite to 234B, which is requisite to 234C. Courses must be taken in sequence. Workshops for students preparing for or working on dissertations. Reading and discussion of research in progress presented by UCLA faculty, visiting scholars, and advanced graduate students. Major research paper required. In Progress (234A, 234B) and letter (234C) grading.

239. Selected Topics in International Relations. (4) Seminar, three hours. S/U or letter grading.

Comparative Politics

240A-240B. Seminars: Comparative Politics. (4-4)

Seminar, three hours. Course 240A is not requisite to 240B. Letter grading. **240A.** Survey of ideas and approaches that have been historically important in field of comparative politics, with selection of theories and methodologies that have comprised field over time. **240B.** Survey of contemporary research approaches and problems in field of comparative politics, with a range of theories and methodologies used by practitioners in the field.

241. African Politics. (4) Seminar, three hours. Survey of contemporary research approaches and problems in African politics. S/U or letter grading.

242. Chinese and East Asian Politics. (4) Seminar, three hours. Survey of contemporary research approaches and problems in Chinese and East Asian politics. S/U or letter grading.

243. Japanese and Western Pacific Politics. (4) Seminar, three hours. Survey of contemporary research approaches and problems in Japanese and Western Pacific politics. S/U or letter grading.

244. Latin American Politics. (4) Seminar, three hours. Survey of contemporary research approaches and problems in Latin American politics. S/U or letter grading.

245. Middle Eastern Politics. (4) Seminar, three hours. Survey of contemporary research approaches and problems in Middle Eastern politics. S/U or letter grading.

246A. Western European Politics. (4) Seminar, three hours. Survey of contemporary research approaches and problems in Western European politics. S/U or letter grading.

246B. Political Development of Modern Europe. (4) Seminar, three hours; discussion, one hour (when scheduled). Principal phases of political development from high feudalism to the present, together with theories of causation.

247. Politics of Soviet Union and Post-Soviet Region. (4) Seminar, three hours. Survey of contemporary research approaches and problems in Soviet Union and post-Soviet region politics. S/U or letter grading.

247A. Evolution of Soviet and Russian Politics. (4) Seminar, three hours; discussion, one hour (when scheduled). Discussion seminar surveying political evolution of Soviet Union and its transformation.

247B. Domestic Context of Russian Foreign Policy. (4) Seminar, three hours. Examination of domestic social, political, bureaucratic, and organizational sources of Russian foreign and strategic policy. S/U or letter grading.

248. South Asian Politics. (4) Seminar, three hours. Survey of contemporary research approaches and problems in South Asian politics. S/U or letter grading.

251. Political Economy of Economic Reform. (4) Discussion, three hours. Some familiarity with economics helpful. Principal political and economic arguments for economic reform and consideration of political issues that arise from this process. Letter grading.

252. Parties and Party Systems. (4) Seminar, three hours; discussion, one hour (when scheduled). Theories and practices of political parties, party systems, and elections in comparative perspective.

253. Political Change in Communist Systems. (4) Discussion, three hours. Examination of political context and consequences of structural reform in Communist systems; theories of post-Leninist political pluralization and convergence.

254A-254B. Institutions and Comparative Politics. (4-4) Seminar, three hours; discussion, one hour (when scheduled):

254A. Comparative Institutional Analysis. (4) Seminar, three hours; discussion, one hour (when scheduled). Use of advances of rational choice theory and new institutionalism to compare and analyze major institutional structures, including presidentialism vs. parliamentarianism, unicameralism vs. bicameralism, two-party vs. multiparty systems, cadre vs. mass parties, and plurality vs. proportional electoral systems.

254B. Political Institutions, Delegation, and Policy-Making. (4) Seminar, three hours; discussion, one hour (when scheduled). Analysis of political foundations of policy-making. Characterization of democratic institutions as a series of delegations, from voters to elected officials, within parties and legislatures, and from elected politicians to unelected bureaucrats. Examination of implications of different institutional designs for how those delegations are made and controlled.

255. Seminar: Political Economy of Developing Countries. (4) Seminar, three hours. Interdisciplinary seminar directed toward comparative analysis of political development and modernization. S/U or letter grading.

256. External Sources of Domestic Politics. (4) Discussion, three hours. Theoretical and historical studies of impact of war and trade on domestic cleavages, policy, and institutions. S/U or letter grading.

257. Labor and Working-Class Politics. (4) Discussion, three hours. Questions and topics on comparative labor and working-class politics. S/U or letter grading.

258. Comparative Politics Proseminar. (2) Seminar, 90 minutes. Biweekly speaker series featuring presentation of unpublished research papers by comparative politics faculty members as well as external scholars. Required participation and written assignments. S/U grading.

259. Selected Topics in Comparative Politics. (4) Discussion, three hours. Critical examination of major problems in comparative politics. S/U or letter grading.

American Politics

260A. Survey Course in American Politics: Political Parties and Electoral Process. (4) Discussion, three hours. S/U or letter grading.

260B. Survey Course in American Politics: American Political Institutions. (4) Discussion, three hours. S/U or letter grading.

M261A. Proseminar: Political Psychology. (4) (Same as History M236A and Psychology M228A.) Seminar, three hours. Introduction to political psychology: psychobiography, personality and politics, mass attitudes, group conflict, political communication, and elite decision making.

261B. Mass Attitudes and Political Behavior. (4) Seminar, three hours. Requisite: course 141B or 260A. Analysis of development and change of political attitudes in mass publics and their relationship to voting, protest, and violence. S/U or letter grading.

261C. Political Communication. (4) Discussion, three hours. Broad survey of research bearing on role of mass media in the American political process. Topics include theories of persuasion, evolution of "media effects" research, reporting and advertising as determinants of election outcomes, adversarial versus deferential journalism, and analyses of media bias.

M261D. Seminar: Political Psychology. (4) (Same as Psychology M228B.) Discussion, three hours. Requisite: course M261A or Psychology 220A. Examination of political behavior, political socialization, racial conflict, mass political movements, and public opinion. S/U or letter grading.

M261E. Critical Problems in Political Psychology. (4) (Same as Psychology M228C.) Discussion, three hours. S/U or letter grading.

262. Political Parties. (4) Seminar, three hours. Critical examination of literature on party systems and organization. Special attention to political functions, electoral campaigns, and party cadres. S/U or letter grading.

264. Politics and Society. (4) Seminar, three hours. Application of selected classical and contemporary sociological theories to politics. S/U or letter grading.

265. Politics and Economy. (4) Discussion, three hours. Analysis of theoretical and practical relationships between economic organization and governmental institutions. Development and political implications of market system, banking and finance, corporate enterprise, and organized labor. S/U or letter grading.

266. Group Theories of Politics. (4) Discussion, three hours. Critical appraisal of "group theory" approaches to study of political decision making, with special attention to empirical research problems and findings. S/U or letter grading.

268. Seminar: Political and Electoral Problems. (4) Seminar, three hours. Preparation: two graduate courses in politics. S/U or letter grading.

M268B. Electoral Democracy: Theory and Behavior. (4) (Same as Public Policy M246.) Seminar, three hours. Examination of both empirical and normative questions from rich variety of perspectives for scholars in all subfields of political science as well as policy students and others interested in these issues. Consideration of topics fundamental to both democratic theory and study of American politics—public opinion; nature and purpose of elections; representation; parties; and purpose of democracy as whole—through both classic political theory treatments and modern research in American political behavior. Letter grading.

269. Seminar: Political Behavior. (4) Seminar, three hours. S/U or letter grading.

270. Legislative Behavior. (4) Seminar, three hours. Analysis of major approaches to study of representative institutions, with special emphasis on assumptions, concepts, methods, and theoretical implications associated with each approach. S/U or letter grading.

271. Executive Politics and Presidency. (4) Seminar, three hours. Analysis of executive organization and leadership, with emphasis on American Presidency. Special attention to theories of organization and personality and relationship between executive and other institutions and groups. S/U or letter grading.

272. Political Environment of Federal Executive. (4) Discussion, three hours. Examination of political environment of federal executive in the U.S. Special attention to executive/legislative relations. S/U or letter grading.

273. American Political Development. (4) Discussion, three hours. National political institutions in historical perspective, theories of state building, state societal relations, political culture. S/U or letter grading.

275. Seminar: American Political Institutions. (4) Seminar, three hours. S/U or letter grading.

281. Public Policy Studies. (4) Seminar, three hours. Systematic analysis of nature and scope of public policy and its programmatic implications. Special emphasis on government organizations and process, as well as types of government intervention and stages of policy process. Substantive focus primarily on American public policy and analysis. S/U or letter grading.

284. Seminar: Bureaucracy and Organization. (4) Seminar, three hours. Exploration of topics in analysis of public and private bureaucracies and organizational theory. Topics include empirical theories of bureaucratic behavior; bureaucratic growth; bureaucratic behavior and political culture; organizational structures and strategies; and function of executive. S/U or letter grading.

Race, Ethnicity, and Politics

M287A-M287B. Immigration, Racial Change, and Education in 21st-Century Metropolis. (4-4) (Same as Education M289A-M289B, Public Policy M289A-M289B, and Sociology M290A-M290B.) Seminar, four hours. Examination of metropolitan American society and institutions at beginning of 21st century. Consideration of best available information on patterns of settlement, changing functions of urban space and institutions, and issues of opportunity linked to urban structure in society facing unprecedented demographic change that will end primarily European domination of our society by mid-century, creating democracy with no racial or ethnic majority. How this demographic transition and postindustrial transformation of urban functions and space interact to shape opportunity and inequality. Vast economic transformations, brought about by globalization of workplace and dramatic decline of industrial employment in advanced nations, not only greatly raise stakes on creating equal opportunity but also cut off what were previously extremely important parts of intergenerational mobility. In Progress (M287A) and letter (M287B) grading.

289A. Approaches to Study of Race, Ethnicity, and Politics. (4) Seminar, three hours. Analysis of alternative theoretical, methodological, and empirical approaches to study of race, ethnicity, and politics. S/U or letter grading.

289B. Current Research on Race, Ethnicity, and Politics. (4) Seminar, three hours. Exploration of current research on race, ethnicity, and politics. S/U or letter grading.

Special Studies

290. Modern Political Economy. (4) Discussion, three hours. Discussion of implications for understanding politics of thinking of politicians, bureaucrats, producers, consumers, and nations as utility maximizers. Topics include microfoundations for macromodels, forms of political participation, state, government regulation, growth of government, bureaucracy elections, public policy, inflation. S/U or letter grading.

292A. Introduction to Political Inquiry: Problems of Scientific Inquiry and Normative Discourse. (2) Seminar, two hours; discussion, one hour (when scheduled). S/U grading.

292B. Introduction to Political Inquiry: Research Design. (4) Seminar, three hours; discussion, one hour (when scheduled). Design of qualitative and quantitative empirical research projects. S/U or letter grading.

293. Great Ideas in Social Sciences. (2) Seminar, two hours. Vehicle for faculty and visitors to teach research seminars of variable length. Special training opportunities on advanced quantitative methods, including complexity theory, agent-based modeling, experimental economics, social cognitive neuroscience, and evolutionary psychology, to be offered at irregular intervals. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Political Science. (4) Seminar, to be arranged. Seminar in teaching techniques, including evaluation of each student's own performance as a teaching assistant. Normally to be taken by all new teaching assistants in first term of their assistantships. May be taken only in term in which students are teaching assistants. May not be applied toward MA or PhD course requirements. S/U grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair,

and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 4) Tutorial, to be arranged. May be applied only three times toward minimum course requirement in first two years. May be repeated. S/U or letter grading.

597. Preparation for PhD Qualifying Examinations. (2 to 12) Tutorial, to be arranged. May be repeated. S/U grading.

599. Research for and Preparation of PhD Dissertation. (2 to 12) Tutorial, to be arranged. May be repeated. S/U grading.

PSYCHIATRY AND BIOBEHAVIORAL SCIENCES

David Geffen School of Medicine

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Barry H. Guze, MD, *Vice Chair*
Alex J. Kopelovitz, MD, *Vice Chair*
Ira M. Lesser, MD, *Vice Chair*
James T. McCracken, MD, *Vice Chair*
Thomas B. Strouse, MD, *Vice Chair*
Michael S. Levine, PhD, *Associate Chair, Academic Affairs*

Professors

Donna Ames, MD, *in Residence*
Anne M. Andrews, PhD, *in Residence (Richard Metzner Endowed Professor of Clinical Neuropharmacology)*
Joan R. Asarnow, PhD, *in Residence*
Robert F. Asarnow, PhD, *in Residence (Della Martin Professor of Psychiatry)*
Michele A. Basso, PhD, *in Residence*
Carrie E. Bearden, PhD, *in Residence (Joanne and George Miller and Family Endowed Professor)*
Thomas R. Belin, PhD
Robert M. Bilder, PhD, *in Residence (Michael E. Tennenbaum Family Endowed Professor of Creativity Research)*
Gene D. Block, PhD, *Chancellor*
Sally M. Blower, PhD, *in Residence*
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Philippe I. Bourgois, PhD, *in Residence*
Julienne E. Bower, PhD
Joel T. Braslow, MD, PhD, *in Residence (Frances M. O'Malley Administrative Professor of Neuroscience History)*
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Alexander Bystritsky, MD, PhD, *in Residence*
Rita M. Cantor, PhD, *in Residence*
Ellen M. Carpenter, PhD, *in Residence*
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Christopher S. Colwell, PhD, *in Residence*
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Michelle G. Craske, PhD
Mirella Dapretto, PhD, *in Residence*
Christine A. Dunkel Schetter, PhD
Jerome Engel, MD, PhD *(Jonathan Sinay Professor of Epilepsy)*
Christopher J. Evans, PhD, *in Residence (Stefan Hatos Endowed Professor of Psychiatry and Biobehavioral Sciences)*

Michael S. Fanselow, PhD *(Staglin Family Professor of Psychology)*
David J. Farabee, PhD, *in Residence*
Kym F. Faull, PhD, *in Residence*
Jamie D. Feusner, MD, *in Residence*
L. Jaime Fitten, MD, *in Residence*
Jonathan H. Flint, MD, *in Residence (Billy and Audrey Wilder Endowed Professor of Psychiatry and Neuroscience)*
Nelson B. Freimer, MD, *in Residence (Maggie G. Gilbert Endowed Professor of Bipolar Disorders)*
Itzhak Fried, MD, PhD, *in Residence*
Andrew J. Fuligni, PhD, *in Residence*
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Daniel H. Geschwind, MD, PhD, *in Residence (Gordon and Virginia MacDonald Distinguished Professor of Human Genetics)*
Michael F. Green, PhD, *in Residence*
Charles H. Hinkin, PhD, *in Residence*
Yih-Ing Hser, PhD, *in Residence*
Marco Iacoboni, MD, PhD, *in Residence*
Michael R. Irwin, MD, *in Residence (Norman Cousins Endowed Professor of Psychoneuroimmunology)*
J. David Jentsch, PhD
Scott P. Johnson, PhD
Connie L. Kasari, PhD
Sheryl H. Kataoka-Endo, MD, MSHS, *in Residence (Dena Bat-Yaacov Endowed Professor of Childhood Psychiatry and Biobehavioral Sciences)*
Alex J. Kopelovitz, MD, *in Residence*
Harley I. Kornblum, MD, PhD, *in Residence*
David E. Krantz, MD, PhD, *in Residence*
Helen Lavretsky, MD, *in Residence*
Ira M. Lesser, MD
Patricia E. Lester, MD, *in Residence (Jane and Marc Nathanson Endowed Professor)*
Andrew F. Leuchter, MD
Michael S. Levine, PhD, *in Residence (Gail Patrick Endowed Administrative Professor of Brain Research)*
Jennifer G. Levitt, MD, *in Residence*
Li Li, PhD, *in Residence*
Matthew D. Lieberman, PhD
Gerald S. Lipshutz, MD, *in Residence*
Edythe D. London, PhD, *in Residence (Thomas P. and Katherine K. Pike Professor of Addictive Studies)*
Sandra K. Loo, PhD, *in Residence*
Nigel T. Maidment, PhD, *in Residence*
Stephen R. Marder, MD, *in Residence*
Kelsey C. Martin, MD, PhD
Gary W. Mather, MD, *in Residence (Dr. Alfonsina Q. Davies Endowed Professor in honor of Paul Crandall, MD, for Epilepsy Research)*
Emeran Mayer, MD
James T. McCracken, MD *(Joseph Campbell Professor of Child Psychiatry)*
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David J. Miklowitz, PhD, *in Residence*
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Lara A. Ray, PhD
Mary Jane Rotheram-Borus, PhD, *in Residence*
Robert T. Rubin, MD, PhD, *in Residence*
Steven J. Shoptaw, PhD
Jerome M. Siegel, PhD, *in Residence*
Alcino J. Silva, PhD *(Eleanor I. Leslie Professor of Pioneering Brain Research)*
Gary W. Small, MD *(Albert F. and David H. Parlow-Solomon Professor of UCLA Program on Aging)*
Annette L. Stanton, PhD
Michael A. Strober, PhD, *in Residence (Resnick Professor of Eating Disorders)*
Margaret L. Stuber, MD *(Dr. Daniel X. Freedman Administrative Professor of Academic Psychiatry)*
David L. Sulzer, PhD, *in Residence*
Yi E. Sun, PhD, *in Residence*
Guochuan E. Tsai, MD, PhD, *in Residence*
M. Belinda Tucker, PhD, *in Residence*

James A. Waschek, PhD, *in Residence*

Joseph B. Watson, PhD, *in Residence*

David K. Wellisch, PhD, *in Residence*

Kenneth B. Wells, MD, MPH, *in Residence* (David Weil Professor of Psychiatry and Biobehavioral Sciences)

Peter C. Whybrow, MD (Judson Braun Professor of Biological Psychiatry)

Jeffrey J. Wood, PhD

Roger P. Woods, MD, *in Residence*

Gail E. Wyatt, PhD, *in Residence*

X. William Yang, MD, PhD, *in Residence*

Cindy M. Yee-Bradbury, PhD

Alexander S. Young, MD, *in Residence*

Alan L. Yuille, PhD

Lonnie K. Zeltzer, MD

Bonnie T. Zima, MD, MPH, *in Residence*

Associate Professors

Elizabeth A. Bromley, MD, PhD, *in Residence*

Bowen Chung, MD, MSHS, *in Residence*

Warren S. Comulada, PhD, *in Residence*

Giovanni Coppola, MD, *in Residence* (Eleanor Leslie Professor of Innovative Brain Research)

Benjamin M. Ellingson, PhD

Jamie D. Feusner, MD, *in Residence*

Adriana Galván, PhD (Wendell Jeffrey and Bernice Wenzel Term Professor of Behavioral Neuroscience)

Sherrel G. Howard, PhD

Shafali S. Jeste, MD, *in Residence*

Megan D. Johnson, MD, PhD, *in Residence*

Sung-Jae Lee, PhD, *in Residence*

Julian A. Martinez, MD, PhD

Martin M. Monti, PhD

Katherine L. Narr, PhD, *in Residence*

Tara S. Peris, PhD, *in Residence*

Javier Quintana, MD, PhD, *in Residence*

Assistant Professors

Armen C. Arevian, MD, PhD, *in Residence*

Molly Fox, PhD

Peyman Golshani, MD, PhD, *in Residence*

Chunqing Lin, PhD, *in Residence*

Erika L. Nurmi, MD, PhD, *in Residence*

Jesse A. Rissman, PhD

Jae Hoon Sul, PhD, *in Residence*

Nanthisa A. Suthana, PhD, *in Residence*

Dallas T. Swenderman, PhD, *in Residence*

April D. Thames, PhD, *in Residence*

Professors of Clinical Psychiatry

Brenda A. Bursch, PhD

Mark DeAntonio, MD

David T. Feinberg, MD, MBA

Michael J. Gitlin, MD

Charles S. Grob, MD

Barry H. Guze, MD

Bruce L. Kagan, MD, PhD

James J. McGough, MD

James E. Spar, MD

Thomas B. Strouse, MD (Maddie Katz Endowed Professor of Palliative Care Research and Education)

Scope and Objectives

The Department of Psychiatry and Biobehavioral Sciences offers interdisciplinary courses related to the mental health professions of the biobehavioral sciences in addition to its programs for psychiatry interns and residents and for medical students.

Enrollment in department courses is limited to registered UCLA students, students registered in programs officially affiliated with UCLA, and students enrolled concurrently through UCLA Extension. Students who meet these requirements, but who are not affiliated with a departmental training program, must also meet required course requisites determined by specific educational programs.

Clinical Psychology Internship

The department offers a 12-month Clinical Psychology Internship. Students enrolled in clinical psychology doctoral programs at APA-approved universities are eligible to apply. Applications are accepted through November 1. The primary goals of the internship are to provide a year of intensive exposure to a wide variety of clinical and human services experiences and to maximize the personal growth of each professional. Students interested in this certificate program should contact David Crawford, 37-360A Semel Institute, 310-794-5715, e-mail: dcrawford@mednet.ucla.edu, or see <https://www.semel.ucla.edu/psychology/internship>.

Information on clinical practicums that are offered in conjunction with other educational institutions and UCLA departments may be obtained from the department office.

Psychiatry and Biobehavioral Sciences

Upper Division Courses

175. Mindfulness Practice and Theory. (4) Seminar, five hours. Designed for beginners; prior experience with meditation not required. Introduction to mindfulness, including basic mindfulness meditation practices, both sitting and moving, ways to deepen positive emotions like gratitude, kindness, and joy, and methods for integrating more awareness and creativity into ordinary activities. Examination of varying meditative traditions as well as emerging science on beneficial effects of mindfulness practice for mental and physical health. Beneficial effects include reduced stress, improved attention, reduced emotional reactivity, and greater mind-body awareness. Learning and development of practical skills of relational mindfulness in interactions with others. Offered in summer only. P/NP or letter grading.

M180. Contemporary Problems in Developmental Disabilities. (4) (Same as Psychology M180.) Seminar, three hours. Corequisite: course M181A. Limited to Developmental Disabilities Program students. Examination of broad spectrum of issues related to mental retardation, intelligence and IQ, genetics, neurobiology, and other developmental disabilities. P/NP or letter grading.

M181. Biological Bases of Psychiatric Disorders. (4) (Same as Molecular, Cell, and Developmental Biology M181, Neuroscience M130, Physiological Science M181, and Psychology M117J.) Lecture, three hours. Requisite: Neuroscience M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115. Underlying brain systems involved in psychiatric symptoms and neurological disorders, including schizophrenia, depression, bipolar disorder, obsessive-compulsive disorder. Provides basic understanding of brain dysfunctions that contribute to disorders and rationales for pharmacological treatments. P/NP or letter grading.

M181A. Research in Contemporary Problems in Developmental Disabilities. (4) (Same as Psychology M181A.) Lecture, one hour; laboratory, eight hours. Corequisite: course M180. Limited to Developmental Disabilities Program students. Research experience. In Progress grading (credit to be given only on completion of course M181B).

M181B. Research in Contemporary Problems in Developmental Disabilities. (4) (Same as Psychology M181B.) Lecture, one hour; laboratory, eight hours. Requisite: course M181A. Limited to Developmental Disabilities Program students. Research experience. Letter grading.

M182. Personal Brain Management. (4) (Formerly numbered 182.) (Same as Neuroscience M161.) Seminar, four hours. Basic overview of brain function and consideration of some management methods that exist already, and what future may hold. New methods for predicting our own futures and modeling what if scenarios that might alter risks and benefits of different courses of action, based on individual genetic background and other elements of personal history and environmental exposures. Introduction to key principles from science of behavior change, illustrating how important health-related behavioral habits are and how difficult these can be to change and why. Coverage of series of topics that center on personal enhancement of well-being through consideration of stress management, long-term goal and value identification, mapping of long-term goals onto immediate actions, reinforcement learning, meditation, neurofeedback, and time management. Critical appraisal of tools to help students distinguish scientifically validated procedures. Offered in summer only. Letter grading.

197. Individual Studies in Psychiatry. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be taken for letter grade once only. May be repeated for credit. Individual contract required. Additional information and contract forms are available in Office of Education, 38-216 Semel Institute. P/NP or letter grading.

199. Directed Research in Psychiatry and Biobehavioral Sciences. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M210. Editorial Board Apprenticeship. (2) (Same as Health Policy and Management M249Q.) Seminar, two hours. Designed for postdoctoral fellows and advanced PhD students. Participation in peer review process for academic journal, *Health Psychology*, with consideration of interface between behavioral science, health, and medicine. Reading and discussion of submissions and advising of editor on suitability for full review. S/U or letter grading.

M214. Cross-Cultural Studies of Socialization and Children. (4) (Same as Anthropology M236P.) Seminar, three hours. Selected topics in cross-cultural study of socialization and child training. Methods, ethnographic data, and theoretical orientations. Emphasis on current research.

226A-226B. Childhood Psychopathology Research Seminars. (2-2) Seminar, 90 minutes. Current research in causes and behavioral manifestations of childhood psychopathology. Discussion on diagnosis and etiology of childhood disturbances.

M230. Communication of Science. (2) (Same as Biomathematics M262.) Lecture, two hours; discussion, one hour. Presentation of various types of scientific writings and their good practice. Details of writing specific articles: methods, results, discussion. Writing of review article. Grant submissions: aims, background, results, design. Role of appendices. Communication with lay public. S/U or letter grading.

M232. Causal Inference. (4) (Same as Biostatistics M235.) Lecture, three hours; discussion, one hour. Requisite: Biostatistics 200A. Selection bias, confounding, ecological paradox, contributions of Fisher and Neyman. Rubin model for causal inference, propensity scores. Analysis of clinical trials with noncompliance. Addressing confounding in longitudinal studies. Path analysis, structural equation, and graphical models. Decision making when causality is disputed. Letter grading.

M234. Affective Disorders. (2 or 4) (Same as Psychology M280.) Seminar, two hours. General topics related to primary affective disorders (depression, manic depressive illness), including diagnosis, phar-

macology, epidemiology, psychology, phenomenology, biology, and treatment. Students enrolled for 4 units are assigned a more intensive reading list and required to make a presentation or prepare a research paper.

236A-236B-236C. Psychology Interns Seminars. (1-1-1) Seminar, 90 minutes. Current topics in clinical psychology. Group-selected topics for discussion pertaining to psychopathology, diagnostic evaluation, and modalities of treatment. S/U grading.

237. Seminar: Behavioral Neuroimmunology. (1) Seminar, one hour per month; discussion, 30 minutes per month. Series of lectures presented the second Wednesday of each month throughout academic year by invited speakers. S/U grading.

M238. Survey Research Techniques in Psychocultural Studies. (4) (Same as Psychology M238.) Seminar, three hours. Designed for graduate students. Techniques for conceptualizing, conducting, and analyzing survey data; instruction in qualitative strategies for enhancing survey research on psychocultural problems.

M240. Assessment and Treatment of African American Families. (3) (Same as African American Studies M240.) Seminar, two hours. Designed for graduate students. Course aids mental health professionals and trainees in evaluation and treatment of African American families in terms of their cultural milieu, historical background, and economic status. Didactic presentations by instructors and invited guests form basis for supervised evaluation and case management with African American children and families. Letter grading.

243A-243B-243C. Mental Retardation and Chronic Medical Illness Interdisciplinary Core Curriculum. (1-1-1) Lecture, 90 minutes. Survey series on major topic areas of mental retardation and chronic medical illness, covering epidemiology, nosology, assessment, healthcare delivery systems, basic genetics, nutrition, direct care, and special deficits. Presented in interdisciplinary framework as generic information independent of discipline. S/U grading.

M246. Psychological Aspects of Mental Retardation. (4) (Same as Psychology M246.) Lecture, 90 minutes. Discussion of psychological aspects of mental retardation, including classification, description, etiology, theory, prevention, treatment, assessment, modern and future developments, and input from other disciplines (ethics, law, religion, welfare systems). S/U or letter grading.

253. Seminar: Child Development. (1) Theories of development, systems of child development, and chronological aspects of child development. Presentation of assigned readings by students plays major role in each session.

256. Basic Clinical Child Psychopathology. (1) Weekly seminar covering basic clinical aspects of child psychopathology. Readings provided for basis of discussion on topics including interviewing of parents and children, diagnosis, and related syndromes. S/U grading.

259. Legal and Ethical Issues with Vulnerable Populations. (3) Lecture, 90 minutes; laboratory, three and one half hours. Discussion of current laws dealing with vulnerable populations (e.g., children, developmentally disabled people, elderly people); philosophies, ethics, ethical codes, issues, and how to resolve them. Use of videotapes and discussion of cases.

261. Advanced Seminar: Child and Adolescent Psychopharmacology. (1) Use of problem-based teaching methods and critical reviews of medical literature as basis for rational pharmacotherapy in children and adolescents. Major focus on development of a clinical decision-making process, given the limited scientific evidence supporting pharmacological practice in the field. S/U grading.

M263. Clinical Pharmacology. (2) (Same as Biomathematics M263 and Medicine M263.) Lecture, two hours. Preparation: completion of professional health sciences degree (M.D., D.D.S., D.N.Sc., or PhD). Overview of principles of clinical pharmacology, espe-

cially as they relate to clinical and translational medicine and to advances in contemporary medicine such as targeting, gene therapy, and genomics. Letter grading.

264. Health and Mental Health Disparities from Psychosocial and Cultural Perspectives. (4) Seminar, three hours. Designed for graduate and medical students, resident physicians, and juniors/seniors (with consent of instructor) interested in learning about general, sexual, and mental health disparities. Survey course to introduce students to health disparities that exist for ethnic minorities and factors that may contribute to disproportionate prevalence rates. Review and discussion of research literature, with focus on specific diseases such as HIV/AIDS, substance abuse, depression, and breast and prostate cancer. Discussion of stereotypes and myths about healthcare of ethnic populations. Examination of psychosocial and cultural contexts as potential or contributing factors. S/U or letter grading.

M266. Advanced Magnetic Resonance Imaging. (4) (Same as Neuroscience M267 and Physics and Biology in Medicine M266.) Lecture, four hours. Starting with basic principles, presentation of physical basis of magnetic resonance imaging (MRI), with emphasis on developing advanced applications in biomedical imaging, including both structural and functional studies. Instruction more intuitive than mathematical. Letter grading.

M270. Neural Basis of Memory. (4) (Same as Neuroscience M273.) Lecture, two hours; discussion, one hour. Anatomical, physiological, and neurological data integrated into models for how behavioral phenomena of memory arise. Discussion of invertebrate memory, cortical conditioning, hippocampus and declarative memory, and frontal lobes and primary memory.

M272. Psychological Anthropology. (4) (Same as Anthropology M234Q.) Lecture, three hours. Various psychological issues in anthropology, both theoretical and methodological. Areas of interest include such things as culture and theory, culture and personality, and culture psychiatry. Discussion of questions relating to symbolic and unconsciousness process as they relate to culture. Topics vary from term to term. May be repeated for credit.

M273. Advanced Seminar: Medical Anthropology. (2 to 4) (Same as Anthropology M263Q, Community Health Sciences M244, and Nursing M273.) Seminar, three hours. Limited to 15 students. Examination of interrelationships between society, culture, ecology, health, and illness. Bases for written critical analysis and class discussion provided through key theoretical works. S/U or letter grading.

274A-274B-274C. Research Seminar: Psychoneuroimmunology. (2-2-2) Seminar, two hours. Research foundations for basic and clinical psychoneuroimmunology and clinical implications of relationship between brain, behavior, and immunity. S/U grading.

275. Psychoneuroimmunology Research Seminar. (1) Seminar, one hour. Topics to be centered around current directions in psychoneuroimmunology (PNI), including social genomics, inflammation, and biological aging. Common molecular and immunological protocols used in PNI and current directions in PNI research, with emphasis on basic immunology and immunological/molecular biology and role of behavioral and psychological factors on immune and cell-aging processes. S/U grading.

M277. Cognitive Behavior Therapy with Children: Treatment and Systems of Care. (2 or 4) (Same as Psychology M285.) Seminar, 90 minutes. Designed for graduate students. Cognitive/behavioral approaches to prevention and treatment of mental health problems in children. Examination of service delivery systems for treating troubled youth and discussion of issues with respect to current systems of care. Major problems include conduct disorders, attention deficit disorder, depression, anxiety, and learning disabilities. Letter grading.

281A-281B-281C. Behavioral Therapy in Educational Settings. (4-4-4) Lecture, one hour; laboratory, seven hours. Supervised experience in classroom working with exceptional children in conducting systematic observations, administering formal assessments, and developing and carrying out individualized educational and behavioral programs. Theoretical background furnished through one-hour weekly lecture. S/U or letter grading.

M282. Anthropological Perspectives on Human Body. (2 to 4) (Same as Anthropology M234T.) Seminar, three hours. Exploration of how sociocultural and political dynamics shape perceptions of and understandings about human body, and how, reciprocally, those perceptions and understandings influence social processes. Includes materials from both non-Western and Western societies. Letter grading.

M284A-M284B. Principles of Neuroimaging I, II. (4-4) (Formerly numbered 284A-284B.) (Same as Neuroscience M284A-M284B and Psychology M288A-M288B.) Lecture, four and one half hours. Preparation: competence in integral calculus, electricity and magnetism, computer programming (any language), general statistics. Requisite: course 292. Course M284A is requisite to M284B. Instrumental imaging methods for study of nervous system, with emphasis on quantitative understanding and data interpretation and features common to modalities. X-ray computed tomography, magnetic resonance imaging, positron emission tomography, magnetoencephalography, transcranial magneto stimulation, near infrared imaging. Letter grading.

M285. Functional Neuroimaging: Techniques and Applications. (3) (Same as Bioengineering M284, Neuroscience M285, Physics and Biology in Medicine M285, and Psychology M278.) Lecture, three hours. In-depth examination of activation imaging, including MRI and electrophysiological methods, data acquisition and analysis, experimental design, and results obtained thus far in human systems. Strong focus on understanding technologies, how to design activation imaging paradigms, and how to interpret results. Laboratory visits and design and implementation of functional MRI experiment. S/U or letter grading.

287. Small Group Cognitive/Behavioral Interventions. (4) Lecture, three hours. Presentation of brief therapeutic interventions for adults and children at risk for suicide, depression, conduct problems, and HIV, with didactic and experiential techniques.

M288. Social and Behavioral Factors of HIV/AIDS: Global Perspective. (4) (Same as Community Health Sciences M294.) Lecture, four hours. Requisites: Community Health Sciences 100 and Epidemiology 100, or prior social sciences courses. Overview of social and behavioral factors which influence both transmission and prevention of HIV/AIDS throughout the world. Letter grading.

M289. Intervention to Reduce HIV and Its Consequences. (4) (Same as Community Health Sciences M299.) Lecture, three hours. Examination of interventions to reduce HIV/AIDS transmission. Review of theory and research supporting efficacy of HIV interventions for variety of high-risk populations. Letter grading.

290. Los Angeles HIV-Community Colloquia. (1) Lecture, two hours. Examination of emerging scientific HIV-related research. Discussion of policy issues, theories, and designs of HIV-related services and programs and shifting epidemiology of the virus and disease. S/U grading.

292. Functional Neuroanatomy for Neuropsychologists. (2) Lecture, two hours. Preparation: graduate-level neuroanatomy course. Designed for neuropsychology and radiology postdoctoral fellows and neuroscience graduate students. Human functional anatomy from systems perspective, integrating results from lesion research and functional neuroimaging. Students learn to identify gyri and major sulci on MR images and memorize associated Brodmann's region. Letter grading.

293. Professional Development: Presentations and Preparation for Academic Interviews. (2) Seminar, two hours. Exposure to range of professional development skills essential to academic career development. Hands-on skills and practice in preparing and delivering presentations for various audiences, and preparing research and/or teaching statements for job applications. S/U grading.

294. Essentials of Clinical Investigation. (2) Lecture, two hours; discussion, two hours. Designed for graduate students. Introduction to initial steps in clinical research through preparation of research proposal. Small working groups develop grant proposal on specific topic. S/U grading.

295A-295B-295C. Substantive Issues in Substance Abuse I, II, III. (2-2-2) Seminar, two hours; discussion, one hour. S/U grading:

295A. (2) Seminar, two hours; discussion, one hour. Neurobiology and psychopharmacology of drug abuse, as well as epidemiology and prevention. Discussion of pros and cons of various treatment modalities for drug dependence. S/U grading.

295B. (2) Seminar, two hours; discussion, one hour. Drug use patterns and treatment issues in specific populations such as women, adolescents, homeless, multiply diagnosed, as well as different ethnic populations. Exploration of relationship between drug abuse, sexuality, and HIV/AIDS. S/U grading.

295C. (2) Seminar, two hours; discussion, one hour. Theoretical perspectives on drug use and abuse as well as policy and ethical aspects of drug abuse research. Research design and analysis issues pertinent to drug abuse research. S/U grading.

296. Research Group Seminar: Practicum. (2) Research group meeting, three hours. Designed for graduate students who plan to conduct research studies. Coverage of (1) publishing process—submitting manuscripts to journals, selecting appropriate journals, frequent reasons for journal rejection of manuscripts, and key points in writing articles for publication, (2) overview of National Institutes of Health (NIH), including organization structure and mission, grant application process, funding mechanisms, and review process, (3) preparing/writing grants for submission to NIH, including review of components of successful applications, criteria by which applications are judged, and what to emphasize in each section, (4) grant mechanisms specifically designed for new investigators, (5) human subjects section for grant applications and IRB issues, and (6) preparation of budgets (modular and detailed) and budget justification for NIH submissions. S/U or letter grading.

402. Journal Club. (1) Seminar, two hours; outside study, two hours. Presentation of participants' current research. Critical review of recent articles on drug abuse. Training sessions included in areas in which fellows believe they have a recognized need. S/U grading.

403. Individual Case Supervision. (1 to 4) Preparation: submission of written proposal to be structured by instructor and student prior to enrollment; additional information and proposal forms available in Office of Education, 38-216 Semel Institute. One-to-one supervision of individual therapy cases, including analyses of patient data, supervision of ongoing treatment, informal didactic sessions on personality theory, and applications to patient management. S/U or letter grading.

405. Trauma and Sexual Abuse Research Seminar. (4) Seminar, three hours; discussion, one hour. Designed for graduate and medical students and resident physicians interested in learning about biobehavioral trauma research. Introduction to DSM-IV TR diagnostic criteria for posttraumatic stress disorder (PTSD), as well as biopsychosocial sequelae. Examination and discussion of child and adult sexual abuse in context of being causative precursors of acute and chronic causes of PTSD. Evaluation of allostatic load, among other biologic variables, within context of physiological markers for PTSD. Review of current modes of treatment, including therapeutic and phar-

macological interventions. Discussion of research methods particularly important for trauma research. S/U or letter grading.

407A-407B-407C. Clinical Hypnosis Seminars. (2-2-2) Seminar, two hours. Integrated, experientially oriented sequence with lecture, discussion, demonstration, practice, and assigned readings. Guest speakers with expertise in specific hypnotic applications and populations, and video programs included. Trainees and faculty members in healthcare professions as well as licensed healthcare providers from community (MCEP credit available) encouraged to enroll. For trainees in social work, psychology, and psychiatry, completion of minimum of one year of supervised training in psychotherapy or behavior therapy required. S/U grading. **407A.** Cultural and historical context for hypnosis; development of technical competence in trance induction, deepening, management, and re-alerting; and gaining familiarity with trance experiences. **407B.** Fundamentals of trance utilization, including diagnosis, creating safety, and facilitating exploratory trance experiences. **407C.** Application of hypnotic interventions in specific clinical situations and with specific populations.

M424. Functional Magnetic Resonance Imaging Journal Club. (2) (Same as Physics and Biology in Medicine M424.) Discussion, 90 minutes. Limited to 10 students. Current topics in functional neuroimaging, with emphasis on novel applications, analysis, and acquisition methods. Presentation and critique of student papers. Overall emphasis on magnetic resonance imaging. Example areas include tractography through diffusion tensor imaging, jittered event-related experimental designs, parallel receiver MR imaging, integrated electrophysiological and image acquisition. S/U grading.

425. Teaching Case Conference. (1) Review of diagnosis and treatment of full spectrum of disorders, with expert off-unit consultants. S/U or letter grading.

429. Child Outpatient Team. (1) Weekly team meetings to coordinate clinical activities of trainees in Child Outpatient Department. Discussion of literature and theories related to selected cases. S/U grading.

431A-431B-431C. Pediatric Neuropsychology: Assessment, Diagnosis, and Treatment Planning. (1-1-1) Seminar, one hour. Presentation of didactics on developmental disorders, pediatric syndromes, and acquired brain injury in children. Coverage of methods of assessment in children, with focus on neuropsychological testing. Presentation of differential diagnosis and treatment planning. S/U grading.

431A. Developmental disorders, including autism, Asperger's, mental retardation, specific learning disabilities, and Attention Deficit/Hyperactivity Disorder. Current conceptualizations of these disorders used to form assessment techniques, including choice of instruments and interpretation of results. Practical issues in pediatric neuropsychology, including ethics, educational law, and interdisciplinary interventions.

431B. Neurodevelopmental disorders, head injury, low birth weight, tumors, and epilepsy. **431C.** Implementation of research from previous two terms in case presentation format, supplemented with various guest speakers.

434. Seminar: Addiction Psychiatry. (1) Seminar, one hour. Cutting-edge research in neuroscience of addictive behavior, using both animal models and human participants. Neuroscience findings regarding multiple addictive substances (e.g., stimulants, alcohol, nicotine) and related behavioral traits (e.g., impulsivity, risky decision making). Some lectures provided by nationally recognized invited guest speakers. S/U grading.

449. Parent Training Intervention Workshop. (2) Lecture, 90 minutes; discussion, one hour. Advanced clinical trainees learn behavioral techniques of assessment and treatment of parent/child problems. Lectures, case presentations, and workshops on various skills necessary.

454. Advanced Topics in Neuropsychology. (1) Seminar, one hour. Coverage of topics in even years that involve interface of neuropsychology with other disciplines, such as cognition and psychopharma-

cology, cognitive remediation, ecological validity of neuropsychological assessment, cognition and genetics, and psychometrics/test development. Focus in odd years on current models of human neuropsychology, such as models of working memory, neuropsychology of emotion and social cognition, models of implicit versus explicit learning, types of attention, and models of executive processes. S/U grading.

468. Translational Neuroscience of Drug Addiction. (1) Lecture, one hour. Designed for graduate students. Students need cross-disciplinary knowledge to understand drug abuse etiology, behavior, consequences, and treatment. Coverage of major topics in drug addiction by emphasizing use of animal models to understand human addiction and to disclose how findings derived from human studies can be used to expand development of animal models. S/U grading.

479. Genetics Clinic Presentation. (No credit) Weekly clinical teaching session on patients seen in preceding genetics clinic. In-depth discussion on genetics of each disorder.

480. Analysis of Human Chromosome Studies. (1) Chromosome karyotypes prepared in cytogenetics laboratory during preceding week presented and discussed with reference to clinical findings. Teaching includes interpretation of abnormal karyotypes and technical aspects of routine and special chromosome stains.

482. Clinical Practicum in Childhood Anxiety and Related Disorders. (3) Clinic, two hours. Training in cognitive/behavioral assessment and treatment of children and adolescents with anxiety and related disorders. Didactic and experiential training, including direct patient care, clinical supervision, and participation in weekly team meetings. Letter grading.

485. Human Genetics Seminar. (No credit) Seminar, one hour. Preparation: introductory genetics course. Weekly lecture series intended for those interested in human genetics or in specific topic to be presented. Speakers are invited for their expertise or research in some special area related to human genetics and may be from UCLA or elsewhere. No grading.

M490. Educational Advocacy. (2) (Same as Law M431.) Clinic, two hours (12 weeks). How to provide educational advocacy based on IDEA, ADA, and Section 504 of Rehabilitation Act on behalf of children with learning disabilities, behavior disorders, and mental retardation. S/U or letter grading.

596P. Individual Studies in Psychiatry. (2 to 12) Tutorial, to be arranged. Preparation: submission of written proposal outlining course of study (to be structured by instructor and student at time of initial enrollment). Additional information and course proposal forms available in Office of Education, 38-216 Semel Institute. Directed individual research and study in psychiatry at graduate level. S/U or letter grading.

PSYCHOLOGY

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Iris Firstenberg, PhD

Adjunct Assistant Professors

Jesse D. Cushman, PhD
 Danielle Keenan-Miller, PhD
 Uri M. Maoz, PhD

Scope and Objectives

Psychology is a subject of considerable interest to most people—we all tend to practice some form of intuitive psychology in an attempt to understand ourselves and the people and groups with whom we interact. The curriculum offered by the UCLA Department of Psychology presents psychology as a scientific discipline that employs systematic methods of inquiry to study and explain human and animal behavior—both normal and abnormal—in terms of a variety of underlying variables, including neural, physiological, and cognitive processes; developmental factors and individual differences; and social and interpersonal influences and contexts. According to recent

surveys, the UCLA Psychology Department is ranked as one of the top departments in the country.

The undergraduate curriculum has been designed to reflect the extensive breadth of psychology—both the range of behavioral phenomena studied and the variety of methods and theoretical approaches employed—while allowing students to pursue in greater depth those areas in which they become most interested. Beyond basic core courses, students can take many specialized courses in areas such as behavioral neuroscience, animal behavior, learning and memory, motivation, perception, cognition, measurement, personality, and clinical, social, developmental, community, and health psychology. The curriculum also provides excellent opportunities for research experience—either in the form of laboratory courses or by participation with faculty members and graduate students in a wide variety of research projects.

A choice of three undergraduate majors is offered: a BA degree in Psychology and BS degrees in Cognitive Science and in Psychobiology. While the majors overlap in certain fundamental and basic knowledge bases, they differ considerably in their focus (i.e., the extent to which certain areas of psychology and related disciplines are studied) and in terms of the different student interests and needs they satisfy. For nonmajors, the department offers many courses that provide new and valuable insights into the understanding of human behavior, including their own.

At the graduate level, the department offers training leading to the PhD degree with emphases in the areas of behavioral neuroscience, clinical, cognitive, cognitive neuroscience, developmental, health, learning and behavior, social, and quantitative psychology. The graduate program is designed to prepare future psychologists for careers as scientific investigators, college and university teachers, and professional psychologists.

Undergraduate Study

The Cognitive Science major is a designated capstone major. Students are required to produce a paper based on each term of their experience in a research laboratory or approved fieldwork site. Through completion of the capstone experience students are expected to identify a research topic and hypothesis to be tested or a fieldwork project and goals, show that they can organize and integrate information related to the topic or project in a clear manner in their own words, demonstrate ability to find and utilize supporting literature relevant to their project or topic, and successfully relate the paper to their experience in the laboratory or fieldwork setting.

Psychology BA

The Psychology major is the most general of the three majors and offers both broad and in-depth coverage of the fundamental and traditional areas of psychology. It provides students with a strong foundation for postgraduate edu-

cation in psychology and can serve as excellent background to prepare them for further training in such fields as law, education, government and public policy, business, and many of the health-related professions. Its basic liberal-arts orientation also provides excellent foundation for immediate postbaccalaureate careers in many areas, particularly ones in which an understanding of human behavior and its diversity of expression would be an asset.

The requirements described below represent the minimum requirements in satisfaction of the preparation and the major. Additional courses in psychology, statistics, and related sciences, as well as other types of research and fieldwork experiences, are highly recommended if students plan to pursue graduate work in psychology and related fields. Under special circumstances, graduate-level courses can be taken by undergraduate students, although such courses may not be applied toward degree requirements for the major. For additional information, contact the Undergraduate Advising Office, 1531 Franz Hall.

Psychology Premajor

Students need to file a petition in the Undergraduate Advising Office to declare the Psychology premajor. Psychology premajors can petition to declare the Psychology major once they have (1) satisfied all the preparation for the major requirements and (2) are accepted into the major through a competitive application process (for students who entered UCLA as freshmen) or file a petition to declare the Psychology major (for students who entered UCLA as transfers).

Preparation for the Major

Each of the following required courses must be taken for a letter grade (C or better in Psychology 10, 100A, and 100B, C- or better in the remaining courses): Life Sciences 1 or 15 or Physiological Science 3; Chemistry and Biochemistry 2 or 14A or 20A or Physics 10 or 11 or 1A or 6A; one course from Computer Science 2, Mathematics 2, Program in Computing 10A, Statistics 10, or one term of calculus; one course from Philosophy 1, 2, 3, 4, 5, 6, 7, 8, 9, 21, 22, 22W, 23, 31; Psychology 10, 100A, 100B. Students cannot take Psychology 100B until they have passed course 100A with a grade of C or better. Psychology 100A and 100B are only open to students who have declared the Psychology premajor before the term in which they plan to enroll. It is recommended that students with no background in introductory statistics take Statistics 10 before enrolling in course 100A.

Students who repeat more than two preparation courses or any preparation course more than once are denied admission to the major.

Freshman Students

Students may declare the Psychology premajor once they have established a 2.5 grade-point average in at least one preparation for the major course.

Students must petition to declare the Psychology major and can do so once they complete all seven preparation for the major courses and

submit an application to enter the major by the end of the fall quarter of their third year at UCLA. Admission into the major is based on student academic performance in the preparation courses. Students who have a grade-point average of 2.9 or higher in the preparation coursework and have met all other Psychology premajor requirements are guaranteed entry into the major after they submit the application by the above deadline. Students with a grade-point average between 2.5 and 2.89 in the preparation coursework enter a competitive application pool and are admitted only if there is space available in the major. Students with a grade-point average below 2.5 in the preparation coursework are not eligible to apply for admission to the major.

Transfer Students

Transfer applicants to the Psychology major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one biology course equivalent to Life Sciences 1 or 15 or Physiological Science 3, one general chemistry or general physics course, one philosophy course, one introduction to psychology course, and one course from statistics (recommended), finite mathematics, calculus, computer science theory, or computer programming in C++.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

After satisfying the preparation for the major requirements, students need to petition to enter the major at the Undergraduate Advising Office.

The Major

Required: (1) Five core courses, with at least two from each category and a fifth course from either category: (a) Psychology 110, 115 (or M117A, M117B, and M117C), 120A, 120B, and (b) 127A or 127B or 127C, 130 (or one course from 133A through 133I or 161), 135, 150; (2) one laboratory/fieldwork course from 101, 111, 116, 121, 126, 131, 136A, 136B, 136C, 151, 186A through 186D; (3) four additional upper division elective courses (16 units) in psychology.

Students who complete Psychology M117A, M117B, M117C receive equivalent credit for course 115 and two upper division psychology electives. All three courses must be completed to receive psychology elective credit.

Each upper division course must be taken for a letter grade. A C- or better is required in each core course and in at least one laboratory/fieldwork course. Students must have a 2.0 grade-point average in all upper division courses selected to satisfy major requirements.

Cognitive Science BS

Capstone Major

The Cognitive Science major focuses on the study of intelligent systems, both real and artificial. While including a strong foundation in the traditional areas of psychology, the major is interdisciplinary in nature and emphasizes subject matter within cognitive psychology,

computer science, mathematics, and related disciplines.

The requirements described below include sufficient preparation if students plan to pursue graduate work in cognitive science or related fields; however, they may want to include additional advanced courses in psychology and fields related to cognitive science (e.g., computer science, linguistics, mathematics, philosophy, and statistics) as well as other types of research and fieldwork experiences. Under special circumstances, graduate-level courses can be taken by undergraduate students, although such courses may not be applied toward degree requirements for the major. For additional information, contact the Undergraduate Advising Office, 1531 Franz Hall.

Cognitive Science Premajor

Students need to file a petition in the Undergraduate Advising Office to declare the Cognitive Science premajor. They are then identified as Cognitive Science premajors until they (1) satisfy the preparation for the major requirements and (2) file a petition to declare the Cognitive Science major. Questions about the major should be directed to the Undergraduate Advising Office, 1531 Franz Hall.

Preparation for the Major

Each of the following required courses must be taken for a letter grade (C or better in each course and a 2.5 overall grade-point average in the preparation courses) before students reach 140 total units: Life Sciences 1 or 15 or Physiological Science 3; Chemistry and Biochemistry 2 or 14A or 20A or Linguistics 1 or 20 or Physics 10 or 11 or 1A or 6A; Mathematics 3A, 3B, and 3C, or 31A and 31B; Philosophy 7 or 8 or 9 or 23 or 31; Program in Computing 10A and two courses from 10B, 10C, 15, 20A, 30, 40A, 60, Psychology 20; and Psychology 10, 85, 100A, 100B. Students cannot take Psychology 100B until they have passed course 100A with a grade of C or better. Psychology 100A and 100B should be taken early in the career; these courses are open only to students who have declared the Cognitive Science premajor before the term in which they plan to enroll. Students with no background in introductory statistics should take Statistics 10 before enrolling in course 100A.

Students who repeat more than two preparation courses or any preparation course more than once are denied admission to the major.

Transfer Students

Transfer applicants to the Cognitive Science major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one biology course, one general chemistry or general physics course, two calculus/analytical geometry courses, one general physics course, one philosophy course, one introduction to psychology course, one introduction to cognitive science course, one psychological statistics course, one psychology research methods course, one computer programming course in C++, and one other computer programming course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

After satisfying the preparation for the major requirements, students need to petition to enter the major at the Undergraduate Advising Office.

Required: (1) Psychology 115 (or M117A, M117B, and M117C), 120A or 120B, and one course from 124A through 124J; (2) two courses from 111, 116, 121, 186A through 186D, Computer Science 161; (3) three upper division elective courses (12 units) from Psychology 110, 112A through 116, M117J through M119X, 120A, 120B, 124A through 124J (if taken for the major, may not be applied as an elective), 130, 133B, 133E, 135, 137G, 142H, 160, 161, M166, 187A, 191CH (if content is approved by the Undergraduate Advising Office and course has not been applied toward the Psychology 195B or 196B requirement), Anthropology 124B, 135A, M140, Communication Studies 118, 119, 126, M127, 129, Computer Science 111 through CM186, Ethnomusicology 172A, Linguistics 103 through 185B, Mathematics 110A through 171, Music Industry 103, Neuroscience 102, M145, C177, 180, 181, 182, Philosophy 124 through 136, Statistics 100A, 100B, 100C, 101B, 101C; and (4) in the junior or senior year, two capstone terms of Psychology 195B or 196B (may be fulfilled by taking any two courses from 195B or 196B or 196B/194C, provided content is approved by the Undergraduate Advising Office).

Students who complete Psychology M117A, M117B, M117C receive equivalent credit for course 115 and two upper division cognitive science electives. All three courses must be completed to receive cognitive science elective credit.

Students must have a 2.0 grade-point average in all upper division courses selected to satisfy major requirements. With the exception of Psychology 195B and 196B, each course must be taken for a letter grade.

Psychobiology BS

The Psychobiology major is designed for students who plan to go on to postgraduate work in physiological psychology, neuroscience, behavioral aspects of biology, or the health sciences. Psychobiology is the study of behavior from a biological perspective. It includes neural, experimental psychological, natural history, genetic, comparative/evolutionary, and developmental approaches to understanding human and animal behavior.

The requirements described below include sufficient preparation if students plan to pursue graduate work in any of the above fields; however, they may want to include additional advanced courses in psychology and related sciences as well as other types of research and fieldwork experiences. Under special circumstances, graduate-level courses can be taken by undergraduate students, although such courses may not be applied toward degree

requirements for the major. For additional information, contact the Undergraduate Advising Office, 1531 Franz Hall.

Psychobiology Premajor

Students need to file a petition in the Undergraduate Advising Office to declare the Psychobiology premajor. They are then identified as Psychobiology premajors until they (1) satisfy the preparation for the major requirements and (2) file a petition to declare the Psychobiology major.

Preparation for the Major

Life Sciences Core Curriculum

Required: Chemistry and Biochemistry 14A, 14B, 14BL, 14C, and 14D, or 20A, 20B, 20L, 30A, 30AL, and 30B; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, or Life Sciences 30A, 30B, and Statistics 13; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

Students must also complete one of two life sciences sequences—either Life Sciences 1, 2, 3, 4, and 23L OR 7A, 7B, 7C, 23L, and 107. They may not substitute courses in either sequence.

Also required are Psychology 10, 100A, 100B. Students cannot take Psychology 100B until they have passed course 100A with a grade of C or better. Psychology 100A and 100B should be taken early in the career; these courses are open only to students who have declared the Psychobiology premajor before the term in which they plan to enroll. Students with no background in introductory statistics should take Statistics 10 before enrolling in course 100A.

Each of the preparation for the major courses must be taken for a letter grade (C or better in Psychology 10, 100A, and 100B, C- or better in the remaining courses) with a 2.0 overall grade-point average. Student must complete all preparation for the major courses by the end of the summer quarter of their third year to be eligible to petition to declare the Psychobiology major.

Students who repeat more than two preparation courses or any preparation course more than once are denied admission to the major.

Transfer Students

Transfer applicants to the Psychobiology major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2 OR 7A, 7B, and 7C, one year of calculus, one year of general chemistry with laboratory for majors, one semester of organic chemistry with laboratory, one introduction to psychology course, one psychological statistics course, and one psychology research methods course. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

After satisfying the preparation for the major requirements, students need to petition to enter the major at the Undergraduate Advising Office.

Required: (1) Ecology and Evolutionary Biology 100 or 129 or Psychology 118, and Psychology 110, 115 (or M117A, M117B, and M117C), 116 or Neuroscience 101L, 120A or 120B; (2) one course from Psychology 127A, 127B, 127C, 130, 133A through 133I, 135, 150, 161; (3) 16 units of graded elective courses from the following list: Ecology and Evolutionary Biology 112, 113A, 114A (no more than one from this group), Psychology 111, 112A through 112D, M117A, M117B, M117C, M117J, 119A through M119X, 137G, 152, 160, 161, 162, 164, M166, 186D, 191CH (only if content is approved by the undergraduate vice chair), Chemistry and Biochemistry 153A, 153L, Computational and Systems Biology M187, Ecology and Evolutionary Biology 100, 102, 105, 106, 110, 111, 115, 117, C119A, 120, 121, 122, 124A (only 4 units may be applied toward the major), 129, 135, 164, 170, Microbiology, Immunology, and Molecular Genetics 185A, Molecular, Cell, and Developmental Biology 100, 104AL, 138, M140, CM156, Neuroscience 102, Physiological Science C144, 146, 147, M148, 166, 173.

Students who complete Psychology M117A, M117B, M117C receive equivalent credit for course 115 and 10 units of upper division psychobiology electives. All three courses must be completed to receive psychobiology elective credit.

Students must have a 2.0 grade-point average in all upper division courses selected to satisfy major requirements, and each must be taken for a letter grade.

Honors

Honors Courses

Each year the department offers a selection of honors courses, designated with an H suffix. The courses provide close contact with faculty members, emphasize readings in the original literature, student reports, and small group discussions, and may include field or research experience. Consult the College of Letters and Science for information on requirements for College Honors.

Honors Program

Psychology, Cognitive Science, and Psychobiology majors intending to continue study at the graduate level are encouraged to apply for the departmental honors program. Students work for one year (fall through spring quarters) with a Psychology Department faculty sponsor on a research project that is the basis of a formal honors thesis. During that year they also participate in a weekly seminar (Psychology 191AH, 191BH, 191CH) in which thesis projects are presented and discussed and other topics of interest are explored with invited faculty members and other guests. Other requirements may apply. Consult the Undergraduate Advising Office during spring quarter for further information and application forms. Satisfactory completion of the program and the other

requirements for the major leads to awarding of the degree with honors or highest honors.

Computing Specialization

Majors in Psychology, Psychobiology, and Cognitive Science may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major, (2) completing four courses from Program in Computing 10A, 10B, 10C, 15, 20A, 30, 40A, 60, Psychology 20, and (3) completing at least two courses from Psychology 85, 121, 142H, 186A through 186D (one 199 course may be substituted for one of these courses provided project has been approved by vice chair). A grade of C or better is required in each course. Students graduate with a bachelor's degree in their major and a specialization in Computing. Students planning to enter this specialization should consult the Undergraduate Advising Office.

Applied Developmental Psychology Minor

The Applied Developmental Psychology (ADP) minor is designed to (1) provide a coherent, challenging academic program focused on investigating, understanding, and supporting the development of young children and their families, (2) teach undergraduate students how to apply theories, research methods, and research findings to practical concerns, and (3) prepare students to join or receive further training in various child-related professions.

The minor is open to all enrolled UCLA students (including Cognitive Science, Psychobiology, and Psychology majors) who have an overall grade-point average of 2.0 or better and have applied and been accepted into the program. Qualified students are admitted into one of two annual cohorts (one beginning in fall, the other in spring) to complete three consecutive terms of specialized coursework alongside a hands-on teaching internship (86 hours per term) at one of several UCLA child care centers. For further information about applying to the minor, contact the ADP academic coordinator by e-mail, ADPminor@psych.ucla.edu, or see <https://www.psych.ucla.edu/undergraduate/undergraduate-student-services>. For questions about additional course requirements for the minor, contact a counselor in the Undergraduate Advising Office, 1531 Franz Hall, 310-825-2730.

Required Lower Division Course (4 units): Psychology 10.

Required Upper Division Courses (24 units): Psychology 134A (must be taken concurrently with course 134D), 134B (must be taken concurrently with course 134E), and four additional courses from Education 120, 121, 132, Psychology 127C, 129F, 130, 131, 132A, 132B, 133B through 133I, 134F, 134G, 134I, 161, 199A or 199B (content must be approved by the Undergraduate Advising Office), Sociology M174. One of the four additional courses must include either Psychology 130 or one course from 133B through 133I.

Internship Requirement/Fieldwork Component (8 units): Psychology 134C, 134D (must be taken concurrently with course 134A), 134E (must be taken concurrently with course 134B). Students work as interns for three consecutive academic terms at one of several UCLA child care centers serving infants, toddlers, and/or preschool-age children. The internship provides hands-on experience working with young children and opportunities to closely observe children and teachers.

No more than two courses may be applied toward both this minor and a student's major.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course, except for the fieldwork component of the internship courses, must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Cognitive Science Minor

The Cognitive Science minor is designed to introduce students to cognitive science topics as addressed in a number of different disciplines, such as biology, computer science, engineering, linguistics, mathematics, philosophy, and psychology, while allowing them to pursue a more in-depth study of cognitive science topics within specific areas of their own choice.

The minor consists of two parts. In the first part students complete background courses and satisfy a computer programming experience requirement. In the second part they select a primary cluster from four clusters of upper division courses that have been organized to reflect different aspects of cognitive science. Students take three courses within their primary cluster and two additional courses from the remaining clusters (secondary clusters).

The minor is open to all enrolled UCLA students, other than Cognitive Science majors, who have an overall grade-point average of 2.0 or better. Students must make an appointment with a counselor in the Undergraduate Advising Office, 1531 Franz Hall, 310-825-2730, to enter the minor and receive counseling on how to select a primary cluster.

Required Courses (32 units): Psychology 85; one course from 15, 100B, Computer Science 2, Linguistics 1, or 20; and either Program in Computing 10A or Psychology 20.

Students must complete five total courses from the following three clusters, with no more than three courses from any particular cluster: (1) *biological basis of cognition cluster*—Biomathematics 108, Linguistics C135, Music Industry 103, Neuroscience 102, M145, C177, 180, 181, 182, Psychology 110, 115, 116, M117C (or Molecular, Cell, and Developmental Biology M175C or Neuroscience M101C or Physiological Science M180C), 119B, 119C, 119F, M119L, M119N, 137G, 160, 161, M166; (2) *human cognition cluster*—Anthropology

124B, 135A, Communication Studies 129, Psychology 120A, 120B, 121, 124A through 124J, 133B, 133C, 133E, 186A through 186D; (3) *mind and language cluster*—Anthropology M140, Communication Studies 118, 119, 126, M127, Linguistics 120A, 120B, 120C, 130, 132, C135, 185A, Philosophy 124, 125, 126, C127A, C127B, 129, 170, 172, Psychology 124A.

No more than two courses may be applied toward both this minor and a student's major.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Fieldwork and Research Opportunities

Many research and fieldwork opportunities are open to students who wish to expand their knowledge and broaden their background in the field of psychology. These experiences can be enriching and help bring undergraduate students closer to understanding the importance of research and internships, including their applications in the everyday world. At least one of the following courses is recommended for students planning postgraduate study: Psychology 99, 185, 192, 194A through C194D, 195A, 195B, 196A, 196B, 199A, or 199B. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward the undergraduate degree. Information about these courses and programs is available from the Undergraduate Advising Office, 1531 Franz Hall.

Only one 4-unit 199 course may be taken per term, and only 16 units of course 199 may be applied toward the degree. Only one 199 course may be taken for a letter grade (additional 199 courses may be taken on a P/NP basis). If approved in advance by the Undergraduate Advising Office, 8 units of course 199 may be applied toward the Psychology 195B/196B requirement for the Cognitive Science major and 4 units of course 199B may be applied toward the elective course requirements for the Psychology major.

Psychology Research Opportunity Programs

The Psychology Research Opportunity Programs (PROPS) represent a vital effort to identify and mentor underrepresented minority and/or low-income students. The purpose of PROPS is to encourage such students to participate in research and pursue graduate studies leading to careers in academia. The recruitment and application process for PROPS takes place each fall quarter. Students selected to participate are awarded stipends for winter and spring quarters, during which time they do research under the mentorship of a psychology faculty member. In addition, students are required to attend weekly seminars

covering such topics as graduate school, careers in academia, and research opportunities in various fields of psychology. Prior research experience is not required. This is an excellent opportunity for students to begin their research careers and acquire the needed experience to pursue advanced studies.

Infant Development Program

The Megan E. Daly Infant Development Program (IDP), established in May 1983, is designed as a teaching and research facility for the department and is set up to accommodate both cross-sectional and longitudinal investigation of infants, toddlers, their families, and caregivers. In addition, the program provides an opportunity for undergraduate students in developmental psychology and other areas to acquire firsthand experience working with infants and toddlers on an individual basis or in a group setting. The program has two primary functions: (1) to offer quality group care for infants and toddlers of the students, staff, and faculty of the Psychology Department and other UCLA departments and (2) to serve as a teaching and research facility for the Psychology Department and the UCLA community. The program has two locations (1611 Franz Hall and Fernald Center at 320 Young Drive North) and accommodates children from three months to three years old. Students in the Applied Developmental Psychology minor may complete their fieldwork at one of the IDP locations.

UCLA Psychology Clinic

The UCLA Psychology Clinic in the Department of Psychology is a major training center for students in the clinical psychology PhD program, one of the top-ranked programs in the country. It provides a broad range of psychological services to children and adults, including assessment and individual, couples, family, and group therapy. Clients cover the entire age range and represent diverse populations in the community.

Student therapists receive very close supervision and utilize research-based cutting-edge psychological interventions. Students and faculty members are also involved in a variety of research projects through the clinic.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Psychology offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Psychology.

Psychology

Lower Division Courses

10. Introductory Psychology. (4) Lecture, four hours. General introduction including topics in cognitive, experimental, personality, developmental, social, and clinical psychology; six hours of psychological research and a grade of C or better required of all departmental premajors. P/NP or letter grading.

15. Introductory Psychobiology. (4) Lecture, three hours. Designed for nonmajors. Survey of genetic, evolutionary, physiological, pharmacological, and experiential factors affecting behavior. Using comparative approach where appropriate, emphasis on relevance of biological mechanisms to understanding of humans and their interaction with their environment. P/NP or letter grading.

20. MATLAB Programming for Behavioral Sciences. (4) Lecture, two hours; laboratory, one hour. Prior programming experience not required. Introduction to MATLAB and programming methods useful in experimental psychology. Reading and writing of code for conducting experiments, analyzing data, and modeling. P/NP or letter grading.

85. Introduction to Cognitive Science. (4) Lecture, three hours. Exploration of computer metaphor of mind as an information-processing system, focusing especially on perception, knowledge representation, and thought based on research in cognitive psychology, neuropsychology, and artificial intelligence. Many examples from visual information processing.

88A-88Z. Lower Division Seminars. (4 each) Seminar, three hours. Enforced requisite: course 10. Limited to freshmen/sophomores. Intensive analysis in seminar situations of selected topics of current psychological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit.

88A. Stress, Adaptation, and Coping. Limited to freshmen. Physiological and psychological processes related to stresses and strains of daily living and potential relation of these processes to disease states. Examination of multifaceted nature of coping with stressors and exploration of strategies for stress management. P/NP or letter grading.

97. Variable Topics in Psychology. (4) Seminar, three hours. Enforced requisite: course 10. Study of selected topics in psychology at introductory level; seminar format designed for freshmen/sophomores. P/NP or letter grading.

Upper Division Courses

100A. Psychological Statistics. (4) Lecture, four hours. Requisites: course 10 with a grade of C or better, and one course from Computer Science 2, Mathematics 2, Program in Computing 10A, Statistics 10, or one term of calculus. Designed for premajors. Basic statistical procedures and their application to research and practice in various areas of psychology. Letter grading.

100B. Research Methods in Psychology. (6) Lecture, two hours; laboratory, four hours. Enforced requisites: courses 10 and 100A, with grades of C or better. Introduction to research methods and critical analysis in psychology. Lecture and laboratory topics include experimental and nonexperimental research methods, statistical design and analysis as applied to a broad range of basic and applied research issues. P/NP or letter grading.

101. General Psychology Laboratory. (4) Lecture, one hour; laboratory, three hours. Requisites: courses 10, 100A, 100B. General laboratory course for psychology students to acquire key concepts in psychology through active participation in enriched environment. Use of current technologies (e.g., Web-based teaching, interactive computer demonstrations) in challenging atmosphere to learn how mind works. Letter grading.

M107. Asian American Personality and Mental Health. (4) (Same as Asian American Studies M117.) Lecture, three hours. Requisite: course 10. Foundations of personality development and mental health among Asian Americans. Topics include culture, family patterns, achievements, stressors, resources, and immigrant and minority group status. P/NP or letter grading.

110. Fundamentals of Learning. (4) Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Designed for juniors/seniors. Experimental findings on animal and human conditioning; retention and transfer of training; relation of learning and motivation. Intended to provide empirical basis for theory and research in this area. P/NP or letter grading.

111. Learning Laboratory. (4) Lecture, two hours; laboratory, three hours. Requisites: courses 10, 100A, 100B, 110. Designed for departmental majors. Laboratory experience with techniques in study of learning, especially with animals. Letter grading.

112A. Basic Processes of Motivated Behavior. (4) Lecture, 90 minutes; discussion, 90 minutes. Requisites: courses 10, 100A, 110. Designed for juniors/seniors. Examination of some basic processes underlying motivated behavior, stressing environmental determinants of behaviors such as feeding, drinking, and reproduction-related behavior. Discussion of physiological mechanisms that contribute to such behaviors. Consideration of topics such as reinforcement, acquired motivation, and drug addiction. Evaluation of evidence obtained in laboratory studies conducted with animals. P/NP or letter grading.

112B. Psychobiology of Fear and Anxiety. (4) Lecture, three hours. Requisites: courses 10, 100A, 110. Recommended: course 115. Designed for juniors/seniors. Presentation of biological and behavioral approaches to fear and anxiety, taken from laboratory and applied research. In addition to overview of major principles from each approach, emphasis on areas in which significant research advances have recently occurred. Examination of concordance and discordance between results from laboratory and applied research. P/NP or letter grading.

112C. Psychobiology of Anxiety and Depression. (4) Lecture, two and one half hours; discussion, 30 minutes. Requisites: courses 110 and 115, or Neuroscience M101A, M101B, and M101C. Limited to juniors/seniors. Presentation of biological and behavioral approaches to anxiety and depression, taken from laboratory and applied research. In addition to overview of major principles from each approach, emphasis on areas in which significant research advances have recently occurred. Examination of concordance and discordance between results from laboratory and applied research. P/NP or letter grading.

112D. Animal Cognition. (4) Lecture, 90 minutes; discussion, 90 minutes. Requisites: courses 10, 100A, 110. Designed for juniors/seniors. Investigation of scientific study of cognition and behavior in animals. Topics include perception and attention, working and reference memory, spatial cognition, timing and counting, concept formation, and abstract reasoning. Most discussions focus on laboratory findings with animals, as viewed from evolutionary framework concerned with natural histories of animals. P/NP or letter grading.

115. Principles of Behavioral Neuroscience. (4) Lecture, three hours; discussion, one hour. Requisites: course 100A, Life Sciences 2 or 15. Not open to students with credit for course M117A. Designed for juniors/seniors. Nervous system anatomy, physiology, pharmacology, and their relationship to behavior. P/NP or letter grading.

116. Behavioral Neuroscience Laboratory. (4) Lecture, one hour; laboratory, three hours. Requisites: courses 10, 100A, 100B, 115. Designed for Psychobiology and Psychology majors. Laboratory experience with various topics in behavioral neuroscience. P/NP or letter grading.

M117A-M117B-M117C. Neuroscience: From Molecules to Mind. (5-5-5) (Same as Molecular, Cell, and Developmental Biology M175A-M175B-M175C, Neuroscience M101A-M101B-M101C, and Physiological Science M180A-M180B-M180C.) Lecture, four hours; discussion, 90 minutes. P/NP or letter grading:

M117A. Cellular and Systems Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisites: Chemistry 14C or 30A (14C may be taken concurrently), Life Sciences 2, Physics 1B or 1BH or 6B or 6BH. Not open for credit to students with credit for Physiological Science 111A. For Neuroscience and Physiological Science majors, grade of C- or better is required to proceed to Neuroscience M101B or Physiological Science 111B. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement. P/NP or letter grading.

M117B. Molecular and Developmental Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisites: course 115 or M117A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Physiological Science M180A; Neuroscience majors must have grade of C- or better) or Physiological Science 111A, Life Sciences 3, 4 (4 may be taken concurrently). Molecular biology of channels and receptors: focus on voltage dependent channels and neurotransmitter receptors. Molecular biology of supramolecular mechanisms: synaptic transmission, axonal transport, cytoskeleton, and muscle. Classical experiments and modern molecular approaches in developmental neurobiology. P/NP or letter grading.

M117C. Behavioral and Cognitive Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisite: course 115 or M117A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Physiological Science M180A; Neuroscience majors must have grade of C- or better) or Physiological Science 111A. Neural mechanisms underlying motivation, learning, and cognition. P/NP or letter grading.

M117J. Biological Bases of Psychiatric Disorders. (4) (Same as Molecular, Cell, and Developmental Biology M181, Neuroscience M130, Physiological Science M181, and Psychiatry M181.) Lecture, three hours. Requisite: course 115 or M117A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Physiological Science M180A) or Physiological Science 111A. Underlying brain systems involved in psychiatric symptoms and neurological disorders, including schizophrenia, depression, bipolar disorder, obsessive-compulsive disorder. Provides basic understanding of brain dysfunctions that contribute to disorders and rationales for pharmacological treatments. P/NP or letter grading.

118. Comparative Psychobiology. (4) Requisite: course 115. Designed for junior/senior majors. Survey of determinants of species-specific behavior, including genetic influences and learning.

119A. Neuropsychopharmacology of Emotion and Cognition. (4) Lecture, three hours. Requisite: course 115 or M117C. Limited to juniors/seniors. Analysis of basic pharmacologic principles, with emphasis on neurochemical modulation of emotional regulation and cognitive processes in normal and diseased state. P/NP or letter grading.

119B. Human Neurophysiology. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Exploration of biological basis of human cognitive processing, with emphasis on function of cerebral cortex.

119C. Cognitive Neuroscience. (4) Lecture, three hours. Requisite: course 115 or M117C. Understanding complex mental functions depends on interplay of cognitive psychology and behavioral neuroscience. Designed to provide advanced undergraduate students with current perspectives on how complex processes of mind may be understood using neuroscience techniques. P/NP or letter grading.

119D. Behavioral Neuropharmacology. (4) Lecture, three hours. Requisite: course 115. Limited to juniors/seniors. Biochemical and neural basis of psychotropic drug action. Particular emphasis on pharmacological

regulation of neurotransmission and relationship of these processes to mental disorders. P/NP or letter grading.

119E. Stress and Bodily Disease. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Psychobiological processes as they pertain to development of stress responses and disease states. Consideration of stress-related topics, including behavioral and pharmacological variables in stress and stress management.

119F. Neural Basis of Behavior. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Presentation of current data and theory concerning how neuron circuits produce behavior. Mechanisms of perception, response selection, motor pattern generation, learning, and motivation, with emphasis on operation of these processes in well-defined neural circuits in animals and humans. P/NP or letter grading.

119G. Brain, Mind, and Motion Pictures. (4) Lecture, 90 minutes; screenings/discussion, two and one half hours. Requisite: course 115. Limited to juniors/seniors. Exploration of cognitive neuroscience of film from three perspectives: how advanced brain research is represented in films of period, how modern cognitive neuroscience explains experience of watching movies, and neuropsychology of acting in movies. P/NP or letter grading.

119I. Integration of Face and Brain. (4) Seminar, three hours. Requisite: course 115 or M117C. Faces play major role in social interactions in both humans and nonhuman primates and in other animals as well. Exploration of neuroanatomical, neurophysiological, and neurofunctional underpinnings of face processing (attractiveness, emotional expressions, facial skin, identity recognition, based on empirical studies that use behavioral responses in neuroimaging techniques, in effects of types of brain damage, in physiological responses, and in psychopathological states. Discussion of evolutionary approaches to faces, as well as relationship between specific genetic mutations affecting both brain and facial appearance. P/NP or letter grading.

119J. Brain Bugs: Understanding Brain through Its Flaws. (4) Lecture, three hours. Requisite: course 115 or M117C. Designed for juniors/seniors. Psychology of brain flaws and limitations to understand how brain works by studying what it does well and understanding neuroscience of why brain is poorly suited to perform some tasks such as numerical calculations, memorizing lists and names, and making unbiased decisions. Topics include memory (types of memory, false memories, misinformation and memory, memory capacity) and cognitive biases (framing, anchoring, and temporal discounting). Exploration of underlying neural causes of brain flaws and limitations in context of brain's associative architecture. Basic neurophysiology, synaptic plasticity, cortical plasticity, neural basis of learning and memory, and some computational neuroscience. P/NP or letter grading.

119K. Neurophilosophy. (4) Lecture, three hours. Requisite: course 115. Philosophy of mind has relied on introspection and thought experiments to explore consciousness, self, and free will. Field of neurophilosophy employs findings and methods of neuroscience to investigate these seemingly impenetrable constructs. Provides students with foundation in neurophilosophy, which includes basic understanding of philosophy of mind, consideration of phenomena including consciousness, volition, and self, and examination of scientific methods available for studying these phenomena. Exploration of student experiences of world and themselves within and demonstrations of how alterations in brain functioning due to injury, psychedelic drugs, and dreaming result in alterations in these phenomena. P/NP or letter grading.

119L. Human Neuropsychology. (4) (Same as Neuroscience M119L.) Lecture, three hours. Recommended requisites: courses 115 (or M117A and M117C), 120A or 120B. Designed for juniors/seniors. Survey of experimental and clinical human neuropsychology; neural basis of higher cognitive functions. P/NP or letter grading.

119M. Neural Circuits of Learning and Memory. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Introduction to classical and current literature on mechanisms of learning and memory from individual brain systems to circuits. P/NP or letter grading.

119N. Visual System. (4) (Same as Neuroscience M119N.) Lecture, three hours. Requisite: course 115 or Neuroscience M101A or Physiological Science 111A. Ability to image and analyze visual world is truly remarkable feat. Coverage of anatomy and physiology of visual processing from retina to visual cortex through lectures, extensive reading, and discussions. P/NP or letter grading.

119O. Psychology of Aging. (4) (Same as Gerontology M119O.) Requisite: course 115. Designed for juniors/seniors. Aging refers to developmental changes occurring at end stages of life. Some alterations that occur represent improvement, others are detrimental. Examination of impact of aging process on mental phenomena and exploration of ways in which positive changes can be maximally utilized and impact of detrimental alterations minimized. P/NP or letter grading.

119P. Emerging Topics in Neuroscience. (4) Lecture, two hours; discussion, one hour. Requisite: course 115. Emerging advanced lecture topics in neuroscience given by visiting speakers, with additional lectures by instructor on relevant background material. Reading of published scientific articles. P/NP or letter grading.

119Q. Psychobiology of Sleep and Dreams. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Review of measurement and comparison of sleep in mammals and submammalian species, circadian rhythms and circadian control of sleep, development and aging of sleep, neural and neurochemical control of sleep, effects of sleep deprivation, sleep in psychiatric disorders, human sleep disorders, and function of dreams. P/NP or letter grading.

119R. Neurobiology of Visual Cognition. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Review of some recent advances in understanding of neurobiology of visual cognition. Topics include how is visual information processed by brain to generate actions? How do we recognize objects? How do we perceive emotions displayed by other subjects? P/NP or letter grading.

119S. Neural Basis of Learning and Computing with Neurons. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Introduction to neural basis of learning and memory. Examination of current theories of what happens in brain when we learn and acquire new information. Introduction to how brain may use neural networks for learning and pattern recognition. How neural networks perform computations. P/NP or letter grading.

119T. Neural Basis of Emotion and Motivation. (4) Lecture, three hours. Requisite: course 115 or M117C. Limited to juniors/seniors. Neural basis of primary emotions, emotional regulation, and stress. Impact of emotion, stress, and arousal on motivated behaviors and cognitive processes. P/NP or letter grading.

119V. Brain and Art. (4) Lecture, three hours. Requisite: course 115. Multiple forms of art express uniqueness of human brain and mind. Discussion of neural underpinnings of art in artist and viewer and links to evolutionary, biological, aesthetic, cognitive, and social roots of art. P/NP or letter grading.

119X. Biology and Behavioral Neuroscience of Aging. (4) (Same as Gerontology M119X.) Lecture, three hours. Designed for juniors/seniors. Biologic mechanisms of aging process and its terminal phase, death, have been increasingly studied in recent years. Establishment of what is known experimentally about biology and behavioral neuroscience of aging and evaluation of theories developed to account for this knowledge. P/NP or letter grading.

120A. Cognitive Psychology. (4) Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Designed for juniors/seniors. Survey of cognitive psy-

chology: how people acquire, represent, transform, and use verbal and nonverbal information. Perception, attention, imagery, memory, representation of knowledge, language, action, decision making, thinking. P/NP or letter grading.

120B. Sensation and Perception. (4) Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Designed for juniors/seniors. Acquisition of information about physical world through basic sensory mechanisms and perceptual processes. Perception of objects, surfaces, space, motion, and events. Connections between information, computations, and biological mechanisms in vision, audition, and other systems. P/NP or letter grading.

121. Laboratory in Cognitive Psychology. (4) Laboratory, four hours. Requisites: courses 10, 100A, 100B, 120A or 120B. Designed for Psychology and Cognitive Science majors. Laboratory experience with methods and phenomena from research on human perception, memory, and cognition. P/NP or letter grading.

124A. Advanced Topics in Sensation and Perception. (4) Lecture, three hours. Requisites: courses 10, 100A, 120A or 120B. Designed for juniors/seniors. Contemporary research and theory about visual and auditory perception. Topics include physiological mechanisms, psychophysical studies and models, and computational approaches. P/NP or letter grading.

124B. Visual Information Processing. (4) Lecture, two hours; discussion, one hour. Requisites: courses 10, 100A, 120A or 120B. Exploration of issues in visual information, such as storage and representation of visual information in memory, pattern recognition, nature and role of attention in visual processing, word and picture recognition, object perception, and imagery. Possible consideration of developmental aspects. P/NP or letter grading.

124C. Human Memory. (4) Lecture, two hours; discussion, one hour. Requisite: course 120A or 120B. Designed for juniors/seniors. Analysis of recent research on basic processes and structural components that comprise the human memory system. Discussion topics include practical implications of such research for instruction, marketing, and witness testimony. P/NP or letter grading.

124D. Consciousness: Current Debates. (4) Seminar, three hours. Requisites: courses 100B, 115. Designed for juniors/seniors. Review of current issues in research on cognitive neuroscience of consciousness, with focus on modern theories of conscious perception, especially in visual modality so as to reflect its dominance in consciousness research. P/NP or letter grading.

124E. Language and Cognition. (4) Lecture, three hours. Requisites: courses 10, and 120A or 120B. Designed for juniors/seniors. Recent theories of language and cognition; nature of categories, feedback, and error detection in language and cognition; modularity; ambiguity; knowledge acquisition; processes and representations underlying perception, production, attention, and awareness in language and cognition. P/NP or letter grading.

124F. Thinking. (4) Lecture, three hours. Requisite: course 120A or 120B. Analysis of experimental studies of human categorization, reasonings, decision making, problem solving, creativity, and related topics. P/NP or letter grading.

124G. Cognitive Aging. (4) Lecture, 90 minutes; discussion, 90 minutes. Requisites: courses 10, 100A, 120A or 120B. Designed for juniors/seniors. Recent facts and theories on relations between normal aging and cognition, including perception, language comprehension, learning, memory, thinking, inhibitory processes in attention, sequential processes in action, general slowing phenomenon, and related neuropsychological issues. P/NP or letter grading.

124I. Cognitive Neuroscience of Memory. (4) Lecture, three hours. Requisites: courses 85 or 120A, and 115. Designed for juniors/seniors. Introduction to neural basis of learning and memory. Topics include cellular and molecular mechanisms of learning and memory, human amnesia and hippocampus, working

memory and prefrontal cortex, procedural learning, emotional memory systems, and memory consolidation. P/NP or letter grading.

124J. Perception, Learning, and Learning Technology. (4) Seminar, three hours. Requisite: course 120A or 120B. Aspects of perception and cognition as they relate to learning and potential for learning technology. Basic knowledge about visual information processing, perceptual learning, knowledge representation, pattern recognition, attention, memory, and expertise, as well as research on learning, technology, and applications of perceptual and cognitive concepts in specific domains, with special focus on teaching and learning in mathematics. P/NP or letter grading.

125A. Developmental Psychopathology. (4) Seminar, three hours; fieldwork, seven hours. Research approaches utilized by psychologists in Fernald Research Intern Program to conduct research in developmental psychopathology in context of direct experience. Interns provided with necessary background to undertake various research activities during Winter and Spring Quarters. P/NP grading.

125B. Research Methods in Developmental Psychopathology. (4) Laboratory, three hours; fieldwork, seven hours. Limited to departmental majors. Research approaches utilized by psychologists to conduct research in developmental psychopathology. Letter grading.

125C. Advanced Research Methods in Developmental Psychopathology. (4) Laboratory, three hours; fieldwork, seven hours. Limited to departmental majors. Advanced research approaches utilized by psychologists to conduct research in developmental psychopathology. Letter grading.

126. Clinical Psychology Laboratory. (4) Laboratory, four hours. Requisites: courses 10, 100A, 100B, and 127A or 127B or 127C. Designed for departmental majors. Methods, designs, and issues in conduct of clinical psychology research. Students develop and conduct research. Content varies by instructor, with concentration on one of following: schizophrenia, mood disorders, anxiety disorders, childhood disorders, psychophysiological methods, observational methods with couples and families. Letter grading.

127A. Abnormal Psychology. (4) Lecture, three hours. Requisite: course 10. Not open for credit to students with credit for course 127B or 127C. Study of dynamics and prevention of abnormal behavior, including neuroses, psychoses, character disorders, psychosomatic reactions, and other abnormal personality patterns. P/NP or letter grading.

127B. Abnormal Psychology: Biological Bases. (4) Lecture, three hours. Requisite: course 10. Not open for credit to students with credit for course 127A or 127C. Study of biological substrates of abnormal cognition, behavior, and mood, with particular focus on neuroscience, genetics, physiology, and anatomy of clinical disorders such as schizophrenia, bipolar disorder, major depression, and substance disorders. P/NP or letter grading.

127C. Abnormal Psychology: Developmental Perspectives. (4) Lecture, three hours. Requisite: course 10. Not open for credit to students with credit for course 127A or 127B. Study of abnormal child development from infancy through adolescence and early adulthood. Clinical disorders include behavioral disorders, learning problems, depression/anxiety, and disorders of development such as autism and mental retardation. P/NP or letter grading.

129A. Personality Measurement. (4) Lecture, three hours. Requisites: courses 10, 100A. Rationale, methods, and content of studies dealing with problems of describing persons in terms of a limited set of dimensions. Detailed consideration of research literature dealing with a few representative personality dimensions. P/NP or letter grading.

129C. Culture and Mental Health. (4) Lecture, two hours; discussion, one hour. Requisites: courses 10, 100A. Introduction to study of culture and human behavior in general, and culture and mental health in particular. Emphasis on cultural groups that comprise

major U.S. ethnic groups (i.e., African Americans, Latinos/Chicanos, Asian Americans, and American Indians). P/NP or letter grading.

129D. Personality. (4) Lecture, three hours. Requisite: course 10. Survey of major topics in field of personality, including personality theory, personality assessment, and physiological, behavioral, and cultural role of perception, learning, and motivation in personality. P/NP or letter grading.

129E. Human Sexuality. (4) Lecture, three hours. Designed for senior Psychology majors. Overview of psychology of human sexuality. Psychological research, assessment, and therapy described in a format which highlights their significance for understanding human sexual functioning. Psychological mechanisms underlying expression of human sexuality. P/NP or letter grading.

129F. Clinical Psychology of Childhood and Adolescence. (4) Lecture, two hours; discussion, one hour. Requisite: course 127A or 127B or 127C. Survey of child and adolescent psychopathology and psychotherapy from a developmental perspective. Coverage includes such conditions as anxiety disorders, depression, conduct and attention problems, eating disorders, and autism, with information on prevalence, causes, common treatments and their effects. P/NP or letter grading.

130. Developmental Psychology. (4) Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Designed for juniors/seniors. Elaboration of developmental aspects of physical, mental, social, and emotional growth from birth to adolescence. P/NP or letter grading.

131. Research in Developmental Psychology. (4) Discussion, one hour; laboratory, three hours. Requisites: courses 10, 100A, 100B, and 130 or one course from 133A through 133I. Designed for Psychology and Cognitive Science majors. Forms of scientific writing; ethics of research, especially with minors; special advantages and problems of asking developmental research questions; relevant methodologies for experimental and observational work; data analyses and data presentation options. Letter grading.

132A. Learning Problems, Schooling Problems: Policy and Practice. (4) Lecture, three hours. Designed for juniors/seniors. Exploration of different orientations to persons with learning problems, emphasizing assessment and intervention approaches and psychological impact of such approaches. Topics include interaction of learner and environment, socio-political nature of classroom, psychological impact of schooling, grades, and evaluations, process versus goal focus in learning. P/NP or letter grading.

132B. Mental Health in Schools: Policy and Practice. (4) Seminar, three hours. Limited to juniors/seniors. Policies, models, and mechanisms for mental health in schools. Psychopathology placed into broader perspective of normal development and psychosocial problems to explore range of theoretical, practical, and ethical issues. P/NP or letter grading.

133A. Adolescent Development. (4) Lecture, three hours. Requisites: courses 10, 100A. Examination of cognitive, social, physical, and physiological development of the adolescent. P/NP or letter grading.

133B. Cognitive Development. (4) Lecture, three hours. Requisites: courses 10, 100A. Major theories, approaches, and issues in study of cognitive development. Readings include original research on important topics such as development of perception, language, thinking, and problem solving, and acquisition of concepts and domain-specific language. P/NP or letter grading.

133C. Language Development. (4) Lecture, three hours. Requisites: courses 10, 100A. Application of principles of cognitive development, learning, and perception to study of language development. Topics include first and second language acquisition (sounds, meanings, grammatical structures), learning mechanisms, communication skills, and relation between language and thought in children. P/NP or letter grading.

133D. Social and Personality Development. (4) Lecture, three hours. Requisites: courses 10, 100A. Theory and research on social and personality development during childhood. Topics include parent/child attachment, temperament, self-control, aggression, sex-typing, self-concept, moral reasoning and behavior, social status and social skills, and peer group relations. P/NP or letter grading.

133E. Perceptual Development. (4) Lecture, three hours. Requisites: courses 10, 100A. Topics include origins and development of human perceptual abilities, origins of knowledge about functionally important aspects of the environment, ecological and computational issues in perception, research and theory about initial perceptual capacities, and some sensory foundations. P/NP or letter grading.

133F. Psychology and Education. (4) Lecture, three hours. Requisites: courses 10, 100A. Application of principles of cognitive development, learning, and perception to educational problems. Topics include general instructional issues, psychology of reading and mathematics, exceptional children, early childhood education, and education of the disadvantaged. P/NP or letter grading.

133G. Culture and Human Development. (4) Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Role of culture in human development through psychology, anthropology, and autobiography. Students relate material from lectures and readings, through empirical research projects, to diverse cultural backgrounds in class, at UCLA, and in the broader community. P/NP or letter grading.

133I. Applied Developmental Psychology. (4) Lecture, three hours. Requisites: courses 10, 100A. Application of developmental psychology to issues pertaining to improving well-being of children and their families. Topics include quality of child care, patterns and ranges of normal child behaviors, developmental disabilities, safety, legal, and public policy issues, child-rearing practices. P/NP or letter grading.

134A. Applied Developmental Psychology: Infant/Toddler Care and Education. (4) Lecture, three hours. Designed for Applied Developmental Psychology minors. Coverage of children zero to three years old. Topics include physical, cognitive, social, and emotional development of children, developmentally appropriate practices, child care quality, role of educator/caregiver, and other related issues. Letter grading.

134B. Applied Developmental Psychology: Pre-school/School-Age Care and Education. (4) Lecture, three hours. Designed for Applied Developmental Psychology minors. Coverage of children three to eight years old. Topics include physical, cognitive, social, and emotional development of children, developmentally appropriate practices, child care quality, role of educator/caregiver, and other related issues. Letter grading.

134C. Advanced Applied Developmental Psychology. (4) Seminar, one hour; fieldwork, eight hours. Requisites: courses 134A, 134B, 134D, 134E. Designed for Applied Developmental Psychology minors. Continuing fieldwork in advanced applications of developmental psychology to support and illustrate, in applied setting, theories and research findings presented in lecture. P/NP grading.

134D. Fieldwork in Applied Developmental Psychology. (2) Fieldwork, 86 hours per term. Enforced corequisite: course 134A. Designed for Applied Developmental Psychology minors. Fieldwork in applications of developmental psychology to support and illustrate, in applied setting, theories and research findings presented in lecture. P/NP grading.

134E. Advanced Fieldwork in Applied Developmental Psychology. (2) Fieldwork, 86 hours per term. Enforced corequisite: course 134B. Designed for Applied Developmental Psychology minors. Fieldwork in advanced applications of developmental psychology to support and illustrate, in applied setting, theories and research findings presented in lecture. P/NP grading.

134F. Infant Care and Development. (4) Lecture, three hours. Requisites: course 10, one course from 130 or 133B through 133I, one statistics course. In-depth study of research methods, current research findings, and theories used to understand infant development from conception through second year of life, including cross-cultural application of this knowledge to various populations. P/NP or letter grading.

134G. Early Childhood Curriculum. (4) Lecture, three hours. Requisites: course 10, one course from 130 or 133B through 133I, one statistics course. Examination of methods, materials, and philosophies that enhance development of children in context of childcare settings. Topics include issues of multiculturalism, antibias curriculum, and special needs adaptations. P/NP or letter grading.

134I. Child, Family, and Community. (4) Lecture, three hours. Requisites: course 10, one course from 130 or 133B through 133I, one statistics course. Exploration of role of early childhood educators within context of diverse racial, ethnic, economic, and cultural backgrounds and impact of these dynamics on children's development. P/NP or letter grading.

135. Social Psychology. (4) Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Designed for juniors/seniors. Interrelationships between the individual and his social environment. Social influences on motivation, perception, and behavior. Development and change of attitudes and opinions. Psychological analysis of small groups, social stratification, and mass phenomena. P/NP or letter grading.

136A. Social Psychology Laboratory. (4) Lecture, one hour; laboratory, four hours. Requisites: courses 10, 100A, 100B, 135. Designed for Psychology majors. Introduction to research designs and methods used to test social psychological hypothesis, including experiments, observation, content analysis, and/or questionnaires. P/NP or letter grading.

136B. Nonexperimental Methods in Social Psychology. (4) Lecture, two hours; laboratory, two hours. Requisites: courses 10, 100A, 100B, 135. Designed for Psychology majors. Research experience with nonexperimental methods for study of social attitudes or behavior, including fieldwork with survey research, naturalistic observation, or questionnaires. P/NP or letter grading.

136C. Survey Methods in Psychology. (4) Lecture, two hours; laboratory, three hours. Requisites: courses 10, 100A, 100B, 135. Designed for Psychology majors. Survey research in psychology, with particular emphasis on surveys of social and political attitudes. Actual experience in systematic survey research such as that done by media polling agencies, market research companies, and academic survey research centers. Topics include survey design, sampling, interviewing techniques, response rates, questionnaire design, data coding, and analysis. Training in telephone interviewing techniques in laboratories. P/NP or letter grading.

137A. Sport Psychology. (4) Lecture, three hours. Designed for junior/senior Psychology majors. Introduction to field of sport psychology. Coverage of research and applied aspects of a range of topics, including youth sport participants as well as world-class performers.

M137B. Nonverbal Communication and Body Language. (4) (Same as Communication Studies M113.) Lecture, three hours. Examination of how various forms of nonverbal communication convey meaningful information to perceivers, with focus on both production and perception of multiple communication formats (e.g., affect expression of face and body, gesture, and kinematics), with strong emphasis on body language. Readings from variety of related fields. P/NP or letter grading.

137C. Intimate Relationships. (4) Lecture, three hours. Requisites: courses 10, 100A. Limited to juniors/seniors. Introduction to how social scientists think about, study, and treat intimate relationships, with emphasis on understanding how relationships change over time. Topics include attraction, relation-

ship formation, conflict resolution, social support, sex, role of individual differences, and external circumstances. P/NP or letter grading.

M137E. Work Behavior of Women and Men. (4) (Same as Gender Studies M137E.) Lecture, two and one half hours. Requisite: course 10 or Gender Studies 10. Designed for seniors. Examination of work behavior of women and men. Topics include antecedents of career choice, job findings, leadership, performance evaluation, discrimination and evaluation bias, job satisfaction, and interdependence of work and family roles. P/NP or letter grading.

137F. Introduction to Sport Psychology. (4) Lecture, three hours. Designed for juniors/seniors. Survey of topics in sport psychology, including leadership and team dynamics, moral development and aggression, personality, motivation, fan behavior, and performance enhancement. Consideration of youth sport through world-class athletics. P/NP or letter grading.

137G. Social Cognitive Neuroscience. (4) Lecture, three hours. Principles of social cognitive neuroscience (SCN) and survey of broad array of topics in field. SCN is fundamental merging of social science questions and neuroscience methods, with particular emphasis on functional magnetic resonance imaging (fMRI). P/NP or letter grading.

137I. Interpersonal Influence and Social Power. (4) Lecture, three hours. Requisite: course 135. Theory and research focusing on how people influence one another and resist such influence, and on the bases of social power. Motivations and effects of influence for the powerholder and target of influence. Applications to such problems and issues as power and leadership in organizations, interpersonal influence and health, power relationships in the family, interpersonal influence in everyday life, social power of political figures.

M138. Electoral Politics: Political Psychology. (4) (Same as Political Science M141A.) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 10. Designed for juniors/seniors. Examination of political behavior, political socialization, personality and politics, racial conflict, and psychological analysis of public opinion on these issues.

M139. Perspectives on Autism and Neurodiversity. (4) (Same as Disability Studies M139.) Seminar, three and one half hours. Genealogy of autism as diagnostic category and cultural phenomenon from its historical roots as new, rare, and obscure condition in early 1940s to its current contested status as minority identity and/or global epidemic. Examination of material sourced from various fields and disciplines invested in autism, including psychology, neuroscience, arts and humanities, popular media, anthropology, activism, and critical autism studies. Students encounter and analyze multiple perspectives on autism and put them in conversation with one another. Attention paid to way people on spectrum define, explain, and represent their own experiences of autism and discussion of what ramifications of these multiple framings are in context of autism intervention strategy and disability policy today. Letter grading.

M140. Introduction to Study of Aging. (4) (Same as Social Welfare M140.) Lecture, three hours. Designed for juniors/seniors. Perspectives on major features of human aging—biological, social, psychological, and humanistic. Introduction to information on range of influences on aging to prepare students for subsequent specialization. P/NP or letter grading.

142H. Advanced Statistical Methods in Psychology (Honors). (4) Lecture, three hours; laboratory, two hours. Requisites: courses 100A, 100B. Survey of statistical techniques commonly used in psychology, education, and behavioral and social sciences: correlational techniques, analysis variance, and multiple regression. P/NP or letter grading.

M144. Measurement and Its Applications. (4) (Same as Statistics M154.) Lecture, three hours. Requisite: one course from 100A, Statistics 10, 11, 12, 13, or 14. Selected theories for quantification of psychological, educational, social, and behavioral science data. Classical test, factor analysis, generalizability, item response, optimal scaling, ordinal measurement,

computer-adaptive, and related theories. Construction of tests and measures and their reliability, validity, and bias. P/NP or letter grading.

M147A. Psychology of Lesbian Experience. (4) (Same as Gender Studies M147A and Lesbian, Gay, Bisexual, and Transgender Studies M147A.) Lecture, two hours; discussion, one hour. Requisite: course 10 or Gender Studies 10 or Lesbian, Gay, Bisexual, and Transgender Studies M114. Designed for juniors/seniors. Review of research and theory in gender studies and psychology to examine various aspects of lesbian experience, impact of heterosexism/stigma, gender role socialization, minority status of women and lesbians, identity development within a multicultural society, changes in psychological theories about lesbians in sociohistorical context. P/NP or letter grading.

150. Introduction to Health Psychology. (4) Lecture, three hours. Requisite: course 10. Areas of health, illness, treatment, and delivery of treatment that can be elucidated by understanding of psychological concepts and research, psychological perspective on these problems, and how psychological perspective might be enlarged and extended in medical area. P/NP or letter grading.

151. Research Methods in Health Psychology. (4) Laboratory, four hours. Enforced requisites: courses 10, 100A, 100B, 150. Research methods used in health psychology, including experimental, quasi-experimental, and nonexperimental methods. Examples and projects from health psychology. Letter grading.

152. Mind-Body Interactions and Health. (4) Lecture, three hours. Designed for junior/senior Psychology and Psychobiology majors. Examination of bidirectional interactions between mind and body and how these interactions influence physical health. Topics include impact of stress, emotions, personality, and social world on biological systems and health. Discussion of mind-body interventions designed to reduce stress and improve health, including scientific research on yoga and meditation. P/NP or letter grading.

160. Genetics of Human Cognition and Behavior. (4) Lecture, three hours. Requisites: courses 10, and 127A or 127B or 127C. Limited to juniors/seniors. Survey of field of behavior genetics, including methods for determining genetic and environmental influences and for locating and characterizing genes impacting these traits, as well as current knowledge of genetic contributions to cognition and behavior and disorders thereof. P/NP or letter grading.

161. Behavior and Brain Development. (4) Lecture, three hours. Requisites: courses 10, 100A. Limited to juniors/seniors. Exploration of relationship between brain development and behavior. Examination of how cognitive neuroscience can inform study of development and how developmental approach can advance progress in cognitive and developmental sciences. P/NP or letter grading.

162. Psychology of Addiction. (4) Lecture, three hours. Survey of topics covering psychological and neurobiological theories of addiction, pharmacological effects of drugs and abuse, etiology, assessment, diagnosis, and treatment. P/NP or letter grading.

M163. Death, Suicide, and Trauma. (4) (Same as Sociology M138.) Lecture, three hours; discussion, one hour. Sociological analysis of incidence of violent death. Suicide is eighth leading cause of death in U.S. and third leading cause for young people aged 15 to 24. Both kinds of violent deaths are often dismissed as extreme psychopathology, reflecting individual mental health issues. Sociologists argue that suicide and homicide are social facts. Suicide and homicide do not occur randomly in society but are stratified according to social factors such as age, gender, race, sexual orientation, and class. Analysis of strength of this sociological argument and evaluation of explanatory potential of different theories to make sense of violent death, paying particular attention to forensic and medicolegal system to determine suicide and solve homicides. Review of historic and contemporary studies to examine how research and conceptualiza-

tions of suicide and homicide have changed, as well as social responses to these phenomena. P/NP or letter grading.

164. Puberty and Sleep. (4) Lecture, three hours. Requisite: course 10. Limited to juniors/seniors. Exploration of how normative biological and hormonal changes during adolescence influence adolescent behavior and well-being. Focus specifically on puberty and sleep, which both lead to consequential effects on behavior, health, and brain development. P/NP or letter grading.

M165. Psychology of Gender. (4) (Same as Gender Studies M165.) Lecture, three hours. Consideration of psychological literature relevant to understanding contemporary sex differences. Topics include sex-role development and role conflict, physiological and personality differences between men and women, sex differences in intellectual abilities and achievement, and impact of gender on social interaction. P/NP or letter grading.

M166. Neurobiology of Bias and Discrimination. (4) (Same as Neuroscience M187.) Seminar, three hours; discussion, one hour. Limited to junior/senior neuroscience and psychology students. Exploration of aspects of mammalian brain function that generate preference, bias, and discrimination. Consideration of research at multiple levels of analysis from genetics to neural circuits to behavior. Discussion of societal implications of these research findings, including their relevance to public policies and criminal justice system. Letter grading.

M172. Afro-American Woman in U.S. (4) (Same as African American Studies M172 and Gender Studies M172.) Lecture, two and one half hours. Designed for juniors/seniors. Impact of social, psychological, political, and economic forces which impact on interpersonal relationships of Afro-American women as members of large society and as members of their biological and ethnic group. P/NP or letter grading.

173. Advanced Abnormal Psychology. (4) Lecture, three hours. Requisites: courses 10, 100A, and 127A or 127B or 127C. Examination of research and theory concerning origins, course, and outcomes of disordered behavior. Focus on continuity and change in patterns of behavior, assessment methods, and research approaches. Concentration on one of following: childhood disorders, anxiety and stress, schizophrenias, or mood disorders. P/NP or letter grading.

M174. Health Disparities. (4) (Formerly numbered 174.) (Same as Life Sciences M174.) Lecture, three hours. Examination of health disparities and ways in which societal responses to race and ethnicity in combination with variety of other factors create differential quality and access to healthcare resulting in poor health outcomes in racial/ethnic minorities. Basic foundation for critical thinking about assumptions that shape life sciences, medical research, clinical practice, and social and behavioral sciences as they relate to racial and ethnic minority populations and to teach students to integrate concepts of culture and health disparities into other social, biological, political, psychological, genetic, and clinical health interests. P/NP or letter grading.

175. Community Psychology. (4) Designed for junior/senior Psychology majors. Application of psychological principles to understanding and solution of community problems. Topics include community development, community mental health problems, drugs, racism, and rehabilitation of prisoners.

M176SL. Addressing Social Determinants in Racial/Ethnic Minority Communities to Reduce and Prevent Health Disparities. (4) (Same as Civic Engagement M175SL.) Seminar, two hours; fieldwork, 10 hours. Examination of how addressing social determinants in racial/ethnic minority communities can reduce or eliminate physical and mental health disparities. Currently in racial and ethnic minority communities, health status of individuals can be function of built environment, exposure to pollutants and toxins, scarcity of supermarkets or stores with fresh produce and nutritional food, noise levels, and variety of other stressors and unhealthy conditions. Health

interventions are often focused on individual-level change or increases in access to healthcare with little in way of changing risk environments. Designed to identify and provide opportunities to understand how to address social determinants related to negative health outcomes in racial/ethnic minority neighborhoods and communities and to experience how to use social determinants literature in service of collaborative activities with community organizations. P/NP or letter grading.

177. Counseling Relationships. (4) Lecture, two hours; discussion, two hours. Requisites: courses 10, 100A, and 127A or 127B or 127C. Designed for junior/senior Psychology majors. Conceptual and empirical foundations of psychological counseling; comparison of alternative models of counseling processes. Emphasis on counseling approaches in community mental health areas such as drug abuse, suicide prevention, and crisis intervention. P/NP or letter grading.

178. Human Motivation. (4) Lecture, three hours. Designed for juniors/seniors. Examination of theories of human motivation, experimental findings supporting the theories, and history of study of motivation. Topics include sociobiology, conflict, aspiration level, achievement strivings, and causal attributions.

179A. Health Behavior and Health Status of Ethnic Groups: Behavioral Perspective. (4) Lecture, three hours. Requisite: course 10. Designed for juniors/seniors. Survey course of psychological aspects of health behavior and health status in major ethnic groups in the U.S. Emphasis on major diseases outlined by the U.S. Public Health Service (USPHS).

179B. Biomedical and Psychosocial Aspects of AIDS/HIV. (4) Lecture, three hours. Requisite: course 150 or 179A or Health Policy 100. Designed for juniors/seniors. Basics of epidemiology of AIDS, routes of transmission, clinical characteristics of AIDS, neurological and psychological aspects of coping with HIV infection and AIDS. Presentation of biologic, behavioral, and therapeutic interventions. P/NP or letter grading.

M180. Contemporary Problems in Developmental Disabilities. (4) (Same as Psychiatry M180.) Seminar, three hours. Corequisite: course M181A. Limited to Developmental Disabilities Program students. Examination of broad spectrum of issues related to mental retardation, intelligence and IQ, genetics, neurobiology, and other developmental disabilities. P/NP or letter grading.

M181A. Research in Contemporary Problems in Developmental Disabilities. (4) (Same as Psychiatry M181A.) Lecture, one hour; laboratory, eight hours. Corequisite: course M180. Limited to Developmental Disabilities Program students. Research experience. In Progress grading (credit to be given only on completion of course M181B).

M181B. Research in Contemporary Problems in Developmental Disabilities. (4) (Same as Psychiatry M181B.) Lecture, one hour; laboratory, eight hours. Requisite: course M181A. Limited to Developmental Disabilities Program students. Research experience. Letter grading.

184A-184B. Psychology Research Opportunity Program Seminars. (2-2) Seminar, 90 minutes. Designed to bring together Psychology Research Opportunity Program (PROPS) students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. P/NP grading.

185. Research Practicum in Psychology. (3) Laboratory, seven hours. Corequisite: course C194D. Limited to juniors/seniors. Practical applications of psychology through research under guidance of faculty mentor. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

186A. Cognitive Science Laboratory: Introduction to Theory and Simulation. (4) Laboratory, four hours. Requisites: courses 10, 85, 100A, 100B, Program in Computing 10A, 10B. Designed for junior/senior departmental majors. Models of cognition within framework of explanation at multiple levels of abstraction. Examples of elementary models in multiple psychological domains (e.g., visual perception, categorization, learning, reasoning, and problem solving). Types of models include neural networks and symbolic models. Lectures and discussions interwoven with computer simulations written in Matlab. P/NP or letter grading.

186B. Cognitive Science Laboratory: Neural Networks. (4) Laboratory, four hours. Requisites: courses 10, 85, 100A, 100B, Mathematics 31A, 31B, Program in Computing 10A, 10B. Designed for junior/senior departmental majors. Laboratory experience in neural network modeling of perception and cognition. Specific topics include essential neurophysiology, basic architectures, learning, and programming techniques. Principles illustrated and discussed in context of models of specific perceptual and cognitive processes. Simulations written in Pascal. P/NP or letter grading.

186C. Cognitive Science Laboratory: Psychophysical Theories and Methods. (4) Lecture, two hours; laboratory, two hours. Requisites: courses 10, 85, 100A, 100B. Designed for junior/senior departmental majors. Lectures and laboratory work that examine perceptual measurement procedures (psychophysical methods) and cognitive processing and decision models on which procedures are based, with particular emphasis on signal detection theory and its applications. Letter grading.

186D. Laboratory in Functional Neuroimaging. (4) Laboratory, four hours. Enforced requisites: courses 10, 100A, 100B. Limited to departmental majors. Introduction to study of brain with functional resonance imaging (fMRI). All major aspects to be discussed, from physical basis of MR signal to data analysis. Letter grading.

187A. Psychology and Law. (4) Lecture, two hours; discussion, two hours. Designed for juniors/seniors. Study of new topics on legal psychology, including suspect identification, witness reports, and police procedures. Outside speakers utilized in presentation of these materials. Students participate in presentations and/or discussions.

187B. Advanced Psychology and Law. (4) Lecture, three hours; discussion, one hour. Requisite: course 187A. Designed for juniors/seniors. Study of additional topics on legal psychology, including gang violence, theories of crime, corrections, repeat offenders, community policing, and interrogation. Outside speakers utilized in presentation of these materials. P/NP or letter grading.

187C. Sex and Law. (4) Lecture, three hours. Limited to juniors/seniors. Examination of Constitutional foundation for sexual rights in America, with focus on freedoms of speech and press, right to privacy, and Ninth Amendment rights reserved by the people. P/NP or letter grading.

188A. Special Seminars: Psychology. (4) Seminar, three hours. Limited to juniors/seniors. Departmentally sponsored experimental or temporary seminars on selected topics in psychology, such as those taught by visiting faculty members. Reading, discussion, and development of culminating project. May be repeated for credit. P/NP or letter grading.

188B. Special Courses in Psychology. (4) Lecture, three hours. Designed for junior/senior majors. Departmentally sponsored experimental or temporary courses on topics of psychological interest, such as those taught by visiting faculty members. Consult Schedule of Classes for topics and instructors. May be repeated for credit. P/NP or letter grading.

190. Research Colloquia in Psychology. (1) Seminar, one hour. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss

their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

191. Variable Topics Research Seminars: Psychology. (1) Seminar, one hour. Limited to juniors/seniors. Research seminar on selected topics in psychology. Reading, discussion, and development of culminating project. May be repeated for credit. P/NP grading.

191AH-191BH-191CH. Departmental Honors Research Seminars. (2-2-2) Seminar, two hours. Enforced corequisite: course 198. Course 191AH is requisite to 191BH, which is requisite to 191CH. Limited to psychology honors program students. Opportunity for development and analysis of creative ideas through individual research projects with faculty sponsor and discussion of student and faculty research presentations. Information and applications may be obtained from Undergraduate Advising Office, 1531 Franz Hall. If approved in advance by Undergraduate Office, courses 191CH and 198 may be applied toward elective course requirement for any Psychology Department major. Letter grading.

192. Education Practices in Psychology. (4) Seminar, three hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to assist in courses related to psychology. Students assist in preparation of materials and development of innovative programs under guidance of faculty members and teaching assistants. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

193. Journal Club Seminars: Psychology. (1) Seminar, one hour. Limited to undergraduate students. Discussion of readings selected from current literature of particular field or attendance at and write-ups of speakers series. May be repeated for credit. P/NP grading.

194A. Internship Seminars: Psychology. (2) Seminar, two hours. Corequisite: course 195A. Study of research methods, applications, and current literature through group discussion, presentation, and papers. Research fields and topics vary by instructor. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

194B. Research Group Seminars: Psychology. (1) Seminar, one hour. Corequisite: course 196A (3-unit option). Limited to juniors/seniors who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

194C. Research Group Seminars: Cognitive Science. (1) Seminar, one hour. Corequisite: course 196B (3-unit option). Limited to junior/senior Cognitive Science majors who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May be applied toward course requirements for Cognitive Science major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. Letter grading.

C194D. Research Group Seminars: Practicum. (1) Seminar, one hour. Corequisite: course 185. Designed for undergraduate students who are part of research group that meets with graduate students. Discussion of research methods and current literature in field or of research of faculty members or students. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. Concurrently scheduled with course C296B. P/NP grading.

195A. Community Internships in Psychology. (2) Tutorial (approved community setting), six hours. Corequisite: course 194A. Limited to juniors/seniors. Internship in applications of psychology in supervised setting in community agency or business. Students meet on regular basis with sponsor and provide periodic reports of their experience. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract with supervising placement sponsor required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

195B. Corporate Internships in Cognitive Science. (4) Tutorial, eight hours. Limited to junior/senior Cognitive Science majors. Practical applications of cognitive science through internship experience in supervised setting. Students meet on regular basis with supervisor and provide periodic reports of their experience. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May be applied toward course requirements for Cognitive Science major. Individual contract with supervisor required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

196A. Research Apprenticeship in Psychology. (3 to 4) Tutorial, eight hours. Corequisite: course 194B. Limited to juniors/seniors. Practical applications of psychology through research under guidance of faculty mentor. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

196B. Research Apprenticeship in Cognitive Science. (3 to 4) Tutorial, eight hours. Corequisite: course 194C. Limited to junior/senior Cognitive Science majors. Practical applications of cognitive science through research under guidance of faculty mentor. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May be applied toward course requirements for Cognitive Science major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

198. Honors Research in Psychology. (2) Tutorial, two hours. Enforced corequisite: course 191AH or 191BH or 191CH. Limited to juniors/seniors and psychology honors program students. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. Letter grading.

199A. Senior Project in Psychology. (4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of psychology faculty mentor. Culminating paper required. Only one 4-unit 199 course may be taken per term. May be repeated for credit. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

199B. Senior Project in Psychology. (4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of psychology faculty mentor. Culminating paper required. Only one 4-unit 199 course may be taken per term. May be taken only once for letter grade. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. Letter grading.

Graduate Courses

200A. Pavlovian Processes. (4) Lecture, three hours. Basic principles and characteristics of learning and behavior, including Pavlovian conditioning, instrumental learning, and species-specific behavior. S/U or letter grading.

200B. Instrumental Conditioning. (4) Lecture, three hours. Topics include animal learning and conditioning and application of learning principles to goal-directed action, motivational processes, and goal selection in nonhuman animals. S/U or letter grading.

200C. Representational Processes. (4) Lecture, three hours. Preparation: undergraduate learning and physiological psychology courses. Review of experimental data on and models of construction of spatial, temporal, and numerical representations. Explicitly symbolic models compared and contrasted with associative models. Implications for neurobiology of learning and memory. S/U or letter grading.

201. Current Issues in Learning and Behavior. (1) Discussion, 90 minutes. Designed for graduate students. Required of learning and behavior students a minimum of four times (entire first year and winter of second year). Presentation of papers of current interest in learning, behavior, or applied behavioral analyses by experts in the field. Evaluation of their significance and methodology in detail. May be repeated for credit. S/U or letter grading.

202. Research in Learning and Behavior. (2) Forum in which graduate students discuss the literature and methodological, analytical, and interpretational issues related to specific topics of research in learning and behavior. S/U grading.

204A. Basic Motivational Processes. (4) Lecture, three hours. Designed for graduate students. Analysis, using behavioral systems approach, of basic motivated behavior such as feeding, drinking, foraging, and reproduction. Same approach also applied to phenomena such as acquired motivation, reinforcement, and drug addiction. Historical survey of behavioral analyses of motivation and goal-directed behavior. S/U or letter grading.

204B. Theories of Learning. (4) Discussion, three hours. Requisite: course 200A. Critical discussion and in-depth analysis of current major theoretical approaches to associative learning, with emphasis on recent experimental analyses of conditioning phenomena.

204C. Evaluative Processes. (4) Lecture, three hours. Designed for graduate psychology students. Lectures and discussion on current research in application of learning principles to clinical and social problems such as alcohol and drug abuse, aggression, fear management, mental retardation, behavioral medicine, autism/schizophrenia, etc. S/U or letter grading.

204D. Fear and Anxiety. (4) Lecture, three hours. Preparation: graduate training. Presentation of theoretical and empirical advances, from biological and behavioral perspectives, in the area of fear and anxiety. Integration of animal and human research.

205A. Cortical Plasticity and Perceptual Learning. (2) Lecture, three hours. Designed for graduate students. Examination of neural basis of perceptual learning. Overview of literature on cortical plasticity and how it relates to different forms of perceptual learning in visual, auditory, and somatosensory modalities. Review of mechanisms of cortical plasticity, including basic features of long-term synaptic plasticity and computational models of cortical processing. Letter grading.

205B. Human Neurophysiology. (2) Lecture, three hours. Designed for graduate students. Examination of higher cognitive processes in terms of neural mechanisms that underlie them. Topics include cortical modularity and organization, coordinated sensory representation, language, regional functional specialization, attention, and regulation of cortical function by extracortical systems. Letter grading.

205C. Neurotransmitters in Human Disorders of Motor and Cognitive Function. (2) Lecture, three hours. Designed for graduate students. Detailed analysis of molecules involved in interneuronal communication processes (i.e., neurotransmitters, neurohormones, "neuromodulators," neurotropic agents). Discussion of their roles in normal brain physiology, followed by detailed analyses of their perturbations in various disease states. Particular emphasis on current and past thinking about Alzheimer's disease, Parkinsonism, Huntington's disease, and Down's syndrome dementia. Letter grading.

205D. Clinical Psychopharmacology. (2) Lecture, three hours. Designed for graduate students. General principles of brain neurotransmitters, including synthesis, cell bodies and pathways, and receptor subtypes. General principles of drug administration and pharmacokinetics. Major classes of psychoactive drugs, animal models, and "atypical" compounds. Letter grading.

205E. Neurobiology of Emotion and Motivation. (2) Lecture, three hours. Designed for graduate students. Overview of literature on neural systems in emotion and motivation. Some emphasis on involvement of brain regions and neurotransmitter systems in affect and emotion regulation, motivated behavior, and psychopathology. Letter grading.

205F. Physiology of Learning. (2) Lecture, three hours. Designed for graduate students. Search for anatomical loci of engrams. Cell biology of plasticity, including electrophysiological and molecular approaches. Theories of how neural circuitry might be organized to make learning possible. Letter grading.

205G. Behavior Genetics. (2) Lecture, three hours. Designed for graduate students. In-depth analysis of field of behavior genetics, including methods for determining genetic and environmental influences and for locating and characterizing genes impacting these traits, as well as current knowledge of genetic contributions to cognition and behavior and disorders thereof. Letter grading.

205I. Attention. (2) Lecture, three hours. Designed for graduate students. Review of cognitive neuroscience of attention from classical psychological models to modern computational models. Focus on perception, with brief coverage of attention in action and decision. Letter grading.

205K. Vision Neurobiology. (2) Lecture, three hours. Designed for graduate students. Exploration of anatomy, physiology, and computation in visual system, focusing on retina, visual cortex, and overall performance. Letter grading.

205L. Cognitive Neuroscience. (2) Lecture, three hours. Designed for graduate students. Overview of neural basis of higher cognitive functions, integrating anatomical, physiological, and behavioral approaches and incorporating clinical and experimental data. Systems covered include attention, perception, memory, language, and hemispheric specialization. Letter grading.

205M. Neuropsychology of Perception. (2) Lecture, three hours (five weeks). Designed for graduate students. Examination of neural substrates of high-level visual processing. Topics include agnosias and characteristics of electrophysiological responses recorded in primate temporal lobe. Discussion of issues regarding neural representation of knowledge. Letter grading.

205N. Functional Neuroimaging. (4) Lecture, three hours. Designed for graduate students. Theory and practice of measuring neural activity in human brain. Methods include electroencephalography, positron emission tomography, and functional magnetic resonance imaging. Domains include memory, vision, language, attention, and emotion. S/U or letter grading.

207A-207B-207C. Seminars: Physiological Psychology. (4-4-4) Requisite: course 115. S/U or letter grading.

M208. Biology of Learning and Memory. (4) (Same as Molecular, Cellular, and Integrative Physiology M200G, Neurobiology M200G, and Neuroscience M220.) Lecture, four hours. Molecular, cellular, circuit, systems, neuroanatomy, theory, and models of learning and memory. Cross-disciplinary focus on learning and memory to provide integrative view of subject that emphasizes emerging findings that take advantage of novel groundbreaking models. Letter grading.

210. Comparative Psychobiology. (4) Requisite: course 115. Survey of determinants of species-specific behavior, including genetic influences and learning.

212. Evaluation of Research Literature in Physiological Psychology. (1) Discussion, 90 minutes. Papers of current interest presented by members of seminar and their significance and methodology discussed and criticized in depth. May be repeated for credit. S/U grading.

M213. Neuroimaging and Brain Mapping. (4) (Same as Neuroscience CM272 and Physiological Science M272.) Lecture, three hours. Requisites: Neuroscience M201, M202. Theory, methods, applications, assumptions, and limitations of neuroimaging. Techniques, biological questions, and results. Brain structure, brain function, and their relationship discussed with regard to imaging. Letter grading.

215A. Health Psychology. (4) Lecture, three hours. Preparation: undergraduate degree or training in psychology. Psychological and social factors involved in etiology of illness, treatment and course of illness, long-term care and adjustment of chronically ill or disabled, and practice of institutional healthcare and self-care. Letter grading.

215B. Human Physiology in Social and Behavioral Science. (4) Lecture, three hours. Limited to graduate students. Designed to provide students with understanding of basic anatomy and activities of biological systems that relate psychological factors to health, and interconnections between these systems. Letter grading.

216A. Psychology of Chronic Disease. (4) Seminar, three hours. Limited to graduate students. Major themes include conceptualization and operationalization of adjustment to chronic illness: theoretical framework for understanding determinants of adjustment to chronic illness and current research on those determinants, prevalence of psychological disorder in populations with chronic illness, evidence-based psychosocial interventions for individuals with chronic illness, and terminal illness and end-of-life care. Readings and discussion across several major chronic diseases (e.g., cardiovascular diseases, cancer, AIDS, rheumatic conditions, diabetes). Letter grading.

216B. Psychoneuroimmunology. (4) Seminar, three hours. Limited to graduate students. Introduction to field of psychoneuroimmunology to help students develop conceptual and methodological skills necessary for interpreting research in this area. Letter grading.

216C. Psychology of Women's Health. (4) Seminar, three hours. Limited to graduate students. Examination of theoretical and empirical advances in psychology of women's health. Socioenvironmental context of women's health, stress and depression in women, psychological aspects of gynecological health, major causes of morbidity and mortality for women, and women's health-related behaviors. Letter grading.

216D. Psychology of Aging and Health. (4) Seminar, three hours. Limited to graduate students. Theories and methods in study of aging and adult development, age-related changes in biological systems, and psychosocial aspects of aging. Topics include physical and cognitive changes with age, mental and physical well-being in older adulthood, and socio-emotional functioning changes with age. Letter grading.

216E. Families, Emotions, and Health. (4) Seminar, three hours. Limited to graduate students. Discussion of theory and research on biological, emotional, social, and behavioral processes that link childhood family social environments to long-term mental and physical health. Letter grading.

216F. Community Psychology. (4) Seminar, three hours. Limited to graduate students. Social problems focus, with discussion of both conceptual and methodological issues that arise when designing and evaluating community interventions. Issues related to conceptualization of social problems as opposed to problems of individuals, and presentation of multidimensional explanatory models and interventions for several social problems. Special attention to ethnic and socioeconomic health disparities and to methodological issues faced in conducting research on these issues. Letter grading.

216G. Biology of Chronic Disease. (4) Seminar, three hours. Limited to graduate students. Examination of basic epidemiology and biology of major chronic diseases (e.g., cardiovascular disease, cancer, diabetes) and consideration of practical and logistical issues involved in studying chronic disease populations in behavioral and population research. S/U or letter grading.

216H. Health Behavior Theory and Behavior Change. (4) Seminar, four hours. Overview of research and theory in health behavior and health behavior change. Identification of contribution of health behaviors to overall health, construction of study methods that effectively measure major health behaviors, critical evaluation of health behavior change research, and generation of hypotheses and design research using main health behavior theories. S/U or letter grading.

217. Variable Topics in Health Psychology. (4) Seminar, three hours. Topics vary by instructor within health psychology area of study and may include epigenetics, child health psychology, health behavior, and behavior change. May be repeated for credit. S/U or letter grading.

218. Research Methods in Health Psychology. (4) Seminar, three hours. Designed for graduate psychology students. Basic foundation for health psychology graduate students to study various research designs and methods, measurement issues, responsible conduct of research, and related issues that are found in research in health psychology. S/U or letter grading.

220A. Social Psychology. (4) Lecture, three hours. Designed for graduate psychology students. Intensive consideration of concepts, theories, and major problems in social psychology.

220B. Research Methods in Social Psychology. (4) Lecture, three hours. Designed for graduate psychology students. Research design and methodological issues in experimental and nonexperimental social research.

220C. Advanced Social Psychology. (4) Lecture, three hours. Requisite: course 220A or 220D. Review of contemporary topics and issues in social psychological research and theory.

220D. Introduction to Social Psychology. (4) Lecture, three hours. Designed for graduate students. Introduction to theory and research in social psychology for students who are not psychology majors. Service course for graduate students in education, sociology, political science, management, public health, etc. S/U or letter grading.

221. Seminar: Attitude Formation and Change. (4) Seminar, three hours. Requisites: courses 220A, 220B. Social psychological research and theories on opinions and attitudes. Effects of mass communication, social factors in assimilation of information and influence. S/U or letter grading.

222A. Interpersonal Relations. (4) Discussion, three hours. Requisite: course 220A. Critical review of theory and research on interpersonal relations, with emphasis on friendship, dating, and marriage.

222B. Interpersonal Influence and Social Power. (4) Seminar, three hours. Preparation: advanced social psychology course (psychological or sociological). Review of theory and research on interpersonal influence and social power, with applications to various power relationships such as supervisor/subordinate, healthcare professional/patient, doctor/nurse, parent/child, wife/husband, teacher/student, political figures, etc. S/U or letter grading.

222C. Psychology of Intergroup Relations. (4) Lecture, three hours. Designed for graduate students. In-depth and comprehensive exposure to major theoretical and methodological issues within domain of intergroup relations research. Approaches not simply restricted to work within psychology but across social sciences in general, including anthropology, political science, and sociology. S/U or letter grading.

222D. Social Stigma. (4) Seminar, three hours. Introduction to classic and contemporary theory and research on social psychology of stigma, primarily from perspective of stigmatized. Letter grading.

222E. Individuals and Groups in Organizations. (4) (Same as Management M259A.) Lecture, three hours. Designed for graduate students. Doctoral-level survey of classic and emerging theories and research in field of organizational behavior, with focus on micro-level topics related to individual and interpersonal processes within organizations. Exploration of how individual behaviors, cognitions, and perceptions are affected by organizational content, structure, and culture. S/U or letter grading.

222F. Professional Issues in Psychology. (4) Seminar, three hours. Acquisition of skills essential for success in graduate school and academia more broadly, including transition to graduate school, writing, manuscript reviewing, grant writing, teaching and mentoring, academic job market, job negotiating, and giving job talks. Involves combination of guest speakers, lectures, discussions, readings, written exercises, and practical experience. S/U or letter grading.

222G. Social Vision. (4) Seminar, three hours. Exploration of nascent field of social vision, with emphasis on how observers utilize visible cues in face and body to form impressions of other people and how these perceptions are moderated by existing knowledge structures and motivations. S/U or letter grading.

223. Seminar: Social Survey Research. (4) Seminar, three hours. Requisite: course 220B. Contemporary issues and topics in social survey research methodology.

225. Seminar: Critical Problems in Social Psychology. (4) Seminar, three hours. Requisites: courses 220A, 220B. May be repeated for credit with consent of instructor. S/U or letter grading.

226A-226B-226C. Current Literature in Social Psychology. (2-2-2) Discussion, 90 minutes. Course 226A is limited to first-year social psychology students. Courses 226B and 226C are open to nonsocial psychology students with consent of instructor. Recent and current research papers in social psychology presented by members of seminar and their significance and methodology discussed and criticized in depth. S/U grading.

M228A. Proseminar: Political Psychology. (4) (Same as History M236A and Political Science M261A.) Seminar, three hours. Introduction to political psychology: psychobiography, personality and politics, mass attitudes, group conflict, political communication, and elite decision making.

M228B. Seminar: Political Psychology. (4) (Same as Political Science M261D.) Discussion, three hours. Requisite: course 220A or Political Science M261A. Examination of political behavior, political socialization, racial conflict, mass political movements, and public opinion. S/U or letter grading.

M228C. Critical Problems in Political Psychology. (4) (Same as Political Science M261E.) Discussion, three hours. S/U or letter grading.

229. Social Cognition. (4) Lecture, one hour; discussion, two hours. Social cognition is concerned with how people organize and interpret social information

in their environment. Seminar provides broad background in the field and also gives depth and focus on particular research topics in the field. Weekly papers, as well as a lengthy final paper, required.

231. Psychology of Gender. (4) Seminar, three hours. Preparation: one prior course on gender/women's studies. Critical evaluation of current research and theory concerning psychology of gender, drawing on work from various areas of psychology to understand sources of gender differentiation and its consequences for human behavior and social interaction.

232. Human Sexuality. (4) Lecture, three hours. Designed for graduate students. Intended to teach students how to carry out research on human sexual behavior. Contents include theory construction, scale development, physiological and endocrinological implications, radioimmunoassay (measuring hormones in blood sample), ethical issues, methodological and statistical considerations, measurement of sexual arousal, fantasy, and sexual dysfunction therapy. Discussion-oriented, with emphasis on operationalizing predictions concerning human sexual functioning.

233. Seminar: Environmental Psychology. (4) Requisites: courses 235, 250A, 250B. Critical review of work in environmental psychology designed to identify basic dimensions for analysis of man/environment relationships. Use of human emotional responses to environments as intervening variables linking specific stimulus qualities to a variety of approach-avoidance behaviors. Individual differences and drug-induced states as these relate to emotional response dimensions used to explain within-individual differences in response to same environment over time or between-individual differences to same situation. Review of literature relating information rate from environments to arousal and preferences for those environments.

234. Social Psychological Aspects of Competitive Youth Sport. (4) Review of research concerning social psychological aspects of competitive sport for children. Sport is presented as a major achievement domain for young participants. Topics include sources and consequences of competitive stress, significant adult influences and interactions, predictors of performance, determinants of participation and dropping out, and socialization through sport.

235. Personality. (4) Survey of cognitive, analytic, and learning theory approaches to study of personality. Emphasis on intensive exploration of selected concepts and related research.

M236. Interdisciplinary Relationship Science. (4) (Same as Anthropology M295S, Education M297, and Sociology M270.) Lecture, three hours. Limited to graduate students. Diverse approaches to relationship science in fields of anthropology, education, psychology, and sociology. Focus on theme of understanding biological, behavioral, and cultural aspects of relationships through diverse theoretical and methodological approaches. Use of broad definition of interpersonal relationships, including relationships such as parent-child, teacher-student, sibling, peer, kin, romantic relationships, marriages, and friendships. S/U or letter grading.

M237A-M237B-M237C. Relationship Science Forums. (2-2-2) (Same as Anthropology M295A-M295B-M295C, Education M298A-M298B-M298C, and Sociology M269A-M269B-M269C.) Seminar, 90 minutes. Limited to graduate students. Current research and theory about personal relationships presented by members of seminar, faculty members, and guest speakers from diverse fields, including anthropology, education, psychology, and sociology. May be repeated for credit. S/U grading.

M238. Survey Research Techniques in Psychocultural Studies. (4) (Same as Psychiatry M238.) Seminar, three hours. Designed for graduate students. Techniques for conceptualizing, conducting, and analyzing survey data; instruction in qualitative strategies for enhancing survey research on psychocultural problems.

M239. Personality, Motivation, and Attribution. (4) (Same as Education M215.) Discussion, three hours. Current research and theory relating personality variables (e.g., attributional styles, self-esteem) to moti-

vational concerns such as persistence and intensity of behavior. Perceived causes of outcomes in achievement and affiliative domains. S/U or letter grading.

240A. Language and Cognitive Development. (4) Lecture, three hours. Preparation: one undergraduate developmental psychology course in cognitive or language development. Designed for graduate students. Consideration of major topics and concepts, key theories, latest methods, and research findings in development of language and cognition. S/U or letter grading.

240B. Social and Emotional Development. (4) Lecture, three hours. Preparation: one undergraduate developmental psychology course in social development or related topic. Designed for graduate students. Consideration of major topics and concepts, key theories, latest methods, and research findings in social and emotional development. S/U or letter grading.

240C. Developmental Psychobiology. (4) Lecture, three hours. Limited to graduate students. Introduction to emerging field of developmental psychobiology, including cognitive and affective neuroscience. Consideration of major topics and concepts, key theories, latest methods, and research findings. S/U or letter grading.

241. Current Developments in Developmental Psychology. (1) Discussion, 90 minutes. Designed for graduate developmental psychology students. Presentation of papers on current advances in developmental psychology and closely related areas by experts in the field. Emphasis on approaches to a problem, making it suitable to interweave presentations by graduate students. S/U grading.

242A-M242G. Seminars: Developmental Psychology. (4 each) Each course may be taken independently and may be repeated for credit:

242A. Perceptual Development. (4) Seminar, three hours. Requisites: courses 240A, 240B. May be taken independently and may be repeated for credit. S/U or letter grading.

242B. Cognitive Development. (4) Seminar, three hours. Requisites: courses 240A, 240B. May be taken independently and may be repeated for credit. S/U or letter grading.

242C. Socialization. (4) Seminar, three hours. Requisites: courses 240A, 240B. May be taken independently and may be repeated for credit. S/U or letter grading.

242F. Development of Language and Communication. (4) Seminar, three hours. Requisites: courses 240A, 240B. May be taken independently and may be repeated for credit. S/U or letter grading.

M242G. Adolescent Development. (4) (Same as Education M217F.) Seminar, four hours. Designed for graduate students. Review of recent research on physical, cognitive, social, and psychological development during second decade of life. Topics include pubertal development, changes in parent/adolescent relationships, role of peers, identity development, high-risk behaviors, stress and coping, and school adjustment. Letter grading.

243A-243B. Seminars: Practical and Societal Issues in Developmental Psychology. (4-4) Seminar, three hours. Requisites: courses 240A, 240B. Socialization processes in human development and implication for social/political, educational, research issues, values, and societal change. In Progress (243A) and S/U or letter (243B) grading.

244. Critical Problems in Developmental Psychology. (4) Lecture, three hours. Requisites: courses 240A, 240B. Current problems; content varies depending on interest of class and instructor. May be repeated for credit with consent of instructor.

M245. Personality Development and Education. (4) (Same as Education M217C.) Lecture, four hours. Review of research and theory of critical content areas in personality development that bear on school performance: achievement motivation, self-concept, aggression, sex differences, empathy, and other so-

cial behaviors; review of status of emotional behavior in personality theory and development. S/U or letter grading.

M246. Psychological Aspects of Mental Retardation. (4) (Same as Psychiatry M246.) Lecture, 90 minutes. Discussion of psychological aspects of mental retardation, including classification, description, etiology, theory, prevention, treatment, assessment, modern and future developments, and input from other disciplines (ethics, law, religion, welfare systems). S/U or letter grading.

M247. Culture, Brain, and Development. (4) (Same as Anthropology M293S, Education M286, and Neuroscience M294.) Seminar, three hours. Designed for graduate students. Integration of knowledge across different disciplines to understand interrelations of culture, brain, and development, where development includes both human ontogeny and human phylogeny. S/U or letter grading.

M248. Culture, Brain, and Development Forum. (1) (Same as Anthropology M293, Education M285, and Neuroscience M293.) Seminar, 90 minutes every other week. Interdisciplinary seminar series to provide students with exposure to current research in understanding complex relationship between culture, brain, and development. S/U grading.

249. Evaluation Research. (4) Requisites: courses 250A, 250B. Introduction to evaluation research in psychology, with emphasis on clinical, community, and social psychology applications. Survey includes policy and strategy issues, design of evaluative studies, data analysis, and utilization of findings.

250A. Advanced Psychological Statistics. (4) Review of fundamental concepts. Basic statistical techniques as applied to design and interpretation of experimental and observational research.

250B. Advanced Psychological Statistics. (4) Advanced experimental design and planning of investigations.

250C. Advanced Psychological Statistics. (4) Lecture, three hours; discussion, two hours. Requisite: course 250A. Limited to graduate students. Review of traditional topics in correlation and regression analyses, including model comparison strategies, evaluation of model assumptions, testing mediation and moderation hypotheses, working with categorical variables, general linear model, and logistic regression. Letter grading.

251A-251B-251C. Research Methods. (4-4-4) Tutorial, to be arranged. Designed for graduate psychology students. Students design and conduct original research projects under supervision of instructor in charge. It is anticipated that many students will complete their project in two terms (normally three terms allowed). S/U (251A, 251B) and S/U or letter (251C) grading.

252A. Multivariate Analysis. (4) Lecture, three hours. Requisites: courses 250A, 250B. Introduction to analysis of data having multiple dependent variables. Topics include continuous multivariate distributions, multiple regression, multivariate analysis of variance, discriminant analysis, canonical correlation, principal component analysis. Applications from clinical, cognitive, physiological, and social psychology. Computer methods.

252B. Discrete Multivariate Analysis. (4) Lecture, three hours. Requisites: courses 250A, 250B. Introduction to analysis of frequency table data. Topics include categorical univariate and multivariate distributions, independence and conditional independence, log-linear models, multivariate categorical designs, and ordered categorical variables. Applications from various areas of psychology.

M253. Factor Analysis. (4) (Same as Education M231B.) Lecture, four hours. Requisites: Education 211B, 231A. Exploratory factor analysis, rotations, confirmatory factor analysis, multiple-group analysis. S/U or letter grading.

254A. Computing Methods for Psychology. (4) Lecture, three hours. Requisites: courses 250A, 250B. Use of MATLAB, but only basic programming knowledge assumed; no prior knowledge of MATLAB re-

quired. Designed to teach basic computer methods relevant to work in experimental psychology and cognitive science. Topics include simulation/modeling, statistical data analysis, and stimulus presentation. S/U or letter grading.

255A. Quantitative Aspects of Assessment. (4) Lecture, four hours. Requisites: courses 250A, 250B. Introduction to issues concerning empirical measurement of abstract constructs using both classical and modern empirical techniques. Hands-on approach allows students to develop practical experience. In addition to discussion of issues concerning reliability and validity, topics include exposure to analytic approaches, including item response theory, multiple regression, principal components analysis, exploratory factor analysis, confirmatory factor analysis, path analysis, and structural equation modeling. S/U or letter grading.

255B. Item Response Theory. (4) Lecture, three hours. Requisites: courses 250A, 250B. Introduction to item response theory (IRT) measurement models and their application to educational and psychological data. Coverage of major IRT models, including models for dichotomous and polytomous formats. S/U or letter grading.

256A. Introduction to Multilevel Modeling. (4) Lecture, four hours. Requisite: course 250C. Basics of random coefficient models for analysis of data from (1) individuals nested within groups and (2) repeated observations of individuals (longitudinal growth models). Selected advanced topics, including three-level models, cross-classification, dyadic data, categorical outcomes, power, and assumption violation. S/U or letter grading.

256B. Advanced Multilevel Modeling. (4) Lecture, four hours. Requisite: course 256A. Advanced topics in analysis of clustered and longitudinal data, including nonlinear models, multilevel mediation, nonhierarchical data structures, meta-analysis, modeling variance, and other topics of student interest. Readings in both quantitative and substantive multilevel modeling literature. S/U or letter grading.

M257. Multivariate Analysis with Latent Variables. (4) (Same as Political Science M208D and Statistics M242.) Lecture, three hours. Introduction to models and methods for analysis of data hypothesized to be generated by unmeasured latent variables, including latent variable analogues of traditional methods in multivariate analysis. Causal modeling: theory testing via analysis of moment structures. Measurement models such as confirmatory, higher-order, and structured-means factory analytic models. Structural equation models, including path and simultaneous equation models. Parameter estimation, hypothesis testing, and other statistical issues. Computer implementation. Applications. S/U or letter grading.

258. Special Problems in Psychological Statistics. (4) Lecture, three hours. Requisites: courses 250A, 250B. Special problems in psychological statistics and data analysis.

259. Quantitative Methods in Cognitive Psychology. (4) Requisites: courses 250A, 250B. Number of nonstatistical mathematical methods and techniques commonly used in cognitive psychology. Topics include Markov chains, other stochastic processes, queueing theory, information theory, frequency analysis, etc.

260A-260B-260C. Proseminars: Cognitive Psychology. (1-1-1) Presentation of research topics by students, faculty, and visiting scholars. May be repeated for credit. S/U grading.

261. Perception. (4) Lecture, three hours. Concepts, theories, and research in study of perception. Considers the questions: Why do things look, sound, smell, taste, or feel as they do? What is the nature of perceptual systems? How do these systems process information?

262. Human Learning and Memory. (4) Lecture, three hours. Contemporary theory and research in human verbal learning and memory; verbal and non-verbal learning and memory processes, structure and organization of short- and long-term memory. S/U or letter grading.

263. Psycholinguistics. (4) Lecture, three hours. Contemporary theory and research in psycholinguistics: coding and decoding, psycholinguistic parameters of language learning, speech recognition and perception. S/U or letter grading.

264. Thinking. (4) Lecture, three hours. Contemporary theory and research in thinking, problem solving, inference, semantic memory, internal representation of knowledge, imagery, concepts. S/U or letter grading.

265. Computational Methods for Neuroimaging. (4) Lecture, three hours. Requisites: courses 250A, 250B. Theory and practice of processing and analysis of functional MRI data. Topics include image registration, preprocessing and quality control, statistical modeling and inference, multivariate analysis, and machine learning methods. Letter grading.

266. Cognitive Science. (4) Lecture, three hours. Major issues in cognitive science. Representation of cognitive structures and higher-level processes. Specific areas include perception, learning and memory, problem solving, and reasoning. Relationships to artificial intelligence.

267. Neuroethics. (4) Seminar, three hours. Exploration of ethical implications of modern neuroscientific advances, including potential use in legal system for assessing eyewitness memory, truthfulness, culpability, and probability of future criminal behavior. Consideration of societal consequences of cognitively enhancing drugs, memory dampening techniques, and brain stimulation. S/U or letter grading.

268A-268E. Seminars: Human Information Processing. (4 each) Seminar, three hours. Topics vary with interests of instructor. Each course may be taken independently and may be repeated for credit. **268A.** Perception; **268B.** Human Learning and Memory; **268C.** Judgment and Decision Processes; **268D.** Language and Cognition; **268E.** Human Performance.

268F. Human-Computer Interaction. (4) Lecture, three hours. Limited to graduate students. Concepts, theories, and pragmatics of human-computer interaction. Topics include optimizing Web and product interfaces to enhance quality of user experience, with focus on applying principles of cognition, perception, learning, and memory to create human-computer interactions that are consonant with user needs and capabilities. Course projects include creating and user testing actual Web-based application. S/U or letter grading.

269. Seminar: Cognitive Psychology. (4) Seminar, three hours. Discussion of problems in cognitive psychology that encompass more than a single subfield of the area. May be repeated for credit.

270A-270B-270C. Foundations of Clinical Psychology. (4-4-4) Lecture, five hours. Designed for graduate clinical psychology students. Letter grading. **270A.** Corequisite: course 271A. Analysis of phenomenological, theoretical, and research issues regarding etiology and mediating mechanisms in neurotic, affective, schizophrenic spectrum, and other personality disturbances. **270B.** Corequisite: course 271B. Principles and methods of psychological assessment and evaluation. **270C.** Corequisite: course 271C. Principles and methods of psychological intervention in individuals, families, and community settings.

271A-271B-271C. Clinical Psychological Methods. (2-2-2) Corequisites: courses 270A, 270B, 270C. Procedures in clinical psychology as applied in clinical and community settings. Supervised exposure to psychological attributes of psychopathology and procedures for psychological assessment, intervention, and research with clinical populations. Experience closely coordinated with content in courses 270A, 270B, 270C. S/U grading.

271D. Clinical Research Laboratory. (2) Discussion, one hour; laboratory, one hour. Corequisites: courses 270A or 270B or 270C, and 271A or 271B or 271C. Designed for graduate clinical psychology students. Acquaints students with faculty research interests and involves them in their course 251 research at an early stage to insure completion. S/U grading.

271E-271F. Clinical Research Laboratories. (2-2) Requisite: course 271D. Designed for graduate clinical psychology students. Required of first-year clinical psychology students. S/U grading. **271E.** Brief overview of research design issued in clinical psychology and practical issues in students' own research activities. **271F.** Discussions of students' particular research activities and issues, plus laboratories in computer analysis of statistical data.

271G. Evidence-Based Intervention for Childhood Problems. (4) Fieldwork, five-day, 35-hour training period in Fall Quarter. Requisites: courses 271A, 271B, 271C. Designed for second-year graduate clinical psychology students. Training of students in application of (1) child treatment outcome literature, (2) clinical monitoring and feedback tools, and (3) common clinical strategies from evidence-based practices to prepare for assessment, monitoring, planning, and service delivery in child practicum. S/U grading.

272A-272G. Advanced Clinical Psychological Methods. (4 each) Each course may be taken independently for credit. Letter grading:

272A. Behavior Modification with Children. (4) Seminar, three hours. Requisites: courses 271A, 271B, 271C. Course in series of clinical intervention and assessment offerings for second- and third-year clinical students that covers behavior modification research and practice in clinic, school, institution, and home settings. May be taken independently for credit. Letter grading.

272C. Clinical Interventions for Psychological Problems of Children. (4) Seminar, three hours. Requisite or corequisite: course 401 or 451. May be taken independently for credit. Letter grading.

272D. Family Therapy and Research. (4) Seminar, three hours. Requisites: courses 270A, 270B, 270C. Survey of major schools of family therapy and how each applies to specific clinical cases, with emphasis on depression, bipolar disorder, and schizophrenia. Discussion of areas of research that relate to family theories, modes of assessment, and specific interventions. May be taken independently for credit. Letter grading.

272E. Special Problems. (4) Seminar, three hours. Requisite or corequisite: course 401 or 451. May be taken independently for credit. Letter grading.

272F. Behavior Modification with Adults. (4) Seminar, three hours. Requisite or corequisite: course 401 or 451. Designed for second-year graduate clinical psychology students. Current cognitive behavior modification principles and techniques. Major conceptual issues; specific techniques demonstrated and practiced by students to cover a range of adult problems such as depression, stress and anxiety, anger management, assertion problems. May be taken independently for credit. Letter grading.

272G. Marital Therapies. (4) Lecture, two hours; discussion, one hour; laboratory, one hour. Requisites: courses 270A, 270B, 270C, 271A, 271B, 271C. Examination of assessment and treatment approaches for relationship problems in couples. Presentation, discussion, and illustration of procedures derived from social-learning, psychodynamic, and systems theories, with relevant research findings. May be taken independently for credit. Letter grading.

273A-273B-273C. Professional and Ethical Issues in Clinical Psychology. (2-2-2) Lecture, one hour; discussion, one hour. Designed for graduate clinical psychology students. Year-long course sequence covering variety of topics necessary for clinical psychologists in their clinical work, including legal and ethical issues, child abuse, suicide assessment, issues in empirically validated treatments, psychiatric consultation and psychoactive medications, working with diverse client populations, etc. Letter grading.

M274. Health Status and Health Behaviors of Racial and Ethnic Minority Populations. (4) (Same as Health Policy and Management M274.) Lecture, two hours; discussion, one hour. Limited to graduate students. Overview of physical and mental health behav-

iors and status of major racial/ethnic groups in U.S. Where appropriate, discussion of international issues as well. S/U or letter grading.

275. Conceptual and Methodological Issues in Community Intervention. (4) Lecture, three hours. Limited to graduate students. Conceptualization of social problems from macrosocial perspective; discussion of multidimensional explanatory models for select illustrative problems; discussion and critical evaluation of both individual-focused and community-focused interventions with high-risk and impacted populations. S/U or letter grading.

276. Children with Learning and Related Behavioral Problems: School Policy and Practice. (4) Lecture, three hours. Designed for PhD students. Exploration of learning and related behavioral problems in broad perspective as basis for analyzing cause and intervention. Issues related to prevailing policies and practices and new directions for research, policy, practice, and training. S/U or letter grading.

277A-277B. Advanced Clinical Assessment. (4-4) (Formerly numbered 277.) Lecture, four hours; laboratory, three hours. Designed for graduate clinical psychology students. Projective techniques, clinical interpretation, case studies, psychological test battery, psychopathology, and application of assessment to problems in psychotherapy. Letter grading.

M278. Functional Neuroimaging: Techniques and Applications. (3) (Same as Bioengineering M284, Neuroscience M285, Physics and Biology in Medicine M285, and Psychiatry M285.) Lecture, three hours. In-depth examination of activation imaging, including MRI and electrophysiological methods, data acquisition and analysis, experimental design, and results obtained thus far in human systems. Strong focus on understanding technologies, how to design activation imaging paradigms, and how to interpret results. Laboratory visits and design and implementation of functional MRI experiment. S/U or letter grading.

279. Seminar: Research in Psychopathology. (4) Seminar, four hours. S/U or letter grading.

M280. Affective Disorders. (2 or 4) (Same as Psychiatry M234.) Seminar, two hours. General topics related to primary affective disorders (depression, manic depressive illness), including diagnosis, pharmacology, epidemiology, psychology, phenomenology, biology, and treatment. Students enrolled for 4 units are assigned a more intensive reading list and required to make a presentation or prepare a research paper. S/U or letter grading.

283. Psychopathology. (4) Lecture, three hours. Survey of dominant psychological attributes of particular forms of psychopathology, including analysis of status of various theories concerned with etiology and mediating mechanisms of personality, neurotic, schizophrenic spectrum, and affective disturbances. S/U or letter grading.

284. Seminar: Clinical Psychology and Communication. (4) Seminar, four hours. S/U or letter grading.

M285. Cognitive Behavior Therapy with Children: Treatment and Systems of Care. (2 or 4) (Same as Psychiatry M277.) Seminar, 90 minutes. Designed for graduate students. Cognitive/behavioral approaches to prevention and treatment of mental health problems in children. Examination of service delivery systems for treating troubled youth and discussion of issues with respect to current systems of care. Major problems include conduct disorders, attention deficit disorder, depression, anxiety, and learning disabilities. Letter grading.

286. Issues and Concepts of Clinical Psychology. (4) Discussion, three hours. Open to graduate students in majors other than clinical psychology. Survey of major issues and alternatives in current practice. Emphasis on assessment and intervention, with consideration of historical, theoretical, and research bases for current trends. S/U or letter grading.

287. Critical Problems in Clinical Research Methodology. (4) Lecture, three hours. Requisites: courses 250A, 250B. Special problems of measurement and design in clinical research. S/U or letter grading.

M288A-M288B. Principles of Neuroimaging I, II. (4-4) (Same as Neuroscience M284A-M284B and Psychiatry M284A-M284B.) Lecture, four and one half hours. Preparation: competence in integral calculus, electricity and magnetism, computer programming (any language), general statistics. Requisite: Psychiatry 292. Course M288A is requisite to M288B. Instrumental imaging methods for study of nervous system, with emphasis on quantitative understanding and data interpretation and features common to modalities. X-ray computed tomography, magnetic resonance imaging, positron emission tomography, magnetoencephalography, transcranial magneto stimulation, near infrared imaging. Letter grading.

289A-289B-289C. Current Issues in Clinical Psychology. (1-1-1) Seminar, two hours. Designed for first-year graduate clinical psychology students. Presentation of research and applied topics relevant to clinical psychology. In Progress (289A, 289B) and S/U (289C) grading.

290. History and Systems of Psychology. (2) Seminar, two hours. Requisites: courses 251A, 251B, 251C. Rich and detailed examination of history of full scope of psychology as scientific discipline, with particular emphasis on cognitive, social/personality, developmental, and biological aspects of discipline. Broad treatment of how various emphases within broader field have evolved. S/U or letter grading.

291. Principles of Behavioral Pharmacology. (4) Lecture, four hours. Intensive analysis of drug, brain, and behavior relationships. Discussion of nature and source of drugs, general aspects of pharmacology, neurotransmitters and basic neuropharmacology, principles of behavioral pharmacology, categories of psychopharmacological agents, and pharmacological approaches to study of drug addiction, schizophrenia, and other behavioral processes, both normal and pathological. S/U or letter grading.

292. Biobehavioral Mechanisms of Stress and Disease. (4) Lecture, three hours. Designed for graduate psychology students. Behavior/physiology interactions of some major bodily systems: nervous, cardiovascular, gastrointestinal, and endocrine systems. Usual and altered states of these systems (e.g., stress) as these can promote permanent tissue injuries, disease, or improved bodily function, health enhancement. S/U or letter grading.

292B. Psychosocial Contributors to Ethnic Disparities in Health. (4) Seminar, three hours. Limited to graduate students. Role of social class, gender, and other psychosocial factors in accounting for disparities in physical and psychological health in racial/ethnic groups. Attention to variety of specific disorders, with focus on explanatory models and approaches to intervention. S/U or letter grading.

293. Behavioral and Psychophysiological Problems of Alcoholism. (4) Lecture, four hours. Behavioral and psychophysiological characteristics of alcoholism, along with theories concerning their etiology and treatment. Experimental approaches. S/U or letter grading.

M294. Seminar: Neural and Behavioral Endocrinology. (2) (Same as Neurobiology M255 and Physiological Science M255.) Seminar, one hour; discussion, one hour. Topics include hormonal biochemistry and pharmacology. Hypothalamic/hypophyseal interactions, both hormonal and neural. Structure and function of hypothalamus. Hormonal control of reproductive and other behaviors. Sexual differentiation of brain and behavior. Stress: hormonal, behavioral, and neural aspects. Aging of reproductive behaviors and function. Letter grading.

295. Psychology of Diversity. (4) Seminar, three hours. Introduction to research and theory on group differences and psychology of diversity. Topics include social identity, intergroup relations, development across lifespan and across social and cultural contexts, and group disparities in health and mental health. Letter grading.

296A. Research Topics in Psychology. (1) Research group meeting, one hour. Limited to graduate students. Discussion of current literature, new ideas, methodological issues, and preliminary findings. Re-

search presentations and opportunities for feedback on current and proposed research activity to encourage, support, and facilitate student research expertise. Assigned readings included. S/U grading.

C296B. Research Group Seminars: Practicum. (1) Seminar, one hour. Designed for graduate students who are part of research group that meets with undergraduate students. Discussion of research methods and current literature in field or of research of faculty members or students. Concurrently scheduled with course C194D. S/U grading.

297. Issues in Social Development of Minority Child. (4) Seminar, three hours. Designed for graduate students. Critical evaluation and integration of existing research on social psychological development of minority child. Emphasis on socialization of cognitive and personality style, with goal of empirically clarifying issues raised in this area of developmental study. S/U or letter grading.

298. Special Problems in Psychology. (4) Discussion, three hours. Content depends on interests of particular instructor. May be repeated for credit. S/U or letter grading.

299. Developmental Methodology. (4) Lecture, three hours. Coverage of both theory and methods in measuring age-related changes in behavior. Experimental designs and data-analytic solutions to problems in measurement of change. Some experience in analysis of actual data sets. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

401. Fieldwork in Clinical Psychology. (1 to 12) Fieldwork, to be arranged. Requisites: courses 271A, 271B, 271C. Students on practicum assignments are required to register for this course each term (except by consent of clinical program committee). Letter grading.

402. Clinical Research Practicum. (2) Fieldwork, two hours. Faculty and graduate students who share interests discuss current literature, new ideas, methodological issues, and preliminary findings. Meetings include research presentations and opportunities for feedback on current and proposed research activity to encourage, support, and facilitate student research expertise. Assigned reading included. S/U grading.

403. Special Topics Study Course. (1 to 4) Discussion, one to four hours. Under faculty supervision, group of students meets each week for quarter in self-led study group to pursue specific topic of their choice that is not covered in other department courses. S/U grading.

410A-410B-410C. Clinical Teaching and Supervision. (4-4-4) Clinic, four hours. Preparation: completion of PhD comprehensive examinations, advancement to candidacy or preparation for dissertation research actively under way. Study and practice of knowledge, concepts, and theories on teaching and supervision of applied clinical psychology. Letter grading.

410D-410E-410F. Clinical Assessment Supervision. (4-4-4) Clinic, two hours; other, one hour. Designed for third-year graduate clinical psychology students. Study and practice of knowledge, concepts, and theories on teaching and supervision of psychological assessment. Letter grading.

420A-420B. Health Psychology Practicum. (2-2) Fieldwork, to be arranged. Designed for graduate students. Determination of what areas of health, illness, treatment, and delivery of treatment can be elucidated by understanding of psychological concepts and research; psychological perspective on these problems; how psychological perspective might be enlarged and extended in medical area. Through practical field placement, students apply knowledge acquired in class to research observation and/or clinical work in field. S/U or letter grading.

421. Research in Social Psychology. (2) Discussion, two hours; reading and group work, four to six hours. Forum for faculty and graduate students pursuing research on a common topic to share research ideas, make research presentations, and obtain feedback on study designs, procedures, and results to foster collaborative investigations in common research areas. S/U grading.

423. Social Survey Research Practicum. (4) Practicum, two hours; additional hours to be arranged. Methods of survey sampling, conduct and management of computer-assisted telephone interview surveys. S/U or letter grading.

425. Health Psychology Lecture Series. (2) Lecture, one hour. Clinicians and researchers in health psychology from Los Angeles area present their research, programs, and/or clinical work as part of training program in health psychology. May be repeated for credit. S/U grading.

451. Internship in Clinical Psychology. (8 to 12) Fieldwork, to be arranged. Preparation: successful completion of departmental qualifying examinations. Enforced requisite: course 401. Limited to advanced UCLA clinical psychology graduate students. May be repeated for credit. S/U grading.

454. Internship in Industrial Psychology. (2 to 4) Fieldwork, to be arranged. S/U or letter grading.

495. Presentation of Psychological Materials. (4) Seminar, to be arranged. Supervised practicum in undergraduate teaching. Students serve as discussion section leaders in selected undergraduate courses. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Research and Study in Psychology. (2 to 12) Tutorial, to be arranged. One 596 course is required during second year of graduate study, and one 596 or 599 course is required during each succeeding year of graduate study. (Terminal MA candidates are exempt from this requirement.) S/U grading.

597. Individual Studies. (2 to 12) Tutorial, to be arranged. Designed primarily as preparation for PhD qualifying examinations. May be required by some area committees as requisite for taking examinations. S/U grading.

599. Research for PhD Dissertation. (2 to 12) Tutorial, to be arranged. Preparation: successful completion of qualifying examinations. One 599 course is required during each year following completion of qualifying examinations. S/U grading.

PUBLIC AFFAIRS

*Interdisciplinary Minor
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Anastasia Loukaitou-Sideris, PhD, Chair

Faculty Committee

Jorja J. Leap, PhD (Social Welfare)
Lené Levy-Storms, PhD, MPH (Social Welfare)
Anastasia Loukaitou-Sideris, PhD (Urban Planning)
Aaron L. Panofsky, PhD (Institute for Society and
Genetics, Public Policy, Sociology)

Meredith Phillips, PhD (*Public Policy, Sociology*)
 Ananya Roy, PhD (*Social Welfare, Urban Planning*)

Scope and Objectives

The Public Affairs minor teaches undergraduate students the skills of policy analysis and exposes them to many of the local, state, national, and international issues facing today's policymakers and opinion leaders. Courses explore the public (governmental) and nonprofit sectors and provide a theoretical, conceptual, and practical foundation for students. Particular attention is given to the vexing issues facing urban areas and urban planners, social welfare and social workers, and public policies that affect individuals and groups of people in their public and private lives.

Undergraduate Study

Public Affairs Minor

To enter the Public Affairs minor, students must have an overall grade-point average of 2.0 or better and complete Public Policy 10A with a grade of B or better. For further information, contact the program director/counselor at 310-206-8966.

Required Core Courses (8 units): Public Policy 10A and one course from 10B, C101, 102, C119, 125, Honors Collegium 82, Social Welfare 191, Urban Planning 120, 121 or, by petition only, another applied policy course. Highly recommended: one statistics and one microeconomics course.

Required Upper Division Courses (20 units): (1) Three courses from one of the following clusters: (a) *gender and multiculturalism cluster*—Public Policy M120, Social Welfare 101, M104C, Urban Planning 141, M175; (b) *labor and work cluster*—Public Policy 141, C144, 145, 148; (c) *policy studies cluster*—three upper division public policy lecture/seminar courses (191A may be repeated for credit with topic change); (d) *social welfare cluster*—three upper division social welfare lecture courses (fieldwork and internship courses such as Social Welfare 130A and 130B may not be applied); (e) *urban policy and planning cluster*—three upper division urban planning lecture courses (129 may be repeated for credit with topic change); or (f) by petition, a cluster of upper division policy courses proposed by the student; (2) one elective course offered by the Luskin School of Public Affairs not used to satisfy the core or cluster requirement; (3) capstone project to be completed during the senior year that may be satisfied by one of the following: (a) Public Policy 187, (b) Political Science M191DC or M194DC, (c) Civic Engagement 105SL, or (d) by petition another upper division applied policy course that requires a substantial term paper.

Fieldwork and internship courses, such as Social Welfare 130A, 130B, and Urban Planning M165, may not be applied toward the minor. No more than three of the cluster and elective courses may be from a single department, and no more than two may be from outside the school.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

M140, 180, 181, Health Policy and Management M110, C121, Public Health 53, M106, or M151. Transfer credit for any of the above is subject to school approval.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have a minimum grade of C (2.0) in each and an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

PUBLIC HEALTH

Interdisciplinary Minor

Jonathan and Karin Fielding School of Public Health

UCLA
 A1-269 Center for the Health Sciences
 Box 951772
 Los Angeles, CA 90095-1772
 310-825-5524
 fax: 310-825-5617
<http://ph.ucla.edu/undergraduate-public-health-minor>

Shane S. Que Hee, PhD, *Chair*

Faculty Committee

Dorota M. Dabowska, PhD (*Biostatistics*)
 Leeka I. Kheifets, MH, PhD (*Epidemiology*)
 Donald E. Morisky, PhD (*Community Health Sciences*)
 Shane S. Que Hee, PhD (*Environmental Health Sciences*)
 Thomas H. Rice, PhD (*Health Policy and Management*)

Scope and Objectives

The Public Health minor is designed for students who wish to learn more about core public health functions, including the assessment and monitoring of the health of communities and populations at risk to identify health problems and priorities, the formulation of public policies designed to solve identified local and national health problems and priorities, the assurance that all populations have access to appropriate and cost-effective care, and the evaluation of the effectiveness of that care.

Undergraduate Study

Public Health Minor

To enter the Public Health minor, students must be in good academic standing with an overall grade-point average of 2.0 or better, have completed 90 or more units, and file a petition at the Fielding School of Public Health Student Affairs Office, A1-269 Center for the Health Sciences. Enrollment is competitive and based on grade-point average and an application essay.

Required Upper Division Courses (28 units): Seven courses, including Biostatistics 100A, Community Health Sciences 100, Environmental Health Sciences 100, Epidemiology 100, Health Policy and Management 100, Public Health 150 (must be taken during the first term of enrollment in the minor), and one elective course to be selected from Biostatistics 100B, Community Health Sciences 91, 130, 132,

PUBLIC HEALTH SCHOOLWIDE PROGRAMS

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Scope and Objectives

The profession of public health is responsible for the protection, preservation, and promotion of the health of communities and populations. Although the health problems of today differ from those of the past and of the future, the professionals who make up the field need to be trained to respond to broad community problems utilizing the basic ideas of prevention of disease and promotion of well-being. This goal can be achieved only with an understanding of the health status of the population through data gathering and analysis, as well as knowledge of the complex relationships between disease process in the social and biological environment of the community.

The field of public health today needs practitioners from many disciplines. Candidates for graduate study may come from a wide variety of academic backgrounds, training, or experience, including both the natural and social sciences.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Fielding School of Public Health offers two schoolwide degrees, Master of Public Health (MPH) and Doctor of Public Health (DrPH), and

MS and PhD degrees in Biostatistics, Community Health Sciences, Environmental Health Sciences, Epidemiology, and Health Policy and Management. An undergraduate minor in Public Health is also offered.

One interdepartmental degree program—the PhD in Molecular Toxicology—is also available.

Eight concurrent degree programs (Community Health Sciences MPH/Urban Planning MURP, Environmental Health Sciences MPH/Urban Planning MURP, Public Health MPH/African Studies MA, Public Health MPH/Asian American Studies MA, Public Health MPH/Law JD, Public Health MPH/Management MBA, Public Health MPH/Public Policy MPP, Public Health MPH/Social Welfare MSW) and two articulated degree programs (Public Health MPH/Latin American Studies MA, Public Health MPH/Medicine MD) are also offered.

Public Health

Lower Division Courses

10. Introduction to Public Health. (4) Seminar, three hours. Designed for lower division students. Introduction to range of topics, issues, and frameworks to help students understand current public health issues and public health systems, policies, and practices. P/NP or letter grading.

53. Introduction to Health of Underserved and Linguistic Minority Communities. (4) Lecture, three hours. Population projections, population characteristics, birth rates and outcomes, causes of death and death rates, patterns of reportable diseases, services utilization, patterns of immigration, health insurance, provider training, risk behaviors, and chronic diseases in Latino and other underrepresented minority communities in Los Angeles County. Letter grading.

Upper Division Courses

M106. Health in Chicano/Latino Population. (4) (Same as Chicana and Chicano Studies CM106.) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Examination of Chicano/Latino health status through life expectancy, causes of death, reportable diseases, services utilization, provider supply, and risk behaviors within demographic/immigration changes. Binational review of health effects in U.S. and Mexico. Letter grading.

150. Contemporary Health Issues. (4) Lecture, four hours. Designed for juniors/seniors. Exploration of nation's health challenges, epidemiologic basis of public's health, organization and financing of health services in the U.S. and elsewhere, and current strategies for advancing people's health. Letter grading.

M151. Healthcare in Transitional Communities. (4) (Same as Sociology M142.) Lecture, three hours; discussion, one hour. Analysis of social, cultural, economic, and political processes affecting organization and accessibility of healthcare in transitional and disadvantaged communities. Fieldwork required. Letter grading.

M160A. Health Outreach and Education for At-Risk Populations. (4) (Same as Medicine M160A.) Lecture, four hours; possible field observations. First in series of courses to explore prevention of disease in at-risk populations, clinical services and referrals for disadvantaged, and effects of low socioeconomic status on academic achievement, career, and family. Lectures by faculty and practitioners, with field visits. P/NP or letter grading.

M160B. Health Outreach and Education for At-Risk Populations. (4) (Same as Medicine M160B.) Lecture, two hours; discussion, two hours. Requisite: course M160A. Second in series of courses to explore prevention of disease in at-risk populations, clinical services and referrals for disadvantaged, and effects

of low socioeconomic status on academic achievement, career, and family. Lectures by faculty and practitioners, discussion groups, and field activities including health education. P/NP or letter grading.

Graduate Courses

M273. Responsible Conduct of Research in Global Health. (2) (Same as Epidemiology M273.) Lecture, two hours. Requisite: Community Health Sciences 200. Introduction to fundamental principles of public health ethics, current ethical procedures, guidelines, and requirements, and ethical issues facing public health professionals working in developing countries. History of public health issues, unique ethical issues of research in developing countries, analysis of ethical implications of informed consent, responsibility to study community, mechanisms of study approval, role of funders, and role and responsibilities of review boards. S/U or letter grading.

299. Strategies for Success for Doctoral Students. (2) Seminar, two hours. Interactive seminar, with focus on research process, tips for success in academia, and important tools for leadership designed for all doctoral students in School of Public Health. S/U grading.

475. Pedagogy: Essential Skills and Innovative Strategies. (2) Seminar, two hours. Designed for School of Public Health doctoral students. Interactive seminar with focus on developing teaching materials for courses and acquisition of skills and tools that help students to become successful and innovative instructors. Active learning methodologies and competencies-based approach to instruction. S/U or letter grading.

Allen J. Scott, PhD
Charles E. Young, PhD

Associate Professors

Aaron L. Panofsky, PhD
Meredith Phillips, PhD
Sarah J. Reber, PhD
Manisha Shah, PhD
Wesley E. Yin, PhD

Assistant Professors

Randall K. Akee, PhD
Darin E. Christensen, PhD
Zachary C. Steinert-Threlkeld, PhD

Lecturers

C. Mike Dennis, MPA, CPFO
Rick Tuttle, PhD

Visiting Professor

Michael S. Dukakis, JD

Scope and Objectives

The Department of Public Policy is an interdisciplinary unit composed of faculty members from various disciplines, some of whom hold joint appointments in other UCLA departments. Its goal is to foster an understanding of the theory and practice of public policy in the many fields in which it applies. Examples include education, healthcare, unemployment and training, drug policy and crime, economic development, national security, and the environment. The department offers the Master of Public Policy (MPP) degree and participates in the undergraduate minor in Public Affairs.

The MPP degree program is designed to train professionals in both public- and private-sector policy analysis and implementation and provides coursework in such areas as microeconomics, statistics, political processes, and public and nonprofit management.

Concurrent degree programs allow students to combine study for an MPP with work toward a JD in the School of Law, an MBA in the Anderson Graduate School of Management, an MD in the Geffen School of Medicine, an MPH in the Fielding School of Public Health, or an MSW in the Department of Social Welfare.

The undergraduate minor in Public Affairs familiarizes students with key issues in public policy. Both programs have a heavy applied orientation. For further information on the minor, see Public Affairs earlier in this section of the catalog.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Department of Public Policy offers the Master of Public Policy (MPP) degree. Five concurrent degree programs (Public Policy MPP/Law JD, Public Policy MPP/Management MBA, Public Policy MPP/Medicine MD, Public Policy MPP/Public Health MPH, and Public

PUBLIC POLICY

Meyer and Renee Luskin School of Public Affairs

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fax faculty: 310-206-0337
fax administration/admissions: 310-206-2381
e-mail: mppinfo@luskin.ucla.edu
<http://luskin.ucla.edu/public-policy>

Michael A. Stoll, PhD, *Chair*

Professors

Joel D. Aberbach, PhD
Michael R. Darby, PhD (*Warren C. Cordner Professor of Money and Financial Markets*)
J.R. DeShazo, MSc, PhD
Neal Halfon, MD, MPH
S. Jody Heymann, MD, PhD
Susanne Lohmann, PhD
Mark A. Peterson, PhD
Thomas H. Rice, PhD
Michael A. Stoll, PhD
Fernando M. Torres-Gil, PhD
John D. Villaseñor, PhD
Lynne G. Zucker, PhD

Professors Emeriti

Albert Carnesale, PhD
Robert Dallek, PhD
Franklin D. Gilliam, Jr., PhD
Joel F. Handler, JD (*Richard C. Maxwell Professor Emeritus of Law*)
Mark A.R. Kleiman, PhD
Archie Kleingartner, PhD
Arleen Leibowitz, PhD
Daniel J.B. Mitchell, PhD (*Ho-Su Wu Professor Emeritus of Management*)
Barbara J. Nelson, PhD

Policy MPP/Social Welfare MSW) are also offered.

Public Policy

Lower Division Courses

10A. Introduction to Public Policy. (5) Lecture, three hours; workshops and outside study, three hours. Overview of principal topics of contemporary policy analysis, developing their applications with examples from instructor's own research, visitors, small student projects, or field trips. P/NP or letter grading.

10B. California Policy Issues. (4) Lecture, three hours; outside study, nine hours. Application of policy analysis to California issues. Guest lectures from practitioners and academics along with readings and videos. Student written reports and oral presentations required. Letter grading.

Upper Division Courses

C101. Drug Abuse Control Policy. (4) Lecture, three hours; outside study, nine hours. Introduction to drug abuse as social problem and to drug abuse control as policy issue, with examination of both necessity and difficulty of making and executing wise policies around psychoactive substances. Concurrently scheduled with course C235. Letter grading.

102. Imperfect Rationality. (4) Lecture, three hours; outside study, nine hours. Idea that individuals are capable of acting rationally, in their own interest, is central to economic theory and to custom, law, and common sense thinking. Economics offers thorough account of ways in which such people should deal with choice, risk, and time. Casual observation and experimentation agree that actual behavior deviates in systematic ways from prescriptive model of rationality. Groups of rationally seeking individuals might fail to act as rationally self-seeking groups. Consideration of deviations between rational choices and actual behavior in public policies. Letter grading.

103. Ethics, Morality, and Public Life: Contemporary Controversies. (4) Lecture, four hours; outside study, eight hours. Study of ethical and moral questions that arise in public life. Goal is not to imbue students with a given body of factual knowledge or to develop new quantitative or social science methodologies to analyze such questions, but to enhance their critical thinking skills. Letter grading.

104. Culture and Political Structure of Los Angeles. (4) Lecture, three hours; outside study, nine hours. Exploration of two pieces of the puzzle in modern urban life: the different communities that live here (and in most other major cities) and political structure that binds us all together. Who are the communities living here? How do they organize themselves and develop leaders? How does integration into mainstream take place? What is "mainstream" today? How does political structure help or impede the notion of a united city? Letter grading.

105. Leadership in Public Interest. (4) Lecture, three hours. Examination of prevailing models, theories, and practices of leadership in public settings and application of them through case studies, films, and situational articles. Participation in group projects and discussions designed to improve understanding of role of leadership in mobilizing people groups to do difficult work. Introduction to literature and theory on leadership, examination of leadership and group dynamics, and challenge of leadership in times of stress and change. Letter grading.

112. Controversies in Education Policy. (4) Lecture, three hours; outside study, nine hours. Focus on several controversial topics in contemporary education. Topics vary each year and include multiculturalism, affirmative action, test score gap, bilingual education, and school choice. Introduction to major arguments for and against several important education policies and to encourage students to critically evaluate logic and evidence behind these policies. Letter grading.

113. Politics of U.S. Health Policy. (4) Lecture, three hours. Every modern nation faces similar health system challenges, such as promoting health and longevity, providing effective treatments, balancing benefits and burdens of medical technology, and controlling healthcare costs that grow faster than national income. U.S. seems uniquely disadvantaged with lower life expectancy, problematic quality of medical services, lack of insurance for millions, and highest costs in world, hampering families, businesses, and government. What political dynamics produced this result and influence possibility and direction of ongoing policy change? Examination of meaning of health and healthcare; international experience; current status, organization, and financing of U.S. healthcare system; and factors that affect national health policymaking, including comprehensive healthcare reform: framing of problems, role of public opinion, influence of interest groups, composition and organization of Congress, and opportunities for and applications of presidential leadership. P/NP or letter grading.

C115. Environmental and Resource Economics and Policy. (4) Lecture, three hours. Requisites: Economics 11, 143. Survey of ways economics is used to define, analyze, and resolve problems of environmental management. Overview of analytical questions addressed by environmental economists that bear on public policies. Concurrently scheduled with course CM250. Letter grading.

CM117. Crisis Decision Making in U.S. Foreign Policy. (4) (Same as Political Science M121B.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended requisites: Political Science 120A, 137A. In-depth look at theory and practice of U.S. foreign policy-making. Assessment of competing theories of international relations and application to specific case studies. Weekly role plays of foreign policymakers and final crisis simulation exercise. Concurrently scheduled with course C272. Letter grading.

M118. U.S. Intelligence Agencies in Theory and Practice. (4) (Same as Political Science M120C.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Examination of U.S. intelligence agencies from Cold War to present. Particularly in light of 9/11 and Iraq war, few organizations are more important and less understood. Course separates fact from fiction, comparing how intelligence agencies are portrayed in popular entertainment to how they operate in practice. Fundamentals of intelligence collection (from satellites to spies) and analytic tradecraft; key challenges such as role of ethics in intelligence; performance of U.S. intelligence agencies during Cold War; and intelligence community's ability to adapt to rise of terrorism. Application of general concepts to specific case studies of Cuban missile crisis, 2003 Iraq war, and September 11, 2001, terrorist attacks. P/NP or letter grading.

C119. Crime Control Policy. (4) Lecture, three hours; outside study, nine hours. Design, implementation, and evaluation of policies to control crime. Operations of major institutions within criminal justice system. Theories of crime causation and prevention and their relationship to impacts of alternative policies. Concurrently scheduled with course C219. Letter grading.

M120. Race, Inequality, and Public Policy. (4) (Same as African American Studies M120.) Lecture, three hours; discussion, one hour. Background in economics, sociology, or urban studies preferred but not required. Survey course to examine major debates and current controversies concerning public policy responses to social problems in urban America. Letter grading.

M122. Ethics and Governance. (4) (Same as Political Science M115A.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of applied ethics and governance, taking case-based approach, mixing normative and positive perspectives. Is action X morally right or wrong? How do people reason about whether action X is morally right or wrong? How do governance structures influence how people reason about whether action X is morally right or wrong?

How can we design governance structures that encourage people to act ethically, contribute to public goods, and lead productive and fulfilled lives? P/NP or letter grading.

CM123. U.S. National Security Policy. (4) (Same as Political Science M125B.) Lecture, three hours; outside study, nine hours. Limited to juniors/seniors. Examination of contemporary U.S. national security challenges and how policymakers develop strategies to address them. Exploration of Cold War legacy, development of American national security strategic doctrine, and U.S. foreign policymaking process from 1945 to present. Examination of broad spectrum of issues confronting today's foreign policy leaders, from threats to vital U.S. interests (WMD proliferation and terrorism), to regional security and economic challenges (Iraq, China), to humanitarian intervention and nation-building (Darfur, Afghanistan). Students draft analytic options memos and deliver oral presentations on how to handle six current national security mini-cases. Provides overview of current challenges and hones student analytic skills to examine these challenges from strategic policy perspective. Concurrently scheduled with course C274. Letter grading.

C124. Budget Politics, Social Policy, and Entitlement Reform. (4) Lecture, three hours; outside study, nine hours. Examination of politics of public budgeting in the U.S., with emphasis on financing of social safety net. Exploitation of budgetary process as setting both for gaining substantive knowledge about how government really works and for developing political skills required to influence resource allocation decisions. Concurrently scheduled with course C239. Letter grading.

125. Rights and Wrongs of Affirmative Action. (4) Lecture, three hours; discussion, one hour. Exploration of race-based affirmative action from moral, political, and social philosophy standpoint. Topics include defining discrimination, individual and group equality; different meanings of "diversity"; meritocracy and its critics; historical and future-based arguments; sociology of values; possibilities for moral compromise. Letter grading.

M126. Political Ethics. (4) (Same as Political Science M115B.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of major issues in morality, or lack thereof, of political life. Coverage of both readings in moral and political theory and real-world examples such as Watergate, terrorism, civil rights politics, and presidential campaigns. Topics include basic ethical theory, role-relative ethics, Machiavellian amorality, democratic responsibility and representation, ethics of compromise, dirty hands problems, international ethics. Letter grading.

M127. Understanding Public Issue Life Cycle. (4) (Same as Political Science M142D.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended preparation: Political Science 10, 40, and one course from Economics 1, 2, 5, 11, or 101. Examination of how public issue life cycle is shaped by (1) economic and political incentives of various actors—business, news media, mass public, organized interests, Congress, the president, regulatory agencies, and courts and (2) ideology, cognitive biases, and ethical reasoning. P/NP or letter grading.

141. Employment and Labor Policy: Survey. (4) Lecture, three hours; outside study, nine hours. Requisites: course 10A. Introduction to current public policy issues in employment, labor relations, and labor markets. Historical context for current employment and labor policies in the U.S. Pro and con philosophical analysis of reasons for government regulation. Analysis of current data on labor unions, the workplace, and labor-market trends. Workforce diversity, education and training, social welfare policy, and global issues (immigration, trade, and global economy as it affects the workforce). Future trends and issues on policy horizon. Letter grading.

C144. Comparative Industrial Relations. (4) Lecture, three hours; outside study, nine hours. Requisite: course 10A. At national and international levels, historical and contemporary analytical comparison of

political, social, and economic contexts influencing human resource systems of selected developed countries. In addition to discussing possible frameworks for analyzing human resource systems, examination of institutions and ideologies of labor, management, and government, and interaction of their power relationships; substance and manner of determination of "web of rules" governing rights and obligations of the parties; and resolution of conflicts. Concurrently scheduled with course CM231. Letter grading.

145. Labor Policies in the U.S.: Historical Perspective. (4) Lecture, three hours; outside study, nine hours. Requisite: course 10A. Insight into evolution of labor policies in the U.S. from 19th century to the present. Exploration of important policy areas such as child labor, labor standards, protective legislation for women workers, industrial relations, civil rights, occupational safety and health, and international labor standards in (1) historical context (economic, political, and social factors that shaped the debate), (2) motivation and action of major players (business, labor, government), and (3) changing patterns of government involvement in public policy. Letter grading.

146. Democracy, Disobedience, and Dissent. (4) Lecture, three hours; outside study, nine hours. Requisite: Philosophy 6 or Political Science 10. Theories of political and legal obligation and their critics; justified disobedience in response to inequality, injustice, and social exclusion; moral and religious pluralism as argument for both obedience and dissent. Letter grading.

C147. Critical Policy Issues and Problems in Globalizing World. (4) Lecture, three hours; outside study, nine hours. To enable students to (1) think of world in dynamic terms, (2) be able to map, divide, and assemble world in many different ways, and (3) be able to articulate patterns of flux, change, and movement in world space and history. Concurrently scheduled with course C245. Letter grading.

148. Business and Public Policy. (4) Lecture, three hours; outside study, nine hours. Requisite: course 10A. Introduction to key issues arising at interface between business and government policy. Discussion of why government focuses so intensively on regulating economic outcomes, nature of business/government relationship, business political activity, and major government policies. Topics include economic regulation (industrial policy, antitrust, technology policy); social regulation of business (energy, environment, risk, liability, corporate governance); and corporate social responsibility, business ethics, and green business. Discussion of topics in their historical and political context, with comparison between economic regulation in the U.S. and other countries. Letter grading.

M149. California Sustainable Development: Economic Perspective. (4) (Same as Environment M135 and Urban Planning M163.) Lecture, three hours. Examination of specific environmental challenges that California faces. Microeconomic perspective used, with special emphasis on incentives of polluters to reduce their pollution and incentives of local, federal, and state government to address these issues. Focus on measurement and empirical hypothesis testing. P/NP or letter grading.

CM182. Science, Technology, and Public Policy. (4) (Formerly numbered C182.) (Same as Electrical Engineering CM182.) Lecture, three hours. Recent and continuing advances in science and technology are raising profoundly important public policy issues. Consideration of selection of critical policy issues, each of which has substantial ethical, social, economic, political, scientific, and technological aspects. Concurrently scheduled with course CM282. Letter grading.

M186. Equal Rights and Unequal Education. (4) (Same as Education M186 and Political Science M183.) Lecture, four hours. Exploration of contradictions between American beliefs about equal opportunity and racial equality and inequalities that exist in public education. Three major topic areas in education as vehicles for understanding philosophical and empirical complexities of issues surrounding equality in

American education and life. Examination of issues from legal, sociological, political, and philosophical perspectives. Arguments range from Martin Luther King to Ronald Reagan, and legal cases include Plessy versus Ferguson to Brown versus Board of Education, as well as cases still pending in courts. Letter grading.

187. Research Seminar: Public Policy. (4) Seminar, three hours; outside study, nine hours. Requisite: course 10A. Limited to and required of seniors in Public Affairs minor. Production of research project that examines in depth one particular policy issue in its social context, including political pressures involved and problems of implementation. Emphasis on skills of data acquisition and analysis, conceptualization, and written analysis and presentation. Letter grading.

191A. Variable Topics Research Seminars: Public Policy. (4) Seminar, three hours; outside study, nine hours. Examination of particular subfields of policy studies (e.g., international policy, crime policy, policy history) in depth, with specific topics to be identified by instructor. Reading, discussion, and development of culminating project. Must be taken for credit if applied toward Public Affairs minor. May be repeated for credit with topic change. P/NP or letter grading.

191B. Variable Topics Research Seminars: Public Policy. (3) Seminar, three hours; outside study, six hours. Examination of particular subfields of policy studies (e.g., international policy, crime policy, policy history) in depth, with specific topics to be identified by instructor. Reading, discussion, and development of culminating project. Must be taken for credit if applied toward Public Affairs minor. May be repeated for credit with topic change. P/NP or letter grading.

191C. Variable Topics Research Seminars: Public Policy. (2) Seminar, two hours; outside study, four hours. Examination of particular subfields of policy studies (e.g., international policy, crime policy, policy history) in depth, with specific topics to be identified by instructor. Reading, discussion, and development of culminating project. Must be taken for credit if applied toward Public Affairs minor. May be repeated for credit with topic change. P/NP or letter grading.

191D. Variable Topics Research Seminars: Public Policy. (1) Seminar, one hour; outside study, two hours. Examination of particular subfields of policy studies (e.g., international policy, crime policy, policy history) in depth, with specific topics to be identified by instructor. Reading, discussion, and development of culminating project. Must be taken for credit if applied toward Public Affairs minor. May be repeated for credit with topic change. P/NP or letter grading.

193A. Marschak Colloquium: Social Sciences. (2) Seminar, two hours. Limited to undergraduate students. Attendance at biweekly Marschak Colloquium presentations, highly regarded and long-standing interdisciplinary lecture series given by leading social science experts, required. Discussion of lecture topics and research models in behavioral sciences. Letter grading.

197. Individual Studies in Public Policy. (2 or 4) Tutorial, four hours. Preparation: 3.0 grade-point average. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

201. Principles of Microeconomic Theory I. (4) Lecture, three hours; outside study, nine hours. First course in two-term sequence (see course 204) to prepare students for economic analysis of public policy, with review of economic principles and basic microeconomic theory and policy applications. Consumer theory and demand, producer theory and supply, equilibrium of product and factor markets. Letter grading.

202. American Political Institutions and Processes. (4) Lecture, three hours; outside study, nine hours. Designed to provide background necessary to develop strategies for dealing effectively with political environment of policy and administration. Discussion of U.S. constitutional arrangements, followed by instrumental and integrative examination of primary institutions of politics and governance from organized interests to legislatures, bureaucracies, and courts. Letter grading.

203. Statistical Methods of Policy Analysis I. (4) Lecture, three hours; outside study, nine hours. First course in two-term sequence (see course 208). Review of statistical principles useful to policy research and analysis. Topics include descriptive statistics, expectations, univariate distribution, probability, covariance and correlations, statistical independence, random sampling, estimators, unbiasedness and efficiency, statistical inference, confidence intervals, and hypothesis testing. Letter grading.

204. Principles of Microeconomic Theory II. (4) Lecture, three hours; outside study, nine hours. Requisite: course 201. Second course in two-term sequence (see course 201) covering both theory and policy applications. Topics include monopoly, factor markets, general equilibrium, welfare economics, externalities, public goods, uncertainty, and intertemporal optimization. Letter grading.

205. Institutional Leadership and Public Manager. (4) Lecture, three hours; outside study, nine hours. Examination of leadership role of executives in public service as they lead and manage in tough day-to-day world of politics and intensive public scrutiny. Heavy emphasis on case studies that focus on what public managers do, political and organizational environment in which they find themselves, and skills they need both inside and outside their organization to get things done with high degree of competence and integrity. Letter grading.

206. Political Economy of Policy Adoption and Implementation. (4) Lecture, three hours; outside study, nine hours. Analysis of how policy is formed, adopted, and implemented. How policies are formulated, by whom, how policy agendas are set, how to define relationships between politicians, bureaucrats, lobbyists, and media experts. Letter grading.

207. International Political Economy. (4) Lecture, three hours; outside study, nine hours. Examination of political, legal, and social institutions to show where the U.S. fits in among varieties of modern capitalism and business/government relations. Analysis of domestic policy options nations are pursuing in response to economic globalization, such as protectionism, mercantilism, and deregulation. Introduction to international coalitions being formed, including NAFTA, and to nongovernmental organizations created to deal with special problems such as global environmental crisis. Letter grading.

208. Statistical Methods of Policy Analysis II. (4) Lecture, three hours; outside study, nine hours. Requisite: course 203. Second core course in statistics and quantitative methods for M.P.P. degree. Quantitative studies of public policy, covering regression analysis and its application to public policy questions. Letter grading.

209. Management in the 21st Century. (4) Lecture, three hours; outside study, nine hours. Overview of moral philosophy, political theory, and public-sector ethics using readings from classical and contemporary literature and case studies. Consideration of various ways in which terms such as "democracy" and "liberty" are used in public discourse. Practice in developing and defending moral arguments, both orally and in writing. Letter grading.

210. Methods of Policy Analysis. (4) Lecture, three hours; outside study, nine hours. Preparatory course that precedes three-term 298A, 298B, 298C sequence in which students prepare major public policy projects and papers that are case studies of policy evaluation and implementation and are equivalent to professional master's theses. Papers build on prior core courses, internship experience, and policy cluster courses. Letter grading.

211. Normative Issues in Policy Analysis. (4) Lecture, three hours; discussion, one hour. Limited to graduate students. Introduction to some basic normative categories, arguments, and tools essential for addressing questions of public policy. Normative questions are those that concern whether actions, characters, or states of world are right or wrong—or, in less absolute cases, better or worse than possible alternatives. Allegedly value-free methods of analysis do not help decide policy questions. Certain policy questions raise normative concerns sooner or more urgently than others: those that go beyond matters of economic efficiency and touch on questions of human dignity, equality, justice, or national or cultural traditions. Some questions that seem to be subject to efficiency analysis raise some strong ethical concerns distinct from those of efficiency. Discussion of disagreement that exists over both what efficiency is and in what cases or across what dimensions it ought to govern. Letter grading.

M212. Child Welfare Policy. (4) (Same as Social Welfare M290J.) Lecture, three hours. Development of social policy as it affects families and children from different cultural backgrounds and as it is given form in public child welfare system. Examination of development of infrastructure to support needs of children and families. S/U or letter grading.

M213. Mental Health Policy. (4) (Same as Social Welfare M290K.) Lecture, three hours. Examination of evolution of social policy and services for mentally ill, with emphasis on political, economic, ideological, and sociological factors that affect views of mentally ill and services they are provided. S/U or letter grading.

M214. Poverty, Poor, and Welfare Reform. (4) (Same as Social Welfare M290L and Urban Planning M246.) Lecture, three hours. Major policy and research issues concerning poverty and social welfare policy directed toward poor in U.S. S/U or letter grading.

M215. Health Policy. (4) (Same as Social Welfare M290M.) Lecture, three hours. Introduction to contemporary issues in healthcare financing and delivery, providing historical perspective on emergence of these issues. Examination of major public programs and their relationship to issues of access and cost. S/U or letter grading.

M216. Public Policy for Children and Youth. (4) (Same as Social Welfare M290N.) Lecture, three hours. Policy issues that affect children and adolescents in relation to their interaction with schools and community, with emphasis on impact of policy across federal, state, and local levels. S/U or letter grading.

M218. Research Design and Methods for Social Policy. (4) (Same as Urban Planning M204.) Lecture, three hours; outside study, nine hours. Limited to graduate students. How to become more sophisticated consumers and producers of qualitative and quantitative policy research. In first half of course, formal principles of research design; in second half, various data collection methods, including ethnography, interviewing, and survey design. Letter grading.

C219. Crime Control Policy. (4) Lecture, three hours; outside study, nine hours. Design, implementation, and evaluation of policies to control crime. Operations of major institutions within criminal justice system. Theories of crime causation and prevention and their relationship to impacts of alternative policies. Concurrently scheduled with course C119. Letter grading.

M220. Transportation, Land Use, and Urban Form. (4) (Same as Urban Planning M250.) Lecture, three hours. Historical evolution of urban form and transportation systems, intrametropolitan location theory, recent trends in urban form, spatial mismatch hypothesis, jobs/housing balance, transportation in strong central city and polycentric city, neotraditional town planning debate, rail transit and urban form. Letter grading.

M221. Travel Behavior Analysis. (4) (Same as Urban Planning M253.) Lecture, three hours. Requisites: courses 201 and 203, or Urban Planning 207 and 220B. Descriptions of travel patterns in metropolitan areas, recent trends and projections into future, overview of travel forecasting methods, trip generation,

trip distribution, mode split traffic assignment, critique of traditional travel forecasting methods and new approaches to travel behavior analysis. Letter grading.

M222. Transportation Economics, Finance, and Policy. (4) (Same as Urban Planning M256.) Lecture, three hours. Overview of transportation finance and economics; concepts of efficiency and equity in transportation finance; historical evolution of highway and transit finance; current issues in highway finance; private participation in road finance, toll roads, road costs and cost allocation, truck charges, congestion pricing; current issues in transit finance; transit fare and subsidy policies, contracting and privatization of transit services. Letter grading.

M223. Transportation and Environmental Issues. (4) (Same as Urban Planning M258.) Lecture, three hours. Regulatory structure linking transportation, air quality, and energy issues, chemistry of air pollution, overview of transportation-related approaches to air quality enhancement; new car tailpipe standards; vehicle inspection and maintenance issues; transportation demand management and transportation control measures; alternative fuels and electric vehicles; corporate average fuel economy and global warming issues; growth of automobile worldwide fleet; automobile in sustainability debate. Letter grading.

M224A. Introduction to Geographic Information Systems. (4) (Same as Urban Planning M206A.) Lecture, three hours; laboratory, one hour. Preparation: one graduate-level statistics course, familiarity with one packaged statistics program. Principles of Geographic Information Systems (GIS) and applied techniques of using spatial data for mapping and analysis. Topics include data quality, data manipulation, spatial analysis, and information systems. Use of mapping and spatial analysis to address planning problem. Letter grading.

M224B. Advanced Geographic Information Systems. (4) (Same as Urban Planning M206B.) Studio, three hours. Requisite: course M224A or Urban Planning M206A. Advanced topics in geographic information systems (GIS) utilizing geoprocessing tools in ArcMap, map design, and spatial analysis. Letter grading.

225. Education Policy and Education Inequality. (4) Seminar, three hours; outside study, nine hours. Limited to graduate students. Examination of policies that may reduce socioeconomic and ethnic disparities in educational success. Topics include international and national comparisons of educational outcomes, private and public school choice, school accountability policies, interventions to improve school or teacher quality, parenting and preschool interventions, and supplemental educational services. Letter grading.

M226. Management Challenges and Tools for Non-profit Sector. (4) (Same as Social Welfare M290V and Urban Planning M286.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Fundamental building blocks for successful management in nonprofit sector. Students develop management skills in strategic thinking/problem solving, project management, team building, and negotiation. Use of case studies to troubleshoot critical challenges, from finance to crisis management to marketing, that nonprofit managers typically face. Letter grading.

M227. Politics, Power, and Philanthropy. (4) (Same as Social Welfare M290S and Urban Planning M287.) Lecture, three hours; outside study, nine hours. Use of political economy perspective to analyze forces that have shaped rise and characteristics of nonprofit sector and its constituent elements. Examination of social history of nonprofit sector in U.S. Exploration of legal and policy environments and distinct organizational forms. Comparative perspective between U.S. and other countries. S/U or letter grading.

M228. Leadership, Development, and Governance of Nonprofit Organizations. (4) (Same as Social Welfare M241E and Urban Planning M288.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Various patterns of community action for attaining social welfare objectives; research

and field experience directed toward study of social problems within context of community planning; emerging patterns of physical, economic, and social planning within framework of social change theory. Letter grading.

M229. Law and Management of Nonprofit Organizations. (4) (Same as Management M225.) Lecture, three hours. Introduction to important legal, financial, and management issues confronting nonprofit organizations. Topics include how to start nonprofit tax-exempt organizations, qualifying and maintaining tax-exempt status under IRC Code Section 501(c)(3), corporate governance, political and legislative activity restrictions, and strategic planning, fundraising, nonprofit accounting, and employment law. S/U or letter grading.

CM231. Comparative Industrial Relations. (4) (Same as Management M255.) Lecture, three hours; outside study, nine hours Requisite: Management 409 or elementary knowledge of labor economics. At national and international levels, historical and contemporary analytical comparison of political, social, and economic contexts influencing human resource systems of selected developed countries. In addition to discussing possible frameworks for analyzing human resource systems, examination of institutions and ideologies of labor, management, and government, and interaction of their power relationships; substance and manner of determination of "web of rules" governing rights and obligations of the parties; and resolution of conflicts. Concurrently scheduled with course C144. S/U or letter grading.

233. Employment Issues in California. (4) Lecture, three hours; outside study, nine hours. Designed for graduate students. Drawing on resources of UCLA Business Forecasting Project, introduction to general features of California labor market, analysis of employment fluctuations and forecasting techniques including linkages between employment fluctuations in California and elsewhere in the country, and social issues related to labor market. Letter grading.

234. Labor Markets and Social Policy. (4) Lecture, three hours; outside study, nine hours. Examination of analytical tools and conceptual models needed to understand policies directed toward people in lower tail of income distribution. Concepts include static and dynamic labor supply, labor demand, compensating differentials, human capital, and economic models of immigration and crime. Letter grading.

C235. Drug Abuse Control Policy. (4) Lecture, three hours; outside study, nine hours. Introduction to drug abuse as social problem and to drug abuse control as policy issue, with examination of both necessity and difficulty of making and executing wise policies around psychoactive substances. Concurrently scheduled with course C101. Letter grading.

237. Ethical Questions in Public Life. (4) Lecture, three hours; outside study, nine hours. Introduction to moral issues that commonly arise in public life. Ethics of political roles, compromise and moral integrity, lying and deception, place of rhetoric in defending stand on issues, politics and violence. Letter grading.

238. Issues in Cultural Policy. (4) Seminar, three hours; outside study, nine hours. Designed for graduate students. Survey of role of policy in shaping forms and meanings of culture and cultural activities in contemporary society. Overview of relevant theories of culture and their ramifications in such phenomena as consciousness, ideology, and identity. Empirical examination of what policymakers have said and done about promotion of culture in interests of various social goals. Contemporary trend of economic and cultural intersecting to be subject for trend analysis. Examination of globalization and national cultural interests in depth. General debate about logic and meaning of cultural politics in contemporary society and their consequences for trajectories of cultural policy at local, national, and international levels. Letter grading.

C239. Budget Politics, Social Policy, and Entitlement Reform. (4) Lecture, three hours; outside study, nine hours. Examination of politics of public budgeting in the U.S., with emphasis on financing of so-

cial safety net. Exploitation of budgetary process as setting both for gaining substantive knowledge about how government really works and for developing political skills required to influence resource allocation decisions. Concurrently scheduled with course C124. Letter grading.

M240. Theories of Regional Economic Development I. (4) (Same as Geography M236A and Urban Planning M236A.) Lecture, three hours; discussion, one hour. Introduction to theories of location of economic activity, trade, and other forms of contact between regions, process of regional growth and decline, reasons for different levels of economic development, relations between more and less developed regions. Letter grading.

M241. Introduction to Regional Planning. (4) (Same as Urban Planning M230.) Lecture, three hours. Critical and historical survey of evolution of regional planning theory and practice, with particular emphasis on relations between regional planning and developments within Western social and political philosophy. Major concepts include regions and regionalism, territorial community, and social production of space. Letter grading.

242. Regional Development, Urbanization, and Industrial Policy. (4) Lecture, three hours; outside study, nine hours. Survey of regional development, with special reference to "new economic geography" and its relevance for formulation of local economic development policies. Letter grading.

M243. Community Development and Housing Policies: Roles of State, Civil Society, and Nonprofits. (4) (Same as Social Welfare M290U and Urban Planning M275.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Examination of role of U.S. housing policy and role of government agencies and community organizations. Is problem housing or economic development? Should interventions be directed toward inner city housing markets or through neighborhood strategies? What lessons can be learned from experiences of other countries? Letter grading.

M244. Transportation Policy and Planning. (4) (Same as Urban Planning M255.) Lecture, three hours. Introduction to analysis, management, and operation of transportation systems. Topics include evaluating transportation system performance, causes and management of traffic congestion, transportation systems and demand management, complete streets, goods movement, shipping, aviation, and high-speed rail policy and planning, public transportation planning, transportation services for elderly and disabled, and intelligent transportation systems. Letter grading.

C245. Critical Policy Issues and Problems in Globalizing World. (4) Lecture, three hours; outside study, nine hours. To enable students to (1) think of world in dynamic terms, (2) be able to map, divide, and assemble world in many different ways, and (3) be able to articulate patterns of flux, change, and movement in world space and history. Concurrently scheduled with course C147. Letter grading.

M246. Electoral Democracy: Theory and Behavior. (4) (Same as Political Science M268B.) Seminar, three hours. Examination of both empirical and normative questions from rich variety of perspectives for scholars in all subfields of political science as well as policy students and others interested in these issues. Consideration of topics fundamental to both democratic theory and study of American politics—public opinion; nature and purpose of elections; representation; parties; and purpose of democracy as whole—through both classic political theory treatments and modern research in American political behavior. Letter grading.

M247. Strategic Planning for Public and Nonprofit Organizations. (4) (Same as Social Welfare M241F and Urban Planning M290.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Technical processes of problem solving regarding substantive social welfare problems at community level. This form of community practice fills niche between professional and knowledge and skill

set possessed by agency and program administrators on one hand and by policy analysts and policymakers on other. Letter grading.

M248. Toleration, Pluralism, and Diversity. (4) (Same as Political Science M216.) Seminar, three hours. Prior experience in political or legal theory helpful. Exploration of both abstract concepts of toleration and contemporary disputes. S/U or letter grading.

CM250. Environmental and Resource Economics and Policy. (4) (Same as Urban Planning M267.) Lecture, three hours. Requisites: courses 204 and 208, or Urban Planning 207 and 220B. Survey of ways economics is used to define, analyze, and resolve problems of environmental management. Overview of analytical questions addressed by environmental economists that bear on public policies. Concurrently scheduled with course C115. Letter grading.

251. Public Budgeting and Finance. (4) Lecture, three hours; outside study, nine hours. Limited to graduate students. How financial resources are allocated through budget processes at federal, state, and local levels of government in the U.S. and how each level of government finances its operations and capital investment programs, with particular attention to California. Students are organized into small groups to facilitate review of assigned readings and to report key information to class. Based on assigned readings, development of budget strategy matrix outlining best practices budget strategies to use in various resources availability contexts. Letter grading.

M252. Introduction to Environmental Policy. (4) (Same as Urban Planning M263.) Lecture, three hours. Introduction to basic concepts and methods of environmental analysis covering variety of topics with cross-disciplinary perspectives. Development of ability to analyze major environmental and resource issues as well as to read, discuss, and write critically about environmental policy. Letter grading.

M253. Lesbian, Gay, Bisexual, and Transgender Law and Public Policy Research. (4) (Same as Law M675.) Lecture, three hours. Exploration of relevance of public policy research to lesbian, gay, bisexual, and transgender (LGBT) legal issues. Topics include LGBT identity and demographics, legal recognition of same-sex couples, parenting, workplace discrimination, transgender rights, intersections of race and sexuality, LGBT youth and safe schools, LGBT health disparities, and Don't Ask, Don't Tell. Discussion of social science research that has informed various areas of LGBT law. Themes include doctrinal and other reasons why research has become more central to LGBT legal advancements in past decade, different types of public policy research, limitations of current data and research on LGBT issues, difficulties in translating social science research into evidence in courtroom, impact that dominant LGBT rights frame of equality has on social science research, challenges in conducting objective research, and effective presentation of social science research before legislators, judges, juries, media, and other audiences. S/U or letter grading.

M260. Foundations of Social Welfare Policy. (4) (Same as Social Welfare M221A and Urban Planning M241.) Lecture, two hours; discussion, one hour; outside study, nine hours. Nature, roles, and history of welfare institutions in different societies; applicable social system theory of different components of welfare system; theory and research about welfare policies and organizational forms. S/U or letter grading.

M261. Aging Policy, Elderly and Families. (4) (Same as Social Welfare M290P.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Examination of theoretical models and concepts of policy process and application to aging policy. Analysis of decision-making processes that affect social policies. Description of historical development of contemporary policy. Exploration of current proposals and issues. Letter grading.

M266. Advanced Topics in Health Economics. (4) (Same as Health Policy M249E.) Seminar, four hours. Requisites: Health Policy 200A, 200B, M236. Advanced treatment of number of topics in health eco-

nomics, including mental health economics, pharmaceutical economics, and relationship between labor supply, welfare, and health. Letter grading.

M267. Medicare Reform. (4) (Same as Health Policy M252.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Analytical and managerial skills learned earlier to be used to analyze problems with existing Medicare program and to develop specific options for reforming features of program to accommodate coming pressures generated by retirement of baby-boom generation. Letter grading.

M268. Microeconomic Theory of Health Sector. (4) (Same as Health Policy M236.) Lecture, four hours; discussion, two hours. Preparation: intermediate microeconomics. Requisite: Biostatistics 100A. Microeconomic aspects of healthcare system, including health manpower substitution, choice of efficient modes of treatment, market efficiency, and competition. Letter grading.

M269. Healthcare Policy and Finance. (4) (Same as Health Policy M269.) Seminar, three hours; outside study, nine hours. Exploration of demand for health insurance, policies for public insurance (Medicaid and Medicare), uninsured, and health insurance reform. Examination of effects of managed care on health and costs, consumer protection movement, and rise of competitive healthcare markets. Letter grading.

M270. Economic Principles and Economic Development in Indigenous Communities. (4) (Same as American Indian Studies M200D.) Seminar, two hours; discussion, one hour. Limited to graduate students. Introduction to basic economic concepts and their application to issues of economic development in indigenous communities. Coverage of microeconomic and macroeconomic aspects of economic development using current and existing research. Letter grading.

271. Urban Poverty, Workforce Development, and Public Policy. (4) Lecture, three hours; outside study, nine hours. Limited to graduate students. Examination of how urban labor markets function, particularly low-skill labor markets, and exploration of how public and private interventions affect outcomes for disadvantaged populations. In first half of course, major theories of low-skill workers' labor market problems in employment and wages; in second half, employment and training programs, policy initiatives and implementation, and new directions in workforce development. Letter grading.

C272. Crisis Decision Making in U.S. Foreign Policy. (4) Lecture, three or four hours; discussion, one hour (when scheduled). In-depth look at theory and practice of U.S. foreign policy-making. Assessment of competing theories of international relations and application to specific case studies. Weekly role plays of foreign policymakers and final crisis simulation exercise. Concurrently scheduled with course CM117. Letter grading.

C274. U.S. National Security Policy. (4) Lecture, three hours; outside study, nine hours. Limited to graduate students. Examination of contemporary U.S. national security challenges and how policymakers develop strategies to address them. Exploration of Cold War legacy, development of American national security strategic doctrine, and U.S. foreign policy-making process from 1945 to present. Examination of broad spectrum of issues confronting today's foreign policy leaders, from threats to vital U.S. interests (WMD proliferation and terrorism), to regional security and economic challenges (Iraq, China), to humanitarian intervention and nation-building (Darfur, Afghanistan). Students draft analytic options memos and deliver oral presentations on how to handle six current national security mini-cases. Provides overview of current challenges and hones student analytic skills to examine these challenges from strategic policy perspective. Concurrently scheduled with course CM123. Letter grading.

M280A. Research and Development Policy. (4) (Same as Management M292A.) Lecture, three hours. Examination of research and development as process and as element of goal-oriented organization. Factors

affecting invention and innovation; transfer of technology; organizational and behavioral considerations; coupling of science, technology, and organizational goals; assessing of and forecasting technological futures. S/U or letter grading.

M280B. Growth, Science, and Technology. (4) (Same as Management M292B.) Lecture, three hours. Economic growth and change. Role of advances in science and technology, and actions of maximizing innovators and factors impinging on their behavior. How technological breakthroughs (or discontinuities) can form new industries or transform nature of and population of firms in existing industries. S/U or letter grading.

M281. Political Environment of American Business. (4) (Same as Management M293A.) Lecture, three hours. Evaluation of certain criticisms made by business of American political system. Designed to provide clearer understanding of principal features of American politics, especially as they influence business enterprise. S/U or letter grading.

CM282. Science, Technology, and Public Policy. (4) (Formerly numbered C282.) (Same as Electrical Engineering CM282.) Lecture, three hours. Recent and continuing advances in science and technology are raising profoundly important public policy issues. Consideration of selection of critical policy issues, each of which has substantial ethical, social, economic, political, scientific, and technological aspects. Concurrently scheduled with course CM182. Letter grading.

M286. Policy Analysis of Emerging Environmental Technologies. (4) (Same as Urban Planning M268.) Lecture, three hours. Acquisition and utilization of economic, finance, planning, and policy analytic tools needed to evaluate factors that drive market adoption from early to middle market phases. Rooftop solar, electric vehicle, and energy efficiency as focal examples, with emphasis on role of policy and planning incentives intended to spur adoption. Letter grading.

M289A-M289B. Immigration, Racial Change, and Education in 21st-Century Metropolis. (4-4) (Same as Education M289A-M289B, Political Science M287A-M287B, and Sociology M290A-M290B.) Seminar, four hours. Examination of metropolitan American society and institutions at beginning of 21st century. Consideration of best available information on patterns of settlement, changing functions of urban space and institutions, and issues of opportunity linked to urban structure in society facing unprecedented demographic change that will end primarily European domination of our society by mid-century, creating democracy with no racial or ethnic majority. How this demographic transition and postindustrial transformation of urban functions and space interact to shape opportunity and inequality. Vast economic transformations, brought about by globalization of workplace and dramatic decline of industrial employment in advanced nations, not only greatly raise stakes on creating equal opportunity but also cut off what were previously extremely important parts of intergenerational mobility. In Progress (M289A) and letter (M289B) grading.

290. Special Topics in Public Policy. (4) Discussion, three hours. Advanced seminar on emerging issues in public policy. May be repeated for credit. Letter grading.

M293. Privatization, Regulation, and Public Finance. (4) (Same as Urban Planning M243.) Lecture, three hours; outside study, nine hours. Requisite: course 201. Evaluation of economic and political determinants of trend toward privatizing public services, and equity and efficiency outcomes of this trend as expressed through new pricing, financing, and service-level policies. Exploration of new regulatory role this trend implies for state and local governments. Letter grading.

294. Education Markets and Education Policy. (4) Lecture, three hours. Designed for graduate students. Provides set of tools that can be used to analyze pressing policy questions in field of education and some substantive background in policy issues of the day. Letter grading.

M295. Law and Poor. (4) (Same as Social Welfare M290R and Urban Planning M248.) Lecture, three hours. Designed for graduate students. Study of major income-maintenance programs in U.S., with emphasis on interaction of moral attitudes toward poor and structure and implementation of law, policy, and administration. Current reform consensus and major reforms. Letter grading.

297A. Marschak Colloquium: Policy Implications in Behavioral Sciences. (2) Seminar, two hours. Limited to graduate students. Students attend biweekly Marschak Colloquium presentations given by leading social science experts. Analysis and discussion of lecture topics and research models in behavioral sciences in this highly regarded and long-standing interdisciplinary lecture series that meets separately from colloquium presentations. Letter grading.

297B. Introduction to Public Policy. (2) Lecture, three hours; discussion, one hour. Designed for graduate students. Introduction to purposes and methods of public policy analysis. Exposure to key concepts and tools, such as market failures, decision analysis, cost/benefit analysis, group behavior, and implementation. Case studies supplement lectures and texts. S/U grading.

297C. Public Policy Analysis Lectures. (2) Activity, two hours. Limited to second-year MPP students. Venue for policymakers, practitioners, and academics to present, discuss, and analyze current policy questions. Attending, formally analyzing, and engaging with policy professionals at these extra-curricular programs adds to pedagogical and intellectual maturity of students as they gain greater understanding of complexity of public policy issues by hearing wide variety of voices. S/U grading.

298A. Applied Policy Project I. (2) Seminar, 90 minutes; outside study, four and one half hours. Requisite: course 210. Limited to MPP students. First course of year-long sequence designed to ensure that students and their teams are fully prepared to launch their projects at start of winter quarter. Students form teams that are assigned to seminars and instructors, identify clients, select and refine policy questions motivating their projects, develop and refine basic work plans, learn about various methods of data collection, and complete and submit all necessary forms required for human subjects research. S/U grading.

298B. Applied Policy Project II. (6) Seminar, three hours; outside study, 15 hours. Preparation: completion of MPP core curriculum, two policy cluster courses, and internship (unless waived). Requisite: course 298A. Second course in three-term sequence in which students prepare major public policy projects and papers that are case studies of policy evaluation and implementation and are equivalent to professional master's theses. Papers build on prior core courses, internship experience, and policy cluster courses. Letter grading.

298C. Applied Policy Project III. (2) Seminar, two hours. Preparation: completion of MPP core curriculum, two policy cluster courses, and internship (unless waived). Requisite: course 298B. Third course in three-term sequence in which students complete research and report writing for their year-long projects, conduct oral presentations of their applied policy projects, and give written feedback on other student presentations. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

496. Public Policy Internships. (4) Fieldwork, four hours. Public policy internships for Master of Public Policy (MPP) and MPP/dual degree students. May not be repeated for credit. S/U grading.

596. Directed Studies. (2 to 8) Tutorial, to be arranged. Limited to graduate students. Individual programming for selected students to permit pursuit of a subject in greater depth. S/U or letter grading.

RADIATION ONCOLOGY

David Geffen School of Medicine

UCLA

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Box 956951
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Chairs

Michael L. Steinberg, MD, *Chair*
Joanne B. Weidhaas, MD, *Vice Chair, Division of Molecular and Cellular Oncology*
Patrick A. Kupelian, MD, *Executive Vice Chair, Clinical Operations and Clinical Research*
Daniel A. Low, PhD, *Vice Chair, Division of Medical Physics*
Allen M. Chen, MD, *Vice Chair, Education*
Steve P. Lee, MD, PhD, *Vice Chair, VA Services*

Scope and Objectives

The Department of Radiation Oncology includes clinical divisions at the UCLA Medical Plaza and Reagan UCLA Medical Center, Santa Monica-UCLA Medical Center, and West Los Angeles VA Medical Center and includes the Division of Brachytherapy, Division of Molecular and Cellular Oncology, and Medical Radiation Physics. Laboratory, clinical, and translational research are facilitated at all locations.

The primary clinical mission of the department is the management of patients who have cancer. The purpose of using radiation therapy, rather than or in addition to surgery, is to preserve function and/or cosmesis while eliminating the cancer. Other activities include total body irradiation before bone marrow transplantation, stereotactic body radiotherapy, brachytherapy, and stereotactic radiosurgery for A-V malformations, meningiomas, and malignant intracranial lesions. Research interests include clinical trials, radiation biology, radiation modifiers, molecular biology, immunology, and applied physics. Knowledge of the disease in question, the comparative efficacy of radiation therapy and other methods, radiation biology and pathophysiology, and the physical characteristics of various radiations is essential.

The educational programs serve medical, dental, basic science (biology and physics), nursing, and radiation therapy students, and community and postgraduate physicians; there also is a four-year program for residents who are qualifying for certification in radiation oncology by the American Board of Radiology.

For further details on the Department of Radiation Oncology and a listing of the courses offered, see <http://radonc.ucla.edu>.

Upper Division Course

199. Directed Research in Radiation Oncology. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

RADIOLOGICAL SCIENCES

David Geffen School of Medicine

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<http://radiology.ucla.edu>

Chair

Dieter R. Enzmann, MD (*Leo G. Rigler Professor of Radiological Sciences*)

Scope and Objectives

The medical student program in the Department of Radiological Sciences is designed to introduce students to the spectrum of diagnostic imaging modalities and their role in the clinical management of patients. It provides knowledge of essential radiographic anatomy and key imaging features of common diseases. The basic principles of all forms of diagnostic imaging pertaining to thoracic, musculoskeletal, gastrointestinal, genitourinary, cardiac, neuroradiology, mammography, pediatrics, emergency radiology, computed tomography, magnetic resonance imaging, ultrasound, and interventional radiology are provided. Students acquire interpretative skills by didactic instruction and interactive teaching sessions and through the use of Web-based teaching materials. A longitudinal core clerkship is offered during the third year, with a comprehensive examination.

Greater depth of experience is provided by the three weeks of elective clerkship offered to fourth-year medical students that emphasizes training in general diagnostic radiology, angiography/interventional radiology, neuroradiology, and pediatric radiology.

For further details on the Department of Radiological Sciences, see <http://radiology.ucla.edu>.

RELIGION, STUDY OF

Interdepartmental Program
College of Letters and Science

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<http://www.religion.ucla.edu/students>

Carol A. Bakhos, PhD, Chair

Faculty Committee

Carol A. Bakhos, PhD (*Near Eastern Languages and Cultures*)
Jacco Dieleman, PhD (*Near Eastern Languages and Cultures*)
Eleanor K. Kaufman, PhD (*Comparative Literature, English, French and Francophone Studies*)
Allen F. Roberts, PhD (*French and Francophone Studies, World Arts and Cultures/Dance*)
Asma Sayeed, PhD (*Near Eastern Languages and Cultures*)
Ronald W. Vroon, PhD (*Slavic, East European, and Eurasian Languages and Cultures*)

Scope and Objectives

The undergraduate major in the Study of Religion equips students to understand and compare creatively the worldwide varieties of core convictions, stories, texts, rituals, and practices known collectively as religion. Students complete courses in a wide range of departments in which religious phenomena are analyzed, including Anthropology, Art History, Asian Languages and Cultures, Classics, Comparative Literature, English, History, Near Eastern Languages and Cultures, Philosophy, Political Science, and World Arts and Cultures/Dance. Students can anticipate gaining versatile intellectual tools for approaching, analyzing, and appreciating the deep roots, human motivations, and history of the formation of religious traditions in their respective cultural contexts. Within this interdepartmental program, students may focus in depth on one or more specific religions. Students may wish to select this major in combination with a second major field, a minor, or related language study.

Undergraduate Study

The Study of Religion major is a designated capstone major. Students must complete an advanced seminar that provides unique opportunity to work closely with a faculty member on a focused topic of research. Through their capstone work students are expected to demonstrate their ability to plan and carry out a major project, apply subject matter and research methods knowledge to produce a paper or other research project, and organize information into a coherent and persuasive form for oral presentation to their peers.

Study of Religion BA

Capstone Major

Preparation for the Major

Required: Study of Religion M4 or 11, and two courses from Ancient Near East 10W, Anthropology 9, Asian M60, History 1A, 1B, 1C, 9A, 9C, 9D, 9E, M10A, 10B, 11A, 11B, Philosophy 2, 21, Study of Religion M10, M50, M60A through M60E, M60W, M61, M61W.

Transfer Students

Transfer applicants to the Study of Religion major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one history of religions course, one philosophy of religion course, and two courses from sociocultural anthropology, Buddhism, history of Western civilization, Asian

civilizations, civilizations of Africa, and history of China.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Twelve upper division courses, including (1) Study of Religion 101, 191 (capstone seminar), (2) one *theory and methods* course from Anthropology 130, 156, Study of Religion 110, 120, 150, 160, 177, 180, M186C, (3) two *religious ideas, practices, and institutions in context* courses from Ancient Near East 162, Anthropology 114P, 174P, 177, Arabic 120, Art History C115A, C120, 150A, 152A, 154A, 154B, 156, Asian 151, 162, Chinese 165, C175, Classics 166A, 166B, M167, English 111A, 111B, 111C, 145, 156, Greek 130, Hebrew 120, 130, History 108A, 121B, 174A, M182C, 185B, Iranian 170, Japanese 161, Jewish Studies M150A, Korean 165, 172, Philosophy 100B, 104, 107, 155, Study of Religion M105A, M105B, M105C, M106A, M107, M108, M109, M132, M133, M135, 140, M142C, M155, M161A through M161D, M172, M173C, M174D, M174E, M178, M182A, M182B, M184A, M185D, M186A, M186B, World Arts and Cultures C142, C151, (4) seven elective courses selected from items 2 and 3 above.

Student are encouraged to select courses that focus on a specific religious tradition or traditions, or on a set of thematic issues important to the study of religion. During their senior year students must complete the capstone seminar, Study of Religion 191.

A course may be taken twice, on different topics, for credit toward the major where repetition is allowed by the department offering the course. A maximum of two upper division courses in an ancient language relevant to the course of study may be applied toward the major requirements with consent of the adviser.

A maximum of 12 units of special studies courses (197, 198, 199) approved by the adviser may be applied toward the major. Each course for preparation for the major and the major must be taken for a letter grade.

Honors Program

The honors program provides exceptional students with an opportunity to do independent research under the tutorial guidance of a faculty member. Students admitted to honors should take three Study of Religion 198 courses under the guidance of the sponsoring professor. The first 198 course should be taken in spring quarter of the junior year, the second during the following fall quarter, and the third during winter quarter of the senior year. The three courses count as part of the regular requirement of 12 upper division courses. The program culminates in an honors thesis.

To qualify for admission students should have a minimum grade-point average of 3.4. The 198 courses designed for the program and the thesis topic should be approved by the committee in charge of the major.

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For further information, contact the student affairs officer or the faculty adviser at the program address.

Study of Religion Minor

To enter the Study of Religion minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (4 to 10 units): Study of Religion M4 or 11, or M50 and M60A or M60W.

Required Upper Division Courses (24 to 29 units): Study of Religion 101 and five courses selected from *theory and methods* (Anthropology 130, 156, Study of Religion 110, 120, 150, 160, 177, 180, M186C) and from *religious ideas, practices, and institutions in context* (Ancient Near East 162, Anthropology 114P, 174P, 177, Arabic 120, Art History C115A, C120, 150A, 152A, 154A, 154B, 156, Asian 151, 162, Chinese 165, C175, Classics 166A, 166B, M167, English 111A, 111B, 111C, 145, 156, Greek 130, Hebrew 120, 130, History 108A, 121B, 174A, M182C, 185B, Iranian 170, Japanese 161, Jewish Studies M150A, Korean 165, 172, Philosophy 100B, 104, 107, 155, Study of Religion M105A, M105B, M105C, M106A, M107, M108, M109, M132, M133, M135, 140, M142C, M155, M161A through M161D, M172, M173C, M174D, M174E, M178, M182A, M182B, M184A, M185D, M186A, M186B, World Arts and Cultures C142, C151).

Student are encouraged to select courses that focus on a specific religious tradition or traditions, or on a set of thematic issues important to the study of religion.

A course may be taken twice, on different topics, for credit toward the minor where repetition is allowed by the department offering the course. A maximum of 4 units of special studies courses (197, 198, 199) approved by the adviser may be applied toward the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Study of Religion

Lower Division Courses

M4. Introduction to History of Religions. (5) (Same as History M4.) Lecture, three hours; discussion, two hours. Comparative study of eight major religious traditions, with emphasis on their beginnings and subsequent decisive changes in their respective historical developments and interactions. Equips students with intellectual tools necessary for thinking analytically, empathetically, and comparatively about fascinating human phenomena identified as religious, such as sacred acts, places, words, and persons in their varied historical contexts. Development of student skills in critical thinking, analyzing documents, and making persuasive arguments based on historical evidence. P/NP or letter grading.

M10. Social, Cultural, and Religious Institutions of Judaism. (5) (Same as Jewish Studies M10.) Lecture, three hours; discussion, one hour. Judaism's basic beliefs, institutions, and practices. Topics include development of biblical and rabbinic Judaism; concepts of god, sin, repentance, prayer, and the messiah; history of Talmud and synagogue; evolution of folk beliefs and year-cycle and life-cycle practices. P/NP or letter grading.

11. Religion in Los Angeles. (4) Lecture, four hours. Introduction to varieties of religious experience in Los Angeles and its environs. Presentations, required readings, and (where possible) site visits to examine selected faiths and spiritual practices throughout Southern California and provide deeper understanding of myriad ways that sacred is made manifest and encountered. Foundational academic orientations within study of religion (anthropological, historical, psychological, sociological, etc.) used as framework to examine and interpret almost unparalleled religious diversity of City of Angels. Recognizing that spiritual traditions are crucial reflection of region's ever-changing demographics, emphasis on role of ethnicity, gender, nationality, and race in shaping of religious landscape. P/NP or letter grading.

M40. Christianities East and West. (5) (Same as Slavic M40.) Lecture, three hours; discussion, one hour. Survey of three major historical branches of Christianity—Eastern and Oriental Orthodoxy, Roman Catholicism, and Protestantism, contrasting how history, dogma, culture, and community structures develop in those three traditions. P/NP or letter grading.

M50. Origins of Judaism, Christianity, and Islam. (5) (Same as Ancient Near East M50B and Middle Eastern Studies M50B.) Lecture, three hours; discussion, one hour. Examination of three major monotheisms of Western cultures—Judaism, Christianity, and Islam—historically and comparatively. Development, teachings, and ritual practices of each tradition up to and including medieval period. Composition and development of various sacred texts, highlighting key themes and ideas within different historical and literary strata of traditions, such as mechanisms of revelation, struggle for religious authority, and common theological issues such as origin of evil and status of nonbelievers. Letter grading.

M60A. Introduction to Buddhism. (5) (Same as Asian M60.) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course M60W. Knowledge of Asian languages not required. General survey of development of Buddhism in India, with focus on those religious doctrines and meditative practices most essential to various Asian traditions of Buddhism. Letter grading.

M60B. Introduction to Chinese Religions. (5) (Same as Chinese M60.) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course M61W. Knowledge of Chinese not required. General survey of religious life in China, with emphasis on everyday religious practice over doctrine, and themes common to Buddhism, Daoism, and Confucianism. P/NP or letter grading.

M60C. Introduction to Korean Religions. (5) (Same as Korean M60.) Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. General survey of history of religions in Korea—Shamanism, Buddhism, Confucianism, Daoism, Christianity, Tonghak, and some new religions—with focus on religious doctrines, practices, Korean characteristics, and social impacts. P/NP or letter grading.

M60D. Religion in Classical India: Introduction. (5) (Same as South Asian M60.) Lecture, three hours; discussion, one hour. Introduction to religions of classical India—Vedic, Brahmanical, Hindu, Jain, and Buddhist—paying equal attention to change and continuity, with emphasis on chronological development. P/NP or letter grading.

M60E. Religious Traditions in Southeast Asia. (4) (Same as Southeast Asian M60.) Lecture, three hours. Introduction to historical development and contemporary practice of religions in Southeast Asia. Examination of indigenous religious beliefs and major textu-

ally based religions introduced to region, including Hinduism, Buddhism, Islam, and Christianity. P/NP or letter grading.

M60W. Introduction to Buddhism. (5) (Same as Asian M60W.) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course M60A. Knowledge of Asian languages not required. General survey of Buddhist worldview and lifestyle, with focus on those religious doctrines and meditative practices most essential to various Asian traditions of Buddhism. Particular attention to problems involved in study of religion. Satisfies Writing II requirement. Letter grading.

M61. Introduction to Zen Buddhism. (5) (Same as Asian M61.) Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. Introduction to Zen traditions and to interplay between Zen and other fundamental cultural and religious concerns in East Asia. Topics include role of Zen within Buddhist thought and practice, artistic and literary arts, society, and daily life. Letter grading.

M61W. Introduction to Chinese Religions. (5) (Same as Chinese M60W.) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course M60B. Knowledge of Chinese not required. General survey of religious life in China, with emphasis on everyday religious practice over doctrine, and themes common to Buddhism, Daoism, and Confucianism. Satisfies Writing II requirement. Letter grading.

Upper Division Courses

101. History of Study of Religion. (4) Lecture, four hours. Recommended requisite: History 4. Survey of major modern theories, methods, and approaches to study of religion to situate them within their own historical, philosophical, and social contexts. Critical consideration of changing and contested meanings of term religion and its relationship to such categories as science and magic, as well as to other domains of social experience. Examination of how study of religion has interacted with other academic fields, especially biblical studies, anthropology, sociology, psychology, and evolutionary biology. P/NP or letter grading.

M105A-M105B-M105C. Baha'i Faith in Iran. (4-4-4) (Same as Iranian M105A-M105B-M105C.) Lecture, three hours. Readings in English. Each course may be taken independently for credit. P/NP or letter grading.

M105A. Historical and Sociological Survey. Historical record of birth and spread of Baha'i faith in Iran from beginning to present. **M105B. Baha'i Teachings that Transformed Iranian Community and Made It Open to Modernity.** Progressive and transforming teachings and principles that broke mental and physical isolation of Shi'i Persia and ushered in modernity. **M105C. 20th-Century Iran and Baha'i's.** Role of Baha'i's in fabric of Persian society as agents of modern education and communal service.

M106A. Premodern Islam. (4) (Same as History M106.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of early development of Islam with special attention to doctrine of nature of God, human responsibility, guidance, revelation and religious authority, duties of believers, ritual, law, sectarian movements, mysticism, and popular religion. P/NP or letter grading.

M107. Islam in West. (5) (Same as Arabic M107 and Islamic Studies M107.) Lecture, three hours; discussion, one hour. Acquisition of understanding of basic doctrines and practices of Islam. Survey of history of Islam in West, with focus on U.S. and France. Analysis of issues relevant to growth and development of selected Muslim communities in West. Exposure to diverse expressions of Islam through independent research on Muslim communities and institutions in U.S. Development of strong analytical writing and speaking skills. P/NP or letter grading.

M108. Qur'an. (4) (Same as Arabic M106.) Lecture, three hours. How Qur'an as scripture shapes Muslim doctrine, rituals, and culture, and how throughout history Muslims have determined interpretations and applications of Qur'anic doctrines and prescriptions. Critical evaluation and analysis of contemporary discourses on Islam. Letter grading.

M109. Introduction to Islam. (5) (Same as Islamic Studies M110.) Lecture, three hours; discussion, one hour. Genesis of Islam, its doctrines, and practices, with readings from Qur'an and Hadith; schools of law and theology; piety and Sufism; reform and modernism. P/NP or letter grading.

110. Religion and Violence. (4) Seminar, three hours; discussion, one hour. Exploration of capacity of religion to mobilize and legitimate violence. Materials include theoretical texts by Rene Girard, Walter Burkert, Jonathan Z. Smith, and David Rapoport and case studies dealing with religion and violence in India, Northern Ireland, Egypt, Lebanon, Israel, Palestine, Sri Lanka, and the U.S. Letter grading.

120. Judaism, Christianity, and Islam: Comparative Approach. (4) Seminar, three hours. Introduction to analysis of complex relationship of Judaism, Christianity, and Islam as living traditions whose historical origins, current interactions, and future development continue to shape spiritual, cultural, political, and social aspects of human civilization in 21st century. Letter grading.

M132. Ancient Egyptian Religion. (5) (Same as Ancient Near East M130.) Lecture, three hours; discussion, one hour. Introduction to religious beliefs, practices, and sentiments of ancient Egypt to study Egyptian religion as coherent system of thought and sphere of action that once served as meaningful and relevant framework for understanding physical reality and human life for inhabitants of Nile Valley. General principles as well as developments through time (circa 3000 B.C. to 300 C.E.). Topics include mythology, temple and cult, magic, and personal piety. P/NP or letter grading.

M133. Bible and Qur'an. (4) (Same as Middle Eastern Studies M133.) Lecture, three hours. Survey of Hebrew Bible/Old Testament, New Testament, and Qur'an to familiarize students with content of scriptures of Judaism, Christianity, and Islam, and socio-cultural background from which these multifarious texts emerged, and to explore major themes and consider variety of approaches to scripture. Development of appreciation for role scripture plays in these religious systems and in American culture and society. P/NP or letter grading.

M135. Religion in Ancient Israel. (4) (Same as Ancient Near East M135.) Lecture, three hours. Introductory survey of various ancient Israelite religious beliefs and practices, their origin, and development, with special attention to diversity of religious practice in ancient Israel and Canaan during 1st millennium B.C.E. P/NP or letter grading.

140. Undergraduate Seminar: Study of Religion. (4) Seminar, three hours. Interdisciplinary approach to some major topics in study of religion, such as religion and politics, mysticism, ideas of revelation, myth and religion, worship and ritual. May be repeated for credit with consent of instructor. P/NP or letter grading.

M142C. History of Religion in U.S. (4) (Same as History M142C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Consideration of religious dimension of people's experience in U.S. Examination of number of religious traditions that have been important in this country, with emphasis on relating developments in religion to other aspects of American culture. P/NP or letter grading.

150. Women, Gender, and Religion. (4) Lecture, four hours. Investigation and consideration of roles, status, and representations of women and gender in one or more religious traditions. Examination of how cultural conceptions of gender as well as social realities (as far as they can be known) for women and men in particular historical periods shape and are shaped by these religious traditions, including discussions re-

garding ritual practices, spirituality, sexuality, sexual renunciation, religious authority, marriage and family life, fertility, conceptions of body, public life, and/or literary representations of gender (including those of divine). Variety of approaches to be employed, including feminist, literary, historical, sociological, and anthropological. P/NP or letter grading.

M155. Jewish Mysticism, Magic, and Kabbalah. (4) (Same as Jewish Studies M155.) Lecture, three hours. Exploration of types of Jewish mystical thought and practice from Hebrew Bible to medieval Kabbalah and its modern offshoots. P/NP or letter grading.

160. Religion, Film, and Media. (4) Lecture, four hours. Examination of complex relationship between religious traditions and various media (e.g., print, film, photography, television, radio, and electronic) as they have intersected in specific historical and cultural contexts. Illumination of role of media in forming and expressing religious ideas, practices, and identities. Topics may include representations of religious groups, visual and aural piety, identity formation, interreligious conflict, religious education, and use of media technologies for propaganda or proselytizing purposes. Historical, sociological, and anthropological approaches used in concert with various methodologies current within media studies. P/NP or letter grading.

M161A. Chinese Buddhism. (4) (Same as Chinese CM160.) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Introduction and development of Buddhism in China, interaction between Buddhism and Chinese culture, rise of Chinese schools of Buddhism. Letter grading.

M161B. Japanese Buddhism. (4) (Same as Japanese CM160.) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Development of Buddhism in Japan in its cultural context, with emphasis on key ideas and teachings. Letter grading.

M161C. Korean Buddhism. (4) (Same as Korean CM160.) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Introduction and development of Buddhism in Korea, interactions between indigenous Korean culture and Sinitic traditions of Buddhism, Korean syntheses of imported Buddhist theological systems and meditative techniques, and independent Son (Zen) schools of Korea. Letter grading.

M161D. Buddhism in India. (4) (Same as South Asian CM160.) Lecture, three hours; discussion, one hour. Knowledge of Indian languages not required. Overview of social and doctrinal history of Buddhism from its origin to its disappearance in India, based not only on texts but on archaeological, art historical, and inscriptive sources. Examination of both formal doctrine and actual practices and on what learned Buddhists wrote and ordinary Buddhists did, saw, and made. Letter grading.

M172. Introduction to Biblical Studies. (4) (Same as Ancient Near East M170.) Lecture, three hours. Knowledge of original languages not required. Bible (Old and New Testaments) as book. Canon, text, and versions. Linguistic, literary, historical, and religious approaches to Bible study. Survey of history of interpretation from antiquity to present. P/NP or letter grading.

M173C. Shinto, Buddhism, and Japanese Folk Religion. (4) (Same as History M173C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Social dimension of various Ways, great and little: Shinto's connection with cultural nationalism, Buddhism's medieval Reformation and Zen's relation to warrior culture, folk religious aspects such as shamanism, ancestor worship, and millenarianism. P/NP or letter grading.

M174D. Indo-Islamic Interactions, 700 to 1750. (4) (Same as History M174D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Historical introduction to Muslim communities of what eventually became nations of India,

Pakistan, and Bangladesh. Topics include social, political, religious, and cultural history. P/NP or letter grading.

M174E. Indo-Islamic Interactions, 1750 to 1950. (4) (Same as History M174E.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of interplay of factors that, from Christian missionaries to Islamic madrasa schools and colonial rebellions, gave shape to multifaceted Muslim reformation in context of colonial modernity. P/NP or letter grading.

177. Variable Topics in Religion. (4) Seminar, three hours. Interdisciplinary approach to some major topics in study of religion, such as religion and science, religion and society, politics, mysticism, ideas of revelation, scripture, myth and religion, worship and ritual. May be repeated for credit with topic change. P/NP or letter grading.

M178. Variable Topics. (4) (Same as Middle Eastern Studies M178.) Seminar, three hours. Interdisciplinary approach to some major topics in study of religion and Middle Eastern studies. May be repeated for credit with topic change. P/NP or letter grading.

180. Religion and Modern Critical Thought. (4) Lecture, four hours. Examination of how various traditions of modern critical thought inform academic study of religion, with primary focus on philosophical analysis of religious belief and practice and its relation to other areas of theoretical discussion, such as philosophy of language, discourse analysis, epistemology, metaphysics, ethics, practice theory, and political theory. Topics may include nature of religious experience and its epistemic status, embodiment and religious self, relationship between knowledge, faith, and doubt, nature and function of religious language, relationship between science and religion, religious belief and standards of rational discourse, theoretical approaches to problems of religious diversity and competing truth claims, formation of religious and secular in modernity. P/NP or letter grading.

M182A. Ancient Jewish History. (4) (Same as History M182A and Jewish Studies M182A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of social, political, and religious developments. P/NP or letter grading.

M182B. Medieval Jewish History. (4) (Same as History M182B and Jewish Studies M182B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of unfolding of Jewish history from rise of Christianity to expulsion of Jews from Spain in 1492. P/NP or letter grading.

M184A. Jewish Civilization: Encounter with Great World Cultures. (4) (Same as History M184A and Jewish Studies M184A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of dynamic and millennia-old interaction of Jews with great world cultures. Creative adaptations that have lent Jewish culture its distinct and various forms. P/NP or letter grading.

M185D. Religions of Ancient Near East. (4) (Same as Ancient Near East M185D and History M185D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Main polytheistic systems of ancient Near East, with emphasis on Mesopotamia and Syria and with reference to religion of ancient Israel: varying concepts of divinity, hierarchies of gods, prayer and cult, magics, wisdom, and moral conduct. P/NP or letter grading.

M186A. History of Early Christians. (4) (Same as History M185F.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Christian movement from its origins to circa 160 C.E., stressing its continuity/discontinuity with Judaism, various responses to Jesus of Nazareth, writings produced during this period, movement's encounters with its religious, social, and political world, and methods of research. P/NP or letter grading.

M186B. Religious Environment of Early Christians. (4) (Same as History M185G.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Rich variety in religious practice and thought in Mediterranean world of 1st century C.E. as

in context of developing Christian movement. Topics include Pharisees, Qumran, Philo, Stoics, Epicureans, traditional Greek and Roman religions, mysteries, astrology, magic, gnosticism, and emperor-worship. P/NP or letter grading.

M186C. Jesus of Nazareth in Historical Research.

(4) (Same as History M185I.) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: course M185F. Designed for juniors/seniors. Stimulated by significant post-Enlightenment historical evaluations, students are led into firsthand knowledge (in translation) of various multilayered sources for reconstruction of life, teaching, and initial impact of Jesus of Nazareth in his social, economic, political, and religious contexts. P/NP or letter grading.

191. Variable Topics Research Seminars: Study of Religion. (4) Seminar, four hours. Preparation: completion of preparation for major courses and at least half of upper division courses required for major (including theory and method courses). Designed for senior majors. Seminar on central method and/or theme in study of religion. Refinement and integration of this knowledge by means of close reading and analysis of primary documents, debating contested issues, and researching and writing original paper. P/NP or letter grading.

198. Honors Research in Religion. (4) Tutorial, three hours. Limited to juniors/seniors. Development and completion of 40-page honors thesis under direct supervision of faculty member. Must be taken twice to receive departmental honors program credit. Individual contract required. Letter grading.

199. Directed Research in Study of Religion. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. Twelve units may be applied toward major. Individual contract required. Letter grading.

ROTC PROGRAM – AEROSPACE STUDIES

College of Letters and Science

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Professor

Bruce A. Fike, MA, Lieutenant Colonel

Adjunct Assistant Professors

Thomas J. Cooper, MA, Captain
Lenard C. Soriano, MBA, Major

Scope and Objectives

In accordance with the National Defense Act of 1920 and with the concurrence of The Regents of the University, a unit of the Army Senior Division Reserve Officers' Training Corps (ROTC) was established on the Los Angeles campus of the University in July 1920. Navy and Air Force units were established in 1938 and 1949 respectively.

This voluntary training in the Air Force ROTC program allows students to qualify for an officer's commission in the Air Force while completing their college education. The ROTC cur-

ricula are not considered academic majors, but ROTC courses may be taken as free electives and applied toward the total course requirements of a major. For students contracted in the Aerospace Studies Department, 36 units of aerospace studies credit may be applied toward the requirements for the bachelor's degree. The ROTC program is also available through UCLA Extension.

All three ROTC departments offer voluntary four- and three-year programs for freshmen and sophomores. The Army and Navy/Marine Corps also offer a two-year program for current and transfer students. All have leadership laboratories that teach leadership and management skills.

All commissions are reserve commissions. Active duty obligation following commissioning varies depending on branch of service and designated career field or occupational specialty.

Scholarships

ROTC Scholarships are awarded on a competitive basis to U.S. citizens regardless of parents' income. Scholarships provide tuition, a book allowance, fees, and a tax-free monetary allowance during the academic year. Applications for scholarships may be obtained at <http://www.afrotc.com> or by calling 310-825-1742. Completed applications should be submitted prior to August 15 for early consideration and no later than December 1 of the year preceding college matriculation.

Air Force ROTC Program

Air Force ROTC provides selected students the opportunity to develop those attributes essential to positions of high responsibility as commissioned officers in the U.S. Air Force. This includes understanding Air Force history, doctrine, operating principles, and national security policies, demonstrating the ability to apply modern principles of management and human relations in the Air Force environment, and mastering of leadership theory and techniques. Students must demonstrate dedication to their assignments, willingness to accept responsibility, and the ability to think critically and communicate with clarity and precision.

Undergraduate Study

The Air Force ROTC program is available to full-time students with at least three years of undergraduate and/or graduate study remaining and consists of one to two years of the General Military Course, or GMC (Aerospace Studies 1A, 1B, 1C, 20A, 20B, and 20C), followed by a two-year Professional Officer Course, or POC (Aerospace Studies 130A, 130B, 130C, 140A, 140B, and 140C). For students completing the program in four years, GMC participation requires one hour of academic class and two hours of leadership laboratory each week during the academic year. For students completing the program in three years, GMC participation requires taking one course from Aerospace Studies 1A, 1B, or 1C, one course from 20A, 20B, or 20C, and two hours of leadership laboratory each week during the academic year. Students incur no military obli-

gation for GMC participation unless they qualify and accept an Air Force ROTC Scholarship during or after their sophomore year.

Students who complete the GMC and wish to enter the POC attend a four-week field training course the summer following GMC completion. There is no obligation to apply. U.S. citizenship is required. Students are selected on a competitive basis with consideration given to academic major, grade-point average, aptitude examination scores, performance during an officer board interview, and a physical fitness test. Students selected for summer field training are provided meals, quarters, clothing, and travel and incidental expenses. Subjects covered at field training include junior officer training, aircraft and aircrew orientation, career orientation, survival training, base functions, Air Force environment, and physical training.

POC participation requires three hours of academic class and two hours of leadership laboratory each week during the academic year. Students enrolled in the POC incur a military obligation and are paid a monthly stipend during the academic year. Graduation and successful completion of the POC leads to a commission as a second lieutenant. Cadets then report to one of the challenging assignments in the Air Force.

Aerospace Studies

Lower Division Courses

Freshman-Year Courses

A. Leadership Laboratory. (No credit) Laboratory, three hours. Mandatory for and limited to Air Force ROTC cadets. Provides cadets with practical command and staff leadership experiences through performance of various tasks within framework of organized cadet corps. As integral part of aerospace studies curriculum, provides experiences designed to develop leadership potential and serves as orientation to active duty. P/NP grading.

1A-1B-1C. Foundation of U.S. Air Force. (2-2-2) Lecture, one hour. Survey course designed to introduce students to U.S. Air Force and Air Force Reserve Officers' Training Corps. Topics include mission and organization of Air Force, officership and professionalism, military customs and courtesies, Air Force officer opportunities, group leadership problems, and introduction to communication skills. P/NP or letter grading.

Sophomore-Year Courses

20A-20B-20C. Evolution of U.S. Air Force Air and Space Power. (2-2-2) Lecture, one hour. Historical survey of air and space power designed to motivate students to transition from Air Force ROTC cadet to officer candidate. Featured topics include Air Force heritage and leaders; introduction to air and space power through examination of competencies, functions, and doctrines; and continued application of communication skills. P/NP or letter grading.

Upper Division Courses

130A-130B-130C. Air Force Leadership Studies. (4-4-4) Lecture, three hours. Requisites: courses 1A, 1B, 1C, 20A, 20B, 20C. Study of leadership and quality management fundamentals, professional knowledge, Air Force doctrine, leadership ethics, and communication skills required of Air Force junior officers. Use of case studies to examine Air Force leadership and management situations as means of demonstrating and exercising practical application of concepts being studied. P/NP or letter grading.

140A-140B-140C. National Security Affairs/Preparation for Active Duty. (4-4-4) Lecture, three hours. Requisites: courses 1A, 1B, 1C, 20A, 20B, 20C. Study of national security processes, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics focus on military as profession, officership, military justice, civilian control of military, preparation for active duty, and current issues affecting military professionalism. Within this structure, continued emphasis on refining communication skills. P/NP or letter grading.

197. Individual Studies in Aerospace Studies. (2 or 4) Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

ROTC PROGRAM – MILITARY SCIENCE

College of Letters and Science

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Scope and Objectives

In accordance with the National Defense Act of 1920 and with the concurrence of The Regents of the University, a unit of the Army Senior Division Reserve Officers' Training Corps (ROTC) was established on the Los Angeles campus of the University in July 1920. Navy and Air Force units were established in 1938 and 1949 respectively.

This voluntary training in the Army ROTC program allows students to qualify for an officer's commission in the Army while completing their college education. The ROTC curricula are not considered academic majors, but ROTC courses may be taken as free electives and applied toward the total course requirements of a major. For students contracted in the Military Science Department, 26 units of military science credit may be applied toward the requirements for the bachelor's degree. The ROTC program is also available through UCLA Extension.

All three ROTC departments offer voluntary four- and three-year programs for freshmen and sophomores. The Army and Navy/Marine Corps also offer a two-year program for current and transfer students. All have leadership

laboratories that teach leadership and management skills.

All commissions are reserve commissions. Active duty obligation following commissioning varies depending on branch of service and designated career field or occupational specialty. The Army offers both active- and reserve-duty opportunities directly after commissioning.

Scholarships

ROTC Scholarships are awarded on a competitive basis to U.S. citizens regardless of parents' income. Scholarships provide full tuition or housing (on or off campus) up to \$10,000, a \$1,200 allowance for books and fees, and a tax-free monetary allowance between \$300 and \$500 per month during the academic year. Applications for four-year scholarships may be obtained at <http://www.goarmy.com/rotc.html>. Completed four-year applications should be submitted by February 28 of the year preceding college matriculation. Two- and three-year scholarship applications may be obtained from the UCLA Military Science Department by calling 310-825-7381 or by e-mail to armyrotc@milsci.ucla.edu and are considered when received.

Army ROTC Program

Army ROTC is a program that enables students to become officers in the U.S. Army, Army Reserves, or Army National Guard while earning a college degree. The curriculum supplements students' academic majors by offering elective courses ranging from leadership and management to military law. Courses are augmented with leadership laboratories that stress practical skills such as first aid, land navigation, survival techniques, rappelling, military tactics, and scenario-driven leadership reaction courses. Non-ROTC students may enroll in many of the military science courses without enrolling in the ROTC program.

Additionally, students who decide to become Army officers can receive summer training in military parachuting (Airborne School at Fort Benning, GA), helicopter operations that include rappelling from a hovering helicopter (Air Assault School in Hawaii), and mountaineering operations (Northern Warfare School in Alaska).

Scholarships are available for two, three, and four years of academic study and are awarded on a competitive basis. Army Scholarships pay for full tuition and mandatory fees or housing, up to \$10,000, and provide a tiered stipend ranging from \$3,000 to \$5,000 per year and a \$1,200 book allowance. Nonscholarship, contracted ROTC cadets also receive the tiered stipend of \$3,000 to \$5,000 per year. Students in the program also compete for over \$50,000 in merit-based scholarships provided annually by various private organizations that support the Army ROTC program. Additionally, students may work part-time as officer trainees in local Army Reserves or National Guard units through the simultaneous membership program (SMP). Contracted students can fly free on military aircraft within the continental U.S. on a space-available basis.

Students may select a branch of the Army in which to be commissioned from 16 specialty fields, including military intelligence, aviation, signal communications, finance, logistics, nursing, and engineering. Prior to completion of the ROTC program, students may request to go on active duty or serve part-time in the Army Reserves or National Guard.

Undergraduate Study

Students aspiring to become Army officers follow prescribed course sequences with the Military Science Department and a physical fitness program. Generally, the courses consist of one 2- to 4-unit course per term and physical fitness sessions one to three times per week, depending on the participation-level requirements.

The military science curriculum is divided into two parts: (1) the Basic Course, two years of lower division study during which students must complete six military science courses and (2) the Advanced Course, two years of upper division study consisting of six military science courses, one military history course, and a five-week summer camp.

Army ROTC students must satisfy the military history requirement by completing Military Science 110 or another history course approved by the chair.

Transfer students and others who were unable to enroll in the Basic Course can receive equivalent credit in several different ways (see Two-Year Program below).

Admission to the Advanced Course is limited to selected students who meet all academic and physical requirements. Students in this course receive a subsistence allowance between \$450 and \$500 a month for 10 months during each of the two academic years, plus military science uniforms. After completion of the Advanced Course and graduation, students have the opportunity to be commissioned as second lieutenants in one of the Army's 16 specialty areas in either the Army National Guard, Reserves, or Active Army. Students' preferences are a major factor in determining which specialty is awarded.

Students selected for Advanced ROTC must attend a five-week leadership development and assessment course between their Military Science III and IV years. Cadets receive an allowance for travel expenses and are paid for attendance.

The active duty obligation for those students selected to enter the Reserves or National Guard is for initial training, and only for a period of several months. The active duty obligation for those students commissioned into the Active Army is three years. Students who accept ROTC scholarships and enter the Active Army serve one additional year. ROTC students wishing to obtain certain advanced degrees may be granted a delay in reporting to their initial assignment.

Four-Year Program

Students are enrolled in the Basic Course (freshman and sophomore years) on a voluntary

basis. After completion of the Basic Course and before entrance into the Advanced Course (junior and senior years), students are required to execute a contract with the Department of the Army agreeing to complete the Advanced Course and accept a commission if offered.

Two-Year Program

The two-year program is designed for students who receive placement credit for two years of ROTC and directly enter the Advanced Course. Placement credit may be given for completing three years of high school Junior ROTC, attending a paid ROTC Leaders' Training Course, membership in the Army Reserves or National Guard, completing two years of college-level Air Force or Navy ROTC, or previous active duty military service. The Army also allows enrollment in the two-year program while students attend graduate school.

Commissioning

Successful completion of the Advanced Course program and a bachelor's degree may lead to a commission as a second lieutenant in the Army Reserves, National Guard, or Active Army.

Military Science

Lower Division Courses

2. Leadership Laboratory. (No credit) Laboratory, three hours (lower division cadets) or four hours (upper division cadets). All cadets must be concurrently enrolled in a military science course; upper division cadets must also be under a contracted obligation with department. Designed to allow cadets to apply leadership techniques and military skills taught in classroom and to develop their confidence as future military officers. No grading.

11. Foundations of Officership. (2) Lecture, one hour. Introduction to issues and competencies that are central to commissioned officer's responsibilities. Framework established to understand officership, leadership, military customs, briefings, and life skills such as physical fitness, nutrition, and time management. P/NP or letter grading.

12. Basic Military Leadership. (2) Lecture, one hour. Requisite: course 11. Introduction to fundamentals of leadership, Army leadership values, ethics, and counseling techniques. Foundation of basic leadership fundamentals central to commissioned officer's responsibilities established. P/NP or letter grading.

13. Leadership Development. (2) Lecture, one hour. Requisite: course 12. Introduction to military problem solving, methodology students can use in their daily lives. Experiential exercises in goal setting and military writing style. Broad overview of life in Army. P/NP or letter grading.

21. Individual Leadership Development. (3) Lecture, two hours. Introduction to various individual leadership personality types, in combined lecture, discussion, and experiential learning, to assist students in development of their own individual leadership style. Additional emphasis on military factors and principles of leadership, goal setting, basic communication, and consideration of others. P/NP or letter grading.

22. Leadership Development and Military Planning. (3) Lecture, two hours. Requisite: course 21. Discussion of various methods of communication, planning, and decision making, through combined lecture, discussion, and experiential learning, with focus on written communication and group communication essential for leadership development. Introduction to and application of military planning process in developing operations orders. P/NP or letter grading.

23. Subordinate Development and Army Organization. (3) Lecture, two hours. Requisite: course 22. Discussion/application of team-building techniques and subordinate development, through combined lecture, discussion, and experiential learning, with additional focus on commissioned officer, branches, and Army organization. Application of counseling techniques, motivation, and consideration of ethics and values for modern leaders. P/NP or letter grading.

Upper Division Courses

110. U.S. Military History. (3) Lecture, three hours; discussion, one hour. Survey of American military history from 1860 to the present. Causes of war, strategy, tactics, and technological developments set against economic, political, and diplomatic concerns. Impact of warfare on society.

131. Tactical Planning and Analysis. (4) Lecture, three hours; laboratory, four hours. Introduction to leadership development process used to evaluate military leadership performance. Examination of how to conduct individual and small unit training as well as introduction to basic principles of tactics. Emphasis on study of reasoning skills, troop leading procedures, and military orders process. P/NP or letter grading.

132. Army Officership and Communication. (4) Lecture, three hours; laboratory, four hours. Examination of officership that culminates in detailed case study. Interpersonal communication, with focus on general communication theory as well as written and spoken communication skills. Presentation of information briefing to receive feedback from both instructor and fellow students. P/NP or letter grading.

133. Leadership and Problem Solving. (4) Lecture, three hours; laboratory, four hours. Examination of role communications, values, and ethics play in effective leadership, including ethical decision making, consideration of others, transactional and transformational leadership, and survey of Army leadership doctrine. Emphasis on improving oral and written communication abilities and leadership development and assessment. P/NP or letter grading.

141. Leadership and Management. (4) Lecture, three hours; laboratory, four hours. Interactive course to develop student proficiency in planning and executing complex training operations. Counseling techniques and development of skills needed to lead various organizations. Exploration of training management, leadership skills, and developmental counseling techniques. P/NP or letter grading.

142. Leadership, Ethics, and Military Law. (4) Lecture, three hours; laboratory, four hours. Interactive course to enhance student understanding of organizational culture, leadership, and ethics. Understanding and enhancement of leader-member relations, assessment of organizational culture and ethical climate, and how to effect change in organizations. Exploration of foundations of military law and law of war. P/NP or letter grading.

143. Officership: Professional Military Leadership. (4) Lecture, three hours; laboratory, four hours. Capstone interactive leadership course to prepare students for challenges of being commissioned officers in U.S. Army by discussing various leadership challenges and case studies. Study of military units, with specific emphasis on joint operations involving Army, Navy, Air Force, and Marine Corps assets, military operations other than war, and global war on terror. Other topics include personnel administration, maintenance management, and financial planning. P/NP or letter grading.

197. Individual Studies in Military Science. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

ROTC PROGRAM – NAVAL SCIENCE

College of Letters and Science

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Scope and Objectives

In accordance with the National Defense Act of 1920 and with the concurrence of The Regents of the University, a unit of the Army Senior Division Reserve Officers' Training Corps (ROTC) was established on the Los Angeles campus of the University in July 1920. Navy and Air Force units were established in 1938 and 1949 respectively.

This voluntary training in the Naval ROTC program allows students to qualify for an officer's commission in the Navy or Marine Corps while completing their college education. The ROTC curricula are not considered academic majors, but ROTC courses may be taken as free electives and applied toward the total course requirements of a major. For students contracted in the Naval Science Department, 26 units of naval science credit may be applied toward the requirements for the bachelor's degree.

All three ROTC departments offer voluntary four- and three-year programs for freshmen and sophomores. The Army and Navy/Marine Corps also offer a two-year program for current and transfer students. All have leadership laboratories that teach leadership and management skills.

Active duty obligation following commissioning varies depending on branch of service and designated career field or occupational specialty.

Scholarships

ROTC Scholarships are awarded on a competitive basis to U.S. citizens regardless of parents' income. Scholarships provide tuition, a book allowance, fees, and a tax-free monetary allowance between \$250 and \$400 per month during the academic year. Applications for scholarships may be obtained at <https://www.nrotc.navy.mil> or by calling 800-628-7682. Completed applications should be submitted prior to August 15 for early consideration and no later than January 31 for the fall term. Two-year scholarship applications may be obtained from the UCLA Naval Science Department and are considered when received.

Navy/Marine Corps ROTC Program

The Department of Naval Science provides professional training for students leading to an active duty commission at graduation in the U.S. Navy or Marine Corps. Through the Naval Reserve Officers' Training Corps (NROTC), scholarship students receive full tuition, fees, books, and subsistence pay of \$250 to \$400 per month. Nonscholarship students may apply to participate as members of the midshipman battalion under the NROTC College Program and, if selected for advanced standing prior to their junior year, may receive an active duty commission at graduation. Because of the rapid development of highly technical ship systems, aviation, and other military equipment, science and engineering majors are highly desirable; however, Navy/Marine Corps Scholarships are currently available to students pursuing any major offered by the University, as long as they agree to complete basic technical requirements. In addition to University requirements, Navy option midshipmen must complete 28 units and Marine Corps option midshipmen 20 units of naval science courses, physical fitness test, and summer training cruises, each about four to six weeks long. Both Navy and Marine Corps option students must also pass a swimming test. The department also coordinates a sail training program for all Navy midshipmen through the UCLA Marina del Rey Aquatic Center. Some naval science courses are open to UCLA students who are not in the program with consent of instructor and demonstrated interest in the Navy/Marine Corps and related fields, such as engineering, navigation and naval operations, history, and management.

Undergraduate Study

Scholarship Program

The majority of naval science students attend the University on Navy/Marine Corps Scholarships which are awarded primarily on a four-year basis to high school seniors selected by a nationwide competition. A two-year upper division scholarship program is also available, with a similar selection process, to students who have not yet begun their junior year in college. Applications for both types of scholarships are due by January 31 each year. In addition to tuition, fees, and uniforms, students receive subsistence pay of \$250 to \$400 per month and a book stipend. Scholarship students are obligated to serve on active duty for a minimum of four to five years following graduation and commissioning.

College Program (Nonscholarship)

Students attending the University who meet Navy/Marine Corps requirements but who do not have an NROTC Scholarship may enroll in the College Program during their freshman year. These students have the opportunity to compete for scholarships after the completion of one term of naval science courses. If they do not win a scholarship, or choose not to compete for one, they must compete for advanced standing prior to their junior year. A two-year College Program is also available to students who have not yet started their junior year. Stu-

dents enter the two-year program with advanced standing after selection through national competition and completion of a six-week summer training period. Applications for the two-year program are due March 1 of the sophomore year. All College Program students receive uniforms, naval science textbooks and, once selected for advanced standing, monthly subsistence pay in their junior and senior years.

Marine Corps Option

Highly motivated NROTC students may request designation as Marine Corps option students and may also pursue any UCLA academic degree. The final summer training, and a requirement to be commissioned as an officer in the Marine Corps, involves intensive Marine training at Officer Candidate School in Quantico, VA. Marine Corps option students also participate, on a limited basis, in field training exercises during the academic year.

Naval Science

Lower Division Courses

A. Naval Science Laboratory. (No credit) Laboratory, one hour. Requisite: course 102C. Limited to Naval Science ROTC midshipmen. Designed to cover service-specific administrative processes that are requisite knowledge for newly commissioned Navy and Marine Corps officers. No grading.

Z. Leadership Laboratory. (No credit) Laboratory, to be arranged. Mandatory for and limited to Naval Science ROTC midshipmen. Provides midshipmen with general military training and practical command and staff leadership experiences through classroom instruction and performance of various tasks and interactive processes within framework of organized midshipmen-run military unit, with oversight by active-duty military staff. As integral part of naval science curriculum, provides professional experiences designed to develop leadership potential and orientation for active duty. No grading.

1A. Introduction to Naval Science. (3) Lecture, three hours. Introduction to organization of Naval Service, various components of Navy, career opportunities, shipboard damage control, fire fighting, Naval and Marine Corps operations, and some customs and traditions of Naval Service. Letter grading.

1B. Naval Ship Systems I. (4) Lecture, four hours. Introduction to naval engineering, with emphasis on steam, nuclear, diesel, and gas turbine propulsion systems and their associated auxiliary components. Basic thermodynamic theory, electrical theory, stability, and buoyancy. P/NP or letter grading.

20A. Naval Ship Systems II. (4) Study of naval weapon systems, with emphasis on infrared, radar, and sonar principles. Target designation and acquisition, methods of solving fire control problem, target detection systems. Analysis of transfer and feedback functions inherent in weapon systems.

20B. Seapower and Maritime Affairs. (3) Lecture, three hours. Conceptual study of seapower, with emphasis on historical development of naval and commercial power. Seapower examined in relation to economic, political, and cultural strengths, with focus on current abilities of specific nations to use oceans to attain national objectives. P/NP or letter grading.

Upper Division Courses

101A. Navigation I. (4) Study of principles of piloting, celestial, and electronic navigation employed in determining a ship's position at sea. Celestial and electronic theory, mathematical analysis, sextant sights, and use of navigational aids.

101B. Naval Operations and Seamanship. (4) Lecture, four hours. Requisite: course 101A. Study of rules of road, shiphandling, and basic concepts of multiple ship formations and maneuvering. In-depth analysis of problems associated with operations on high seas and inland waters applying to civil and U.S. Naval craft. Letter grading.

102B. Naval Leadership and Management I. (4) Examination of current and classical leadership and management theories, with emphasis on their application to junior military officer's role as a leader/manager. Topics include managerial functions, performance appraisal, motivation theories, group dynamics, leadership theories, and communication.

102C. Leadership and Ethics. (2) Lecture, two hours. Requisite for Naval Science ROTC midshipmen: course 102B. Capstone course that examines principles of leadership and ethics relevant to military leaders through study and interactive discussion of classical and contemporary source documents and case studies. Letter grading.

103. Evolution of Warfare. (4) Study of evolution of warfare, including historical and comparative consideration of influence that leadership, political, economic, and sociological and technological development factors have had on warfare and influence they continue to exert in age of limited warfare.

104. Expeditionary Military Operations. (4) Study of historical use of expeditionary military operations, with particular emphasis on doctrine, tactics, and equipment used. Examination of topics through study of political and military objectives by focusing on historical examples, including Marathon, Gallipoli, World War II, Korea, Beirut, and Grenada. Examination of contemporary doctrine through study of recent operations.

197. Individual Studies in Naval Science. (1 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

SCANDINAVIAN SECTION

College of Letters and Science

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Scope and Objectives

Scandinavia consists of five northern European countries: Denmark, Finland, Iceland, Norway,

and Sweden. These countries form a geographic bridge between the American and European continents and a political bridge between Western and Eastern Europe. For all students of literature, language, the arts, and the social and physical sciences, Scandinavia is of particular interest.

The modern Scandinavian program educates students about Scandinavia through the study of its languages and literatures. The Scandinavian Section offers both undergraduate and graduate degrees in the languages and literatures of Denmark, Norway, and Sweden. Danish, Norwegian, and Swedish are mutually understandable languages, giving the student of one access to the literatures and cultures of the other two. Both undergraduate and graduate majors are expected to concentrate on one Scandinavian language, though they study the literatures of the other language areas.

Undergraduate Study

The Scandinavian Languages and Cultures major is a designated capstone major. Under the guidance of faculty members, students are required to devise, research, and complete either a substantial research paper, film/video, or a website that reflects significant engagement with a challenging question in the realm of Scandinavian languages and cultures. The capstone experience finishes with a half-day symposium open to the public. Through their capstone work, all students are expected to demonstrate their skills in articulating a clear and sophisticated research question, devising a realizable set of research goals, deploy their advanced knowledge of a Nordic language to access target language research materials and incorporate them into the research corpus, devise an appropriate modality for the final project, present a concise engaging public presentation of their research and respond to questions, and archive their project in an appropriate form.

Undergraduate Courses

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in Danish, Norwegian, and Swedish grammar and/or composition. Students with demonstrated preparation may be permitted a more advanced program by the section or may be transferred to a more advanced course with consent of the instructor.

Native speakers of Norwegian, Swedish, and Danish may not enroll in any language course (including courses 105, 106, 107) in the Scandinavian Section except by petition in writing to the section. Non-Scandinavian students with knowledge of one of these Scandinavian languages may not take courses in the others except by petition in writing. Petitions must include a description of the student's linguistic background and the reason for wanting to take the language course in question.

Scandinavian Languages and Cultures BA

Capstone Major

Preparation for the Major

Required: Scandinavian 1, 2, and 3, or 11, 12, and 13, or 21, 22, and 23, or equivalent.

Transfer Students

Transfer applicants to the Scandinavian Languages and Cultures major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of either Swedish, Norwegian, or Danish.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Seven courses from at least three of the following five tracks: (1) *early Nordic literatures and cultures*—Scandinavian C131, 132A, 132B, C133A, C137, 138, (2) *theory, genres, and authors*—Scandinavian C141A, 141C, 142A, 143C, CM144A, C145A, C145B, C146A, 147A, C147B, (3) *literary periods*—Scandinavian 152, 155, 156, 157, (4) *Scandinavian cinema*—Scandinavian 161, C163A, C166A, C166C, (5) *cultural studies*—Scandinavian C171, C174A, 174B, C175; and one senior capstone course (Scandinavian 199) under the direction of a faculty member.

Also required is a second-year language sequence selected from Scandinavian 105A, 105B, and 105C, or 106A, 106B, and 106C, or 107A, 107B, and 107C, or 132A, 132B, and 132C. Students with language preparation equivalent to two years of language must take an additional three upper division courses in lieu of the second-year language sequence.

As an option, four upper division courses in a related field may be taken if approved in advance by the undergraduate adviser. In general, the courses must include significant content related to the Nordic region. It is recommended that students who plan to do graduate work in Scandinavian take German 1 through 6.

Scandinavian Minor

To enter the Scandinavian minor, students must have an overall grade-point average of 2.0 or better.

Required Courses (28 units): Any seven Scandinavian courses, two of which may be lower division courses selected from Scandinavian 1 through 50.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Scandinavian Section offers the Master of Arts (MA) degree in Scandinavian.

Scandinavian

Lower Division Courses

1. Elementary Swedish. (4) Discussion, four hours. P/NP or letter grading.

2. Elementary Swedish. (4) Discussion, four hours. Enforced requisite: course 1. P/NP or letter grading.

3. Elementary Swedish. (4) Discussion, four hours. Enforced requisite: course 2. P/NP or letter grading.

8. Elementary Swedish: Intensive. (12) Lecture, 15 hours; laboratory, five hours. Intensive basic course in Swedish equivalent to courses 1, 2, and 3. Offered in summer only. P/NP or letter grading.

11. Elementary Norwegian. (4) Discussion, four hours. P/NP or letter grading.

12. Elementary Norwegian. (4) Discussion, four hours. Enforced requisite: course 11. P/NP or letter grading.

13. Elementary Norwegian. (4) Discussion, four hours. Enforced requisite: course 12. P/NP or letter grading.

21. Elementary Danish. (4) Discussion, four hours. P/NP or letter grading.

22. Elementary Danish. (4) Discussion, four hours. Enforced requisite: course 21. P/NP or letter grading.

23. Elementary Danish. (4) Discussion, four hours. Enforced requisite: course 22. P/NP or letter grading.

28. Elementary Finnish. (4) Lecture, three hours. Introduction to standard language of Finland. Practice in grammar, listening, speaking, reading, and writing. P/NP or letter grading.

29. Intermediate Finnish. (4) Lecture, three hours. Requisite: course 28. Introduction to standard language of Finland. Practice in grammar, listening, speaking, reading, and writing. P/NP or letter grading.

31. Modern Icelandic. (4) Lecture, three hours. Grammar, readings, and conversation. P/NP or letter grading.

40. Heroic Journey in Northern Myth, Legend, and Epic. (4) Lecture, three hours. Not open for credit to students with credit for course 40W. All readings in English. Comparison of journeys of heroes. Readings in mythology, legend, folktale, and epic, including *Nibelungenlied*, *Volsunga saga*, *Eddas*, and *Beowulf*. Cultural and historic backgrounds to texts. P/NP or letter grading.

40W. Heroic Journey in Northern Myth, Legend, and Epic. (4) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 40. All readings in English. Comparison of journeys of heroes. Readings in mythology, legend, folktale, and epic, including *Nibelungenlied*, *Volsunga saga*, *Eddas*, and *Beowulf*. Cultural and historic backgrounds to texts. Satisfies Writing II requirement. Letter grading.

50. Introduction to Scandinavian Literatures and Cultures. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 50W. Designed for students in general and for those wishing to prepare for more advanced and specialized studies in Scandinavian literature and culture. Selected works from literatures of Denmark, Norway, Sweden, Iceland, and Finland, ranging from myth, na-

tional epic, saga, and folktale through modern novel, poem, play, short story, and film, read in English and critically discussed. P/NP or letter grading.

50W. Introduction to Scandinavian Literatures and Cultures. (5) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 50. Designed for students in general and for those wishing to prepare for more advanced and specialized studies in Scandinavian literature and culture. Selected works from literatures of Denmark, Norway, Sweden, Iceland, and Finland, ranging from myth, national epic, saga, and folktale through modern novel, poem, play, short story, and film, read in English and critically discussed. Satisfies Writing II requirement. Letter grading.

60W. Introduction to Nordic Cinema. (5) Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or English as a Second Language 36. Not open for credit to students with credit for course 60. Introduction to cinematic traditions of Nordic countries, with emphasis on construction of other or outsider as conceptual category. Survey of wide range of films to interrogate relationship between various forms of minority discourse and dominant values, institutions, and mechanisms and instruments of social control. Investigation of how these cinematic narratives of dominant normativity and diversity reflect cultural anxieties surrounding identity, ideology, collective memory, and power relationships. Screenings supplemented with relevant theoretical texts to give tools necessary to more effectively contextualize and analyze images. Satisfies Writing II requirement. Letter grading.

Upper Division Courses

105A-105B. Intermediate Swedish. (4-4) (Formerly numbered 4, 5.) Lecture, four hours. Enforced requisite for course 105A: course 3; for course 105B: course 105A. P/NP or letter grading.

105C. Advanced Swedish. (4) (Formerly numbered 105.) Lecture, three hours. Enforced requisite: course 105B. Readings, composition, and conversation in Swedish. May be repeated once for credit. P/NP or letter grading.

106A-106B. Intermediate Norwegian. (4-4) (Formerly numbered 14, 15.) Lecture, four hours. Enforced requisite for course 106A: course 13; for course 106B: course 106A. P/NP or letter grading.

106C. Advanced Norwegian. (4) (Formerly numbered 106.) Lecture, three hours. Enforced requisite: course 106B. Readings, composition, and conversation in Norwegian. May be repeated once for credit. P/NP or letter grading.

107A-107B. Intermediate Danish. (4-4) (Formerly numbered 24, 25.) Lecture, four hours. Enforced requisite for course 107A: course 23; for course 107B: course 107A. P/NP or letter grading.

107C. Advanced Danish. (4) (Formerly numbered 107.) Lecture, three hours. Enforced requisite: course 107B. Readings, composition, and conversation in Danish. May be repeated once for credit. P/NP or letter grading.

109. Advanced Finnish. (4) Lecture, three hours. Requisite: course 29. Grammatical exercises, conversation, reading, and analysis of simple texts. P/NP or letter grading.

C131. Introduction to Viking Age. (4) Lecture, three hours. History, society, and culture of early Scandinavians. All texts in English, including readings in Old Norse sagas and *Eddas*. Concurrently scheduled with course C231. Letter grading.

132A. Elementary Old Norse. (4) Lecture, three hours. Introduction to grammar and pronunciation of Old Norse. Selected readings from sagas and *Prose Edda*. P/NP or letter grading.

132B. Intermediate Old Norse. (4) Lecture, three hours. Requisite: course 132A. Continued grammar, pronunciation, and readings from *Eddas* and sagas of Icelanders, Norwegian kings, and legendary heroes. P/NP or letter grading.

132C. Advanced Old Norse. (4) Lecture, three hours. Enforced requisite: course 132B. Readings from variety of Old Norse-Icelandic texts. Continuation of development of translation skills, as well as familiarity with Old Norse-Icelandic texts and philological, linguistic, literary, and cultural issues surrounding their interpretation. P/NP or letter grading.

C133A. Saga. (4) Seminar, three hours. Sagas are largest extant medieval prose literature. Texts in English, with selections from different types of Icelandic sagas. Consideration of history and society that produced these narratives. Concurrently scheduled with course C233A. Letter grading.

133C. Social Network Analysis and Icelandic Family Saga. (4) Seminar, three hours. Exploration of how character interactions can be used as basis for developing social network view of stage on which saga action plays out. Examination of how best to model sagas as dynamic social networks and learn about metrics and analytical approaches from social network analysis (SNA) that deepen understanding of saga actions. SNA provides additional opportunity to explore hypothetical situations and recognize alternative social pathways that may have led to other types of community formations. Study of Icelandic saga toward increasing complexity, developing understanding of characters and character roles, and using this as basis of preliminary investigations. P/NP or letter grading.

134. Scandinavian Mythology. (4) Seminar, three hours. Overview of major gods and goddesses, heroes and heroines, narratives and adventures that make up lore collectively referred to as Scandinavian, or Norse, myth. Reading and examination of this lore that is chiefly preserved in two collections traditionally called *Poetic* (or Elder) *Edda* and *Prose* (or Younger) *Edda*. P/NP or letter grading.

C137. Old Norse Literature and Society. (4) Seminar, three hours. Critical issues in medieval Scandinavian studies. May be repeated for credit. Concurrently scheduled with course C237. Letter grading.

138. Vikings. (5) Lecture, three hours; discussion, one hour. Survey of history, anthropology, and archaeology of Viking Age society. Readings draw on medieval sagas as well as secondary material, focus on impact of Vikings on northern Europe, and consider ways in which European and Scandinavian societies evolved in response to Viking incursions. P/NP or letter grading.

C141A. Theory of Scandinavian Novel. (4) Seminar, three hours. Analysis of predominant structures of Scandinavian novel from its 18th-century beginnings through its rise in 19th century and its 20th-century evolution. Discussion of application of contemporary critical theories to novels. May be concurrently scheduled with course C241A. P/NP or letter grading.

141B. Nordic Poetry. (4) Seminar, three hours. Readings in English translation. Survey of Nordic poetry from Middle Ages to present, including *Poetic Edda* of 13th-century Iceland, Scandinavian ballad tradition, some folk poetry from Finland's national epic *Kalevala*, and modern lyric. Reading of essays on translating poetry and consideration of particular problems poetry presents for translators, as well as what is lost and/or gained in translation. Study of poetry within following contexts: role(s) poetry has served in Nordic societies from 13th century to present day; Nordic poets' influences from and contributions to European literary movements; and special status of poetry in preserving small national languages and literatures, as indicated by financial support from Nordic states and publishers of contemporary poets and their poetry. P/NP or letter grading.

141C. Short Story in Scandinavia. (4) Seminar, three hours. Exploration of range of classic short story and novella texts from Scandinavian literary canon, with stories by authors such as Hans Christian Andersen, Jens Peter Jacobsen, Alexander Kielland, Amalie Skram, Sigbjørn Obstfelder, Knut Hamsun, Isak Dinesen, and Rubén Palma. Examination of author's lives and oeuvres, larger Nordic/European literary

movements of 19th and 20th centuries, and tropes and conventions of short stories themselves. P/NP or letter grading.

142A. Introduction to Nordic Theater and Drama. (4) Lecture, three hours. Examination of artistic legacy of Henrik Ibsen and August Strindberg in context of emergence of modern Nordic theater and drama as whole, as well as important contributions of their contemporaries and successors. Readings include plays, letters, speeches, and memoirs by Ludvig Holberg, Henrik Ibsen, August Strindberg, Pär Lagerkvist, Kjeld Abell, Eeva-Liisa Manner, Hrafnhildur Hagalín Guðmundsdóttir, and Jonas Hassen Khemiri. P/NP or letter grading.

143A. Scandinavian Detective Fiction. (4) Seminar, three hours. Scandinavian authors have been writing detective fiction for years. Maj Sjöwall and Per Wahloö were famous worldwide in 1960s and 1970s, especially with their Martin Beck series, and once they had established that Scandinavian writers could be successfully translated into many languages, others followed. Scandinavian authors, while following traditional rules of crime fiction, also analyze and often criticize values and cultures of their societies. Reading of these works as representations of critical social and intellectual problems not only in Scandinavia, but in Europe and world at large. P/NP or letter grading.

143C. Scandinavian Crime Literature. (4) Seminar, three hours. Introduction to background of crime fiction and its relation to Scandinavia. P/NP or letter grading.

CM144A. Voices of Women in Nordic Literature. (4) (Same as Gender Studies M186.) Seminar, three hours. Requisite: course 5 or 15 or 25. Knowledge of Scandinavian languages not required for nonmajors. Readings and discussion of writings by Scandinavian women writers analyzed in historical, theoretical, sociological, critical, and comparative contexts. May be concurrently scheduled with course C244A. P/NP or letter grading.

C145A. Henrik Ibsen. (4) Seminar, three hours. Readings and discussion of selected plays by Henrik Ibsen. May be concurrently scheduled with course C245A. P/NP or letter grading.

C145B. Knut Hamsun. (4) Seminar, three hours. Readings and discussion of selected works by Knut Hamsun and other 19th- and 20th-century Scandinavian writers who explored theme of nature as modern idyll. May be concurrently scheduled with course C245B. P/NP or letter grading.

C146A. August Strindberg. (4) Seminar, three hours. August Strindberg's portrayals of marital conflict reflected and shaped literary representation of so-called battle of sexes. His work, as well as its literary transformations, placed into Scandinavian, European, and feminist context. May be concurrently scheduled with course C246A. P/NP or letter grading.

147A. Hans Christian Andersen. (4) Lecture, two hours; discussion, one hour. Study of works of Hans Christian Andersen, Danish novelist, dramatist, and writer of tales, including consideration of his literary background and of his times. Analysis of his works in terms of their structure, style, and meaning. P/NP or letter grading.

C147B. Søren Kierkegaard. (4) Seminar, three hours. Readings and discussion of selected works by Søren Kierkegaard and other existentialist writers. May be concurrently scheduled with course C247B. P/NP or letter grading.

148A. Halldór Laxness. (4) Lecture, three hours. Reading and discussion of works in English translation by Icelandic Nobel laureate Halldór Guðmundsson Laxness (1902 to 1998). P/NP or letter grading.

152. Backgrounds of Scandinavian Literature. (4) Seminar, three hours. Readings and discussion of representative texts selected from literature of medieval, Renaissance, baroque, and Enlightenment periods. P/NP or letter grading.

154. Romanticism. (4) Seminar, three hours. Exploration of Romanticism in Scandinavian literature. Reading and discussion of different approaches to Romanticism and analysis of works of prominent Scandinavian writers from Romantic period to understand Scandinavian Romanticism in larger European context, including work from both English and German Romantic writers and artists. P/NP or letter grading.

155. Modern Breakthrough. (4) Seminar, three hours. Readings and discussion of selected works from Romantic, realistic, and post-Romantic literature of Scandinavia in 19th century. P/NP or letter grading.

156. Scandinavian Literature of 20th Century. (4) Seminar, three hours. Readings and discussion of selected works of modern Scandinavian literature from beginning of century to present. P/NP or letter grading.

157. Contemporary Nordic Literature. (4) Seminar, three hours. Reading and analysis of selected texts by major 20th-century Swedish authors. P/NP or letter grading.

161. Introduction to Nordic Cinema. (4) Seminar, three hours. Designed for students in general and for those preparing for more advanced studies in Scandinavian literature and culture. Viewing and discussion of films by Ingmar Bergman and other Scandinavians. P/NP or letter grading.

C163A. Introduction to Danish Cinema. (4) Seminar, three hours. Introduction to history of cinema in Denmark, as well as to some fundamental concepts in study of film. Deliberately broad and historically centered approach to development of cinema in Denmark rather than focus on films of particular directors or topics. Theoretical readings from important critics, including Kracauer, Bazin, Metz, and Chatman, along with several directed exercises, to develop vocabulary and critical method for discussing films in general and Danish cinema in particular. Other readings include selections from Hjort, Sandberg, Tangherlini, and other Scandinavian theorists. Concurrently scheduled with course C263A. P/NP or letter grading.

C163B. Introduction to Swedish Cinema. (4) Lecture, three hours. Introduction to and exploration of history of Swedish cinema from silent era to present. Filmmakers include auteurs in international canon, such as Victor Sjöström, Mauritz Stiller, and Ingmar Bergman, as well as other key Swedish filmmakers such as Gustaf Molander, Alf Sjöberg, Mai Zetterling, Vilgot Sjöman, Jan Troell, Lukas Moodysson, and Josef Fares. Development of Scandinavian high art cinema and popular genres such as rural romanticism, melodrama, sex, crime, and horror. All films have English subtitles. Concurrently scheduled with course C263B. P/NP or letter grading.

C163C. Introduction to Norwegian Cinema. (4) Seminar, three hours. Introduction to and exploration of history of Norwegian cinema from silent era to present. Filmmakers include Tancred Ibsen, Arne Skouen, Edith Carlmar, Nils Gaup, Erik Skjoldbjærg, Bent Hamer, Khalid Hussain, and Petter Næss. Particular focus on popular genres such as war films, horror, noir, romantic comedies, and documentaries. Concurrently scheduled with course C263C. P/NP or letter grading.

C166A. Ingmar Bergman. (4) Seminar, three hours. Exploration of Ingmar Bergman's development as film artist through various periods, spanning mid-1940s and late 1970s. Contextualization of work of this most personal of filmmakers within multiple frameworks of postwar Swedish film industry, international art cinema movement, and issues of auteur filmmaking. Course readings and viewing of 10 Bergman films. All films have English subtitles. Concurrently scheduled with course C266A. P/NP or letter grading.

C166C. Carl Dreyer. (4) (Formerly numbered 166C.) Seminar, three hours. Carl Theodor Dreyer (1889 to 1968) is not only one of great masters of Nordic cinema, but of world cinema as well. Focus on films that Dreyer made during near half century between 1919 and 1964. Contextualization of silent and sound works of this most personal of filmmakers within multiple frameworks: Danish national film industry, trans-

national European cinema, and issues of auteur film-making. Writings by key Dreyer scholars such as David Bordwell, Ray Carney, Paul Schrader, Mark Sandberg, and others, as well as Dreyer's own writings on cinema. All films have English intertitles or subtitles. Concurrently scheduled with course C266C. P/NP or letter grading.

C171. Introduction to Scandinavian Folklore. (4) Seminar, three hours. Introduction to fairy tales and legends of Scandinavian tradition as well as to interpretive methodologies that strive to answer question why do people tell stories that they tell? Concurrently scheduled with course C271. Letter grading.

173A. Popular Culture in Scandinavia. (4) Seminar, three hours. Examination of popular culture in Scandinavia through study of contemporary Scandinavian literature, film, music, and art. Investigation of how issues such as globalization, immigration, and nationalism are portrayed in popular culture in Denmark, Norway, Sweden, Finland, and Iceland. Discussion of how and why human condition is interpreted through study of cultural expressions and how it is possible—taking literature, film, and art as point of departure—to analyze cultural, historical, and political expression in given piece of art. P/NP or letter grading.

C174A. Minority Cultures in Scandinavia. (4) Seminar, three hours. Exploration of emergence of immigrant cultures in Nordic region. Beginning in 1960s, large numbers of people from Turkey, Italy, and Pakistan began immigrating to Nordic countries, followed in subsequent decades by immigrants and refugees from Vietnam, India, Iran, Iraq, Afghanistan, Cambodia, and countries throughout Africa. Cultural landscape previously marked by relatively high degree of cultural homogeneity now characterized by broad cultural diversity. Examination of emergence of new voices in Nordic cultural landscape in wide range of cultural expressive media, including literature, film, and visual and performing arts. Exploration of emergence of new forms of Nordic languages, such as well-documented phenomenon of Rinkeby Swedish. Concurrently scheduled with course C274A. P/NP or letter grading.

174B. Queer Scandinavia. (4) Seminar, three hours. Queer themes in Scandinavian literature, mainly from 19th and 20th centuries. Scandinavian countries have had more progressive view on homosexuality than most other countries, and Scandinavian writers portrayed homosexuality in explicit and radical ways as early as turn of 19th century. Introduction to key theoretical works within field of gay and lesbian studies and queer studies, as well as presentation of historical view of how homosexuality has been perceived in Western world over time. P/NP or letter grading.

C175. Introduction to Sami Language and Culture. (4) Lecture, three hours. Use of thematically arranged, structurally graduated readings, conversation topics, individual and group assignments, and journal writing to provide systematic overview of linguistic characteristics of Estonian language. At course end students should be able to communicate in Sami in variety of common social situations and should be equipped with necessary basic concepts to continue language acquisition and cultural studies in their social and professional milieu, interacting with native speakers, or taking formal courses at intermediate level. Concurrently scheduled with course C275. P/NP or letter grading.

C180. Literature and Scandinavian Society. (4) Seminar, three hours. Discussion of selected aspects of Scandinavian society based on readings of contemporary literature as well as historical and/or sociological material. May be repeated for credit (as determined by undergraduate adviser) with topic change. May be concurrently scheduled with course C280. P/NP or letter grading.

C185. Seminar: Scandinavian Literature. (4) Seminar, three hours. Selected topics in Scandinavian prose, poetry, and drama. May be repeated for credit with consent of instructor and undergraduate adviser. May be concurrently scheduled with course C265. P/NP or letter grading.

187FL. Special Studies: Readings in Scandinavian. (2) Seminar, two hours. Requisite: course 5 or 15 or 25. Students must be concurrently enrolled in affiliated main course. Additional work in Nordic languages (Danish, Icelandic, Norwegian, Swedish) to augment work assigned in main course, including reading, writing, and other exercises. May be repeated for credit. P/NP or letter grading.

197. Individual Studies in Scandinavian. (2 to 4) Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research in Scandinavian. (4) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

C231. Introduction to Viking Age. (4) Lecture, three hours. History, society, and culture of early Scandinavians. All texts in English, including readings in Old Norse sagas and *Eddas*. Concurrently scheduled with course C131. Graduate students do additional readings and write more extensive research papers. Letter grading.

C233A. Saga. (4) Seminar, three hours. Sagas are largest extant medieval prose literature. Texts in English, with selections from different types of Icelandic sagas. Consideration of history and society that produced these narratives. Concurrently scheduled with course C133A. Graduate students do additional readings and write more extensive research papers. Letter grading.

233B. Advanced Old Norse Prose. (4) Lecture, three hours. Requisite: course 132B. Readings of major saga texts. Also, secondary sources that bear on specific issues in Old Norse literature and medieval Scandinavian history. S/U or letter grading.

234. Scandinavian Mythology. (4) Seminar, three hours. Study of Northern myth and religion through close reading of Eddic texts and secondary sources. Letter grading.

235A. Advanced Old Norse Poetry. (4) Lecture, three hours. Requisite: course 132B. Readings of mythological and heroic poems from *Poetic Edda*. Secondary sources used where appropriate. S/U or letter grading.

C237. Old Norse Literature and Society. (4) Seminar, three hours. Critical issues in medieval Scandinavian studies. May be repeated for credit. Concurrently scheduled with course C137. Graduate students do additional readings and write more extensive research papers. Letter grading.

C241A. Theory of Scandinavian Novel. (4) Seminar, three hours. Preparation: advanced knowledge of one Scandinavian language. Analysis of predominant structures of Scandinavian novel from its 18th-century beginnings through its rise in 19th century and its 20th-century evolution. Discussion of application of contemporary critical theories to novels. May be concurrently scheduled with course C141A. Graduate students may meet as group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

C244A. Voices of Women in Nordic Literature. (4) Seminar, three hours. Preparation: advanced knowledge of one Scandinavian language. Readings and discussion of writings by Scandinavian women writers analyzed in historical, theoretical, sociological, critical, and comparative contexts. May be concurrently scheduled with course CM144A. Graduate students may meet as group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

C245A. Henrik Ibsen. (4) Seminar, three hours. Preparation: advanced knowledge of one modern Scandinavian language. Readings and discussion of

selected plays by Henrik Ibsen. May be concurrently scheduled with course C145A. Graduate students may meet as group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

C245B. Knut Hamsun. (4) Seminar, three hours. Preparation: advanced knowledge of one Scandinavian language. Readings and discussion of selected works by Knut Hamsun and other 19th- and 20th-century Scandinavian writers who explored theme of nature as modern idyll. May be concurrently scheduled with course C145B. Graduate students may meet as group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

C246A. August Strindberg. (4) Seminar, three hours. Preparation: advanced knowledge of one Scandinavian language. August Strindberg's portrayals of marital conflict reflected and shaped literary representation of so-called battle of sexes. His work, as well as its literary transformations, placed into Scandinavian, European, and feminist context. May be concurrently scheduled with course C146A. Graduate students may meet as group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

C247B. Søren Kierkegaard. (4) Seminar, three hours. Preparation: advanced knowledge of one modern Scandinavian language. Readings and discussion of selected works of Søren Kierkegaard and other existentialist writers. May be concurrently scheduled with course C147B. S/U or letter grading.

C263A. Introduction to Danish Cinema. (4) Seminar, three hours. Introduction to history of cinema in Denmark, as well as to some fundamental concepts in study of film. Deliberately broad and historically centered approach to development of cinema in Denmark rather than focus on films of particular directors or topics. Theoretical readings from important critics, including Kracauer, Bazin, Metz, and Chatman, along with several directed exercises, to develop vocabulary and critical method for discussing films in general and Danish cinema in particular. Other readings include selections from Hjort, Sandberg, Tangherlini, and other Scandinavian theorists. Concurrently scheduled with course C163A. S/U or letter grading.

C263B. Introduction to Swedish Cinema. (4) Lecture, three hours. Introduction to and exploration of history of Swedish cinema from silent era to present. Filmmakers include auteurs in international canon, such as Victor Sjöström, Mauritz Stiller, and Ingmar Bergman, as well as other key Swedish filmmakers such as Gustaf Molander, Alf Sjöberg, Mai Zetterling, Vilgot Sjöman, Jan Troell, Lukas Moodysson, and Josef Fares. Development of Scandinavian high art cinema and popular genres such as rural romanticism, melodrama, sex, crime, and horror. All films have English subtitles. Concurrently scheduled with course C163B. S/U or letter grading.

C263C. Introduction to Norwegian Cinema. (4) Seminar, three hours. Introduction to and exploration of history of Norwegian cinema from silent era to present. Filmmakers include Tancred Ibsen, Arne Skouen, Edith Carlmar, Nils Gaup, Erik Skjoldbjærg, Bent Hamer, Khalid Hussain, and Petter Naess. Particular focus on popular genres such as war films, horror, noir, romantic comedies, and documentaries. Concurrently scheduled with course C163C. S/U or letter grading.

C265. Seminar: Scandinavian Literature. (4) Seminar, three hours. Preparation: reading knowledge of a Scandinavian language. Selected topics in Scandinavian prose, poetry, and drama. May be repeated for credit with consent of instructor and graduate adviser. May be concurrently scheduled with course C185. S/U or letter grading.

C266A. Ingmar Bergman. (4) Seminar, three hours. Exploration of Ingmar Bergman's development as film artist through various periods, spanning mid-1940s and late 1970s. Contextualization of work of this most personal of filmmakers within multiple frameworks of postwar Swedish film industry, international art cinema movement, and issues of auteur filmmaking.

Course readings and viewing of 10 Bergman films. All films have English subtitles. Concurrently scheduled with course C166A. S/U or letter grading.

C266C. Carl Dreyer. (4) Seminar, three hours. Carl Theodor Dreyer (1889 to 1968) is not only one of great masters of Nordic cinema, but of world cinema as well. Focus on films that Dreyer made during near half century between 1919 and 1964. Contextualization of silent and sound works of this most personal of filmmakers within multiple frameworks: Danish national film industry, transnational European cinema, and issues of auteur filmmaking. Writings by key Dreyer scholars such as David Bordwell, Ray Carney, Paul Schrader, Mark Sandberg, and others, as well as Dreyer's own writings on cinema. All films have English intertitles or subtitles. Concurrently scheduled with course C166C. S/U or letter grading.

C271. Introduction to Scandinavian Folklore. (4) Seminar, three hours. Preparation: advanced knowledge of one modern Scandinavian language. Introduction to fairy tales and legends of Scandinavian tradition as well as to interpretive methodologies that strive to answer question why do people tell stories that they tell? Concurrently scheduled with course C171. Letter grading.

M271. Study of Oral Tradition: History and Methods. (4) (Same as English M205A.) Seminar, three hours. Exploration of scholarly and literary attempts to study, define, analyze, promote, and/or appropriate oral traditions, from Homer and ancient Greece to origins of vernacular literatures. European romantic (re)discovery of oral tradition, 20th-century heuristic models of oral composition, and modern-day electronic media and popular verbal genres, such as joking and rapping. S/U or letter grading.

M272. Collecting Oral Tradition. (4) (Same as English M205B.) Seminar, three hours. Description and evaluation of various modern approaches to collecting and documenting oral tradition as text, performance, and sociocultural event. Consideration of approaches ranging from written transcription and textualization to audio and video presentation. S/U or letter grading.

M273. Studies in Oral Traditional Genres. (4) (Same as English M205C.) Seminar, three hours. Exploration in depth of variety and history of, and scholarship on, a particular oral traditional genre (e.g., ballad, song, epic, proverb, riddle, folktale, legend) or a set of closely related oral traditional genres. S/U or letter grading.

C274A. Minority Cultures in Scandinavia. (4) Seminar, three hours. Exploration of emergence of immigrant cultures in Nordic region. Beginning in 1960s, large numbers of people from Turkey, Italy, and Pakistan began immigrating to Nordic countries, followed in subsequent decades by immigrants and refugees from Vietnam, India, Iran, Iraq, Afghanistan, Cambodia, and countries throughout Africa. Cultural landscape previously marked by relatively high degree of cultural homogeneity now characterized by broad cultural diversity. Examination of emergence of new voices in Nordic cultural landscape in wide range of cultural expressive media, including literature, film, and visual and performing arts. Exploration of emergence of new forms of Nordic languages, such as well-documented phenomenon of Rinkeby Swedish. Concurrently scheduled with course C174A. S/U or letter grading.

C275. Introduction to Sami Language and Culture. (4) Lecture, three hours. Use of thematically arranged, structurally graduated readings, conversation topics, individual and group assignments, and journal writing to provide systematic overview of linguistic characteristics of Estonian language. At course end students should be able to communicate in Sami in variety of common social situations and should be equipped with necessary basic concepts to continue language acquisition and cultural studies in their social and professional milieu, interacting with native speakers, or taking formal courses at intermediate level. Concurrently scheduled with course C175. S/U or letter grading.

C280. Literature and Scandinavian Society. (4) Seminar, three hours. Designed for graduate students. Discussion of selected aspects of Scandinavian society based on readings of contemporary literature as well as historical and/or sociological material. May be repeated for credit (as determined by graduate adviser) with topic change. May be concurrently scheduled with course C180. Graduate students may meet for extra seminar hours and write research papers of greater length and depth. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 6) Tutorial, to be arranged with faculty member who directs the study or research. Limited to graduate Scandinavian students. Twelve units may be applied toward total course requirement, but only 4 units may be applied toward minimum graduate course requirement. May be repeated twice. S/U or letter grading.

597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations. (4 to 8) Tutorial, to be arranged with faculty member who directs the study or research. May be repeated once. May not be applied toward MA minimum course requirements. S/U grading.

599. Research for and Preparation of PhD Dissertation. (4) Tutorial, to be arranged with faculty member who directs the study or research. May be repeated. S/U grading.

SCIENCE EDUCATION

Interdisciplinary Minor
College of Letters and Science

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e-mail: cateach@chem.ucla.edu
<http://www.cateach.ucla.edu/?q=content/science-education-minor>

Troy A. Carter, PhD, Co-Chair
Arlene R. Russell, PhD, Co-Chair

Faculty Committee

Troy A. Carter, PhD (*Physics and Astronomy*)
Robert Cooper III, PhD (*Education*)
Jennifer A. Jay, PhD (*Civil and Environmental Engineering, Institute of the Environment and Sustainability*)
Patricia E. Phelps, PhD (*Integrative Biology and Physiology*)
Arlene A. Russell, PhD (*Chemistry and Biochemistry, Education*)

Scope and Objectives

The Science Education minor is designed for students who wish to become middle school and high school science teachers or who plan to teach as graduate students in their disciplines. The minor provides a background in teaching and learning science and the broad general science background included in California State subject matter credential examinations, selected coursework required for entry into a variety of postbaccalaureate credential programs, and field experiences in the development, management, and teaching of sci-

ence laboratory instruction in grades 7 through 12, including Advanced Placement Tests.

Undergraduate Study

Science Education Minor

Students eligible for admission to the Science Education minor should be making normal progress on the preparation for a major in the sciences or engineering whether they have declared such a major or not. They must have completed nine courses selected from the following, with at least one course from each of the four categories: (1) Chemistry and Biochemistry 14A, 14B, 14BL, 14C, 14CL (or 20A, 20B, 20L, 30A, 30AL), (2) Life Sciences 1, 2, 3, 23L, (3) Mathematics 3A, 31A or Life Sciences 30A, and (4) Physics 1A, 1B, 4AL, 4BL (or 6A, 6B). Prior participation in a supervised experience in schools is recommended.

To enter the minor, students must be in good academic standing with an overall grade-point average of 2.0 or better. Students must consult with the academic coordinator responsible for the minor to plan a coherent program to complete both the minor and their major, prior to filing a petition to enter the minor.

Required Lower Division Courses (6 to 7 units): Science Education 10SL and Earth, Planetary, and Space Sciences 1 (Earth, Planetary, and Spaces Sciences 101 or C113 or Atmospheric and Oceanic Sciences 101 or 102 or 103 may be substituted for course 1).

Required Upper Division Courses (22 units minimum): (1) Education 127, (2) Science Education 100SL, (3) at least one and no more than two courses selected from Chemistry and Biochemistry 192A, 192B, Civil and Environmental Engineering 192, Life Sciences 192A, 192B, Physics 192, Physiological Science 192, and (4) at least one and no more than two courses selected from Education M102, M103, M108, 121, 123, C125, 128, 130, 132, 133, 134, 138, 164, 166, M182A/M194A, M183A/M194A, M186.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor, and at least 16 units must be taken in residence at UCLA.

Each minor course, except Science Education 10SL, must be taken for a letter grade, with a grade of C or better in each, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Science Education

Lower Division Courses

1SL. Classroom Practices in Elementary School Science. (2) Seminar, 90 minutes; fieldwork, three hours per week for eight weeks. Introduction for prospective science teachers to field of elementary education and teaching and learning of science in elementary school classrooms. Pairs of students are placed in local elementary school classrooms to observe, participate, and assist mentor teachers in instruction. Introduction to inquiry-based learning prac-

tices, national and California standards, reading and learning differences in children, and cognitive ability of elementary-age children as it relates to introduction of concepts, curricular planning, classroom management, and learning assessment. P/NP grading.

10SL. Classroom Practices in Middle School Science. (2) Seminar, 90 minutes; fieldwork, three hours. Recommended requisite: course 1SL. Introduction for prospective science teachers to field of secondary education and teaching and learning of science in middle school classrooms. Pairs of students are placed in local middle school classrooms to observe, participate, and assist mentor teachers in instruction. Discussion of learning in middle school culture, cognitive development of students at this level, and best means to teach appropriate science concepts at this level. P/NP grading.

Upper Division Course

100SL. Classroom Practices in High School Science. (5) Seminar, three hours; service learning fieldwork, three hours. Recommended requisite: course 1SL or 10SL. Introduction for prospective science teachers to field of secondary education and teaching and learning of science in high school classrooms. Pairs of students are placed in local high school classrooms to observe, participate, and assist mentor teachers in instruction. Discussion of learning in high school culture, cognitive development of students at this level, and best means to teach appropriate science concepts at this level. Letter grading.

SLAVIC, EAST EUROPEAN, AND EURASIAN LANGUAGES AND CULTURES

College of Letters and Science

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Ronald W. Vroon, PhD (*Vladimir and Lydia Markov Professor of Russian Literature*)

Professors Emeriti

Henning Andersen, PhD
Peter C. Hodgson, Jr., PhD
Vyacheslav V. Ivanov, PhD
Emily R. Klenin, PhD
Aleksandr L. Ospovat, PhD
Rochelle H. Stone, PhD

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Vadim Shneyder, PhD

Lecturers

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Anna Kudyma, PhD
Viktorija Lejko-Lacan, PhD

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Vladimir Paperny, PhD

Adjunct Assistant Professor

Lada Panova, PhD

Scope and Objectives

The Department of Slavic, East European, and Eurasian Languages and Cultures offers a wide array of courses in the languages and cultures of Russia and of central and eastern Europe. Instruction is offered in Czech, Hungarian, Polish, Romanian, Russian, Serbian/Croatian, and Ukrainian to provide the necessary linguistic skills to pursue advanced work in the literature, culture, history, politics, and social structures of these areas. Students have the choice of several majors and minors and the opportunity to enhance their knowledge and skills through programs of study abroad.

The department offers two majors in Russian. The Russian Language and Literature major is designed to provide students with basic mastery of the Russian language and familiarity with the classics of Russian literature. Students typically begin to study Russian in their first year, but those contemplating a Russian major later in their academic program can fulfill the Russian language requirement by combining regular coursework with summer programs or with the University of California Education Abroad Program (EAP) in Moscow, which is open to students who have completed the equivalent of one or more years of study (level 1 on the American Council on Teaching of Foreign Languages—ACTFL—scale). Students interested in this program should consult the undergraduate adviser as early as possible.

The major in Russian Studies is designed for students who wish to complement mastery of the language with an array of courses on Russian history, politics, literature, and culture.

The major in Central and East European Languages and Cultures is designed to provide students with a mastery of two languages of central or eastern Europe and familiarity with the literature, as well as general background in the cultural, political, and social history of the Slavic peoples.

The graduate program provides advanced training in Slavic literatures and linguistics leading to the MA and PhD degrees in Slavic, East European, and Eurasian Languages and Cultures. The primary task of the department faculty is to develop and refine the critical and analytic skills of its students in preparation for productive careers in college teaching and research in the Slavic field. Alternative careers include language teaching, business, translation, interpreting, librarianship, and government service.

Undergraduate Study

The department offers three majors: (1) Central and East European Languages and Cultures, (2) Russian Language and Literature, and (3) Russian Studies. The equivalent of a major in Central and East European Languages and Cultures or Russian Language and Literature is normally required for admission to the department's graduate program and is used to determine the number of courses in Russian litera-

ture and/or linguistics that students majoring in Russian Studies are expected to make up in order to receive graduate degrees in the department. Students not majoring in Central and East European Languages and Cultures or Russian Language and Literature who intend to pursue graduate study in the department are strongly encouraged to take courses in Russian literature and linguistics during their undergraduate years to reduce the number of makeup courses required. Qualified seniors may also take graduate courses numbered below 220 with consent of the instructor and the graduate and undergraduate advisers.

The three majors offered in the department are designated capstone majors. Students majoring in Central and East European Languages and Cultures, Russian Language and Literature, and Russian Studies must complete a capstone seminar and present their final paper in the department's annual Undergraduate Research Conference. Students draw on their previously acquired subject matter knowledge and skills to plan a research project and write a substantial academic paper. They also gain experience engaging in scholarly discourse, preparing appropriate media for public presentation, and submitting their work to an academic journal.

Central and East European Languages and Cultures BA

Capstone Major

Preparation for the Major

Required: Central and East European Studies 91 or Slavic 90.

Transfer Students

Transfer applicants to the Central and East European Languages and Cultures major with 90 or more units must complete the following introductory course prior to admission to UCLA: one culture, history, or civilization course on one or more European nations.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) One three-quarter (12 to 15 units) introductory central and east European language sequence to be selected from Czech 101A, 101B, 101C, Hungarian 101A, 101B, 101C, Polish 101A, 101B, 101C, Romanian 101A, 101B, 101C, Serbian/Croatian 101A, 101B, 101C, or Ukrainian 101A, 101B, 101C; (2) one three-quarter (12 to 15 units) language sequence to be selected from Czech 102A, 102B, 102C, Hungarian 102A, 102B, 102C, Polish 102A, 102B, 102C, Romanian 102A, 102B, 102C, Serbian/Croatian 102A, 102B, 102C, or Ukrainian 102A, 102B, 102C **OR** any three courses from Russian 100A, 100B, 100C, 101A, 101B, 101C, 102A, 102B, 102C, 103A, 103B, 103C, 130A, 140A; (3) one three-quarter (12 to 15 units) introductory language sequence of a second Slavic or central European language, or equivalent proficiency as determined through departmental testing, to be se-

lected from Czech 101A, 101B, 101C, Hungarian 101A, 101B, 101C, Polish 101A, 101B, 101C, Romanian 101A, 101B, 101C, Serbian/Croatian 101A, 101B, 101C; (4) three courses (12 units) from the following list (187 courses are 2 units each; no more than 8 units may be from the 187 series): Central and East European Studies 125, 126, Czech 155, 187A through 187M, Ethnomusicology 161C, History 120A through 120D, Hungarian 187A through 187M, Polish 152A, 152B, 152C, 187A through 187M, Romanian 152, 187A through 187M, Russian C124G, Serbian/Croatian 187A through 187M; one of the three courses may be selected from Russian M118, 119, 120, C124C, C124D, C124N, C124T.

During their senior year, students must also take Slavic 191TA and 191TB in which they complete a capstone senior thesis.

Students may petition to substitute courses after consulting with the undergraduate adviser.

Each major course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Russian Language and Literature BA

Capstone Major

Preparation for the Major

Required: Russian 6 or 20 or equivalent proficiency, one course from 25, 25W, 90A, 90B, or 90BW.

Transfer Students

Transfer applicants to the Russian Language and Literature major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Russian and one Russian civilization course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven courses (44 to 47 units), including (1) three Russian language courses selected from Russian 100A, 100B, 100C, 101A, 101B, 101C, 102A, 102B, 102C, 103A, 103B, 103C, 107A, 107B, 107C, 108 (consult the undergraduate adviser for appropriate placement); (2) three additional Russian language and/or literature courses selected from 102A, 102B, 102C, 103A, 103B, 103C, 107A, 107B, 107C, 108, M118, 119, 120, 121, 122, C124C, C124D, C124G, C124N, C124P, C124T, 129; and (3) four related fields courses selected from History M127A through 127D, Political Science 128A, 128B, 156A, Slavic CM114.

During their senior year, students must also take Slavic 191TA and 191TB in which they complete a capstone senior thesis.

Students may petition to substitute courses after consulting with the undergraduate adviser.

Each major course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Each major course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Russian Studies BA

Capstone Major

Preparation for the Major

Required: Russian 6 or 20 or equivalent proficiency, one course from 25, 25W, 90A, 90B, or 90BW.

Transfer Students

Transfer applicants to the Russian Studies major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Russian and one Russian civilization course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven courses (44 to 47 units), including (1) three Russian language courses selected from Russian 100A, 100B, 100C, 101A, 101B, 101C, 102A, 102B, 102C, 103A, 103B, 103C, 107A, 107B, 107C, 108 (consult the undergraduate adviser for appropriate placement); (2) five Russian literature and culture courses selected from 119, 120, 121, 129, 130A, 130B, 130C, 140A through 140D; and (3) two additional Russian language and/or literature courses selected from 102A, 102B, 102C, 103A, 103B, 103C, 107A, 107B, 107C, 108, M118, 122, C124C, C124D, C124G, C124N, C124P, C124T, M127, Slavic CM114.

During their senior year, students must also take Slavic 191TA and 191TB in which they complete a capstone senior thesis.

Students may petition to substitute courses after consulting with the undergraduate adviser.

Each major course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Honors Program

The honors program is designed for exceptional departmental majors who wish to complete a research project that culminates in an honors thesis.

Admission

The honors program is open to departmental majors with a 3.5 grade-point average in upper division courses in the major and a 3.0 overall GPA. Students should apply for admission by spring quarter of their junior year. For application forms and further information, contact the departmental undergraduate adviser.

Requirements

The honors program is a three-term sequence (Slavic 198A, 191H, 198B), taken in addition to requirements for the major, that culminates in the submission of a thesis. In most circumstances the courses are taken in the senior year (fall, winter, and spring quarters).

During their senior year, students must also take Slavic 191TA and 191TB in which they complete a capstone senior thesis.

Students may petition to substitute courses after consulting with the undergraduate adviser.

To qualify for graduation with departmental honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average of 3.5 or better in upper division courses required for the major and an overall GPA of 3.0 or better, and (3) complete Slavic 198A, 191H, and 198B.

To qualify for graduation with departmental highest honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average of 3.8 or better in upper division courses required for the major and an overall GPA of 3.5 or better, and (3) complete Slavic 198A, 191H, and 198B with a grade of A in each course.

Honors and highest honors are recorded on the final transcript and diploma after students successfully complete the program.

Central and East European Studies Minor

The Central and East European Studies minor is designed for students who wish to augment their major program of study in the College of Letters and Sciences with exposure to a variety of disciplines pertinent to the study of central and eastern Europe, including language, literature, history, political science, folklore, ethnomusicology, and women's studies.

To enter the minor students must be in good academic standing (2.0 minimum grade-point average) and file a petition with the department counselor in 322B Humanities Building, 310-825-3856.

Required Lower Division Course (5 units): Central and East European Studies 91 or Slavic 90.

Required Upper Division Courses (28 to 31 units): (1) One three-quarter introductory central and east European language sequence to be selected from Czech 101A, 101B, 101C, Hungarian 101A, 101B, 101C, Polish 101A, 101B, 101C, Romanian 101A, 101B, 101C, Serbian/Croatian 101A, 101B, 101C, or Ukrainian 101A, 101B, 101C (students who demonstrate sufficient fluency in one of these languages through departmental testing are exempt from this three-course sequence and can replace it with a minimum of 12 units of language courses from item 3); (2) one course dealing directly with the target culture to be selected from Central and East European Studies 125, 126, Czech 155, Ethnomusicology 161C, Gender Studies 185, History 120A through 120D, Polish 152A, 152B, 152C, Romanian 152, Russian C124G, Serbian/Croatian 154, or Ukrainian 152; (3) 12 units of second-year or higher-level language courses to be selected from Czech 102A, 102B, 102C, 187A through 187M, Hungarian 102A, 102B, 102C, 187A through 187M, Polish 102A, 102B, 102C, 187A through 187M, Romanian 102A, 102B, 102C, 187A through 187M, Serbian/Croatian 102A, 102B, 102C, 187A through 187M, Ukrainian 102A, 102B, 102C, 187A through 187M (187 courses are 2 units each) OR three courses dealing directly with any central and east European culture to be selected from Central and East European Studies 125, 126, Czech 155, Ethnomusicology 161C, Gender Studies 185, History 120A through 120D,

Polish 152A, 152B, 152C, Romanian 152, Russian C124G, Ukrainian 152.

With approval of the undergraduate adviser, other related upper division courses may be applied toward the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Russian Language Minor

To enter the Russian Language minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (9 to 17 units): Russian 6 or 20 or equivalent proficiency, one course from 25, 25W, 90A, 90B, or 90BW.

Required Upper Division Courses (20 to 23 units): Students select one of the following options: (1) Russian 101A, 101B, 101C and two additional Russian language or literature courses; (2) Russian 100A, 100B, 100C and two additional Russian language or literature courses; or (3) five Russian language and literature courses selected from 102A, 102B, 102C, 103A, 103B, 103C, 107A, 107B, 107C, 130A, 130B, 130C, 140A through 140D, with a minimum of three courses in Russian language.

Students may petition to substitute courses after consulting with the undergraduate adviser.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Russian Literature Minor

To enter the Russian Literature minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (9 to 17 units): Russian 3 or 10 or equivalent proficiency, one course from 25, 25W, 30, 31, 32, 90A, 90B, or 90BW.

Required Upper Division Courses (20 units): Five Russian language and literature courses, including at least two from Russian M118, 119, 120, 130A, 130B, 130C, 140A through 140D.

Students may petition to substitute courses after consulting with the undergraduate adviser.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall

grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Russian Studies Minor

To enter the Russian Studies minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (9 to 17 units): Russian 3 or 10 or equivalent proficiency, one course from 25, 25W, 30, 31, 32, 90A, 90B, or 90BW.

Required Upper Division Courses (20 units): Five courses in Russia-related fields, with a minimum of three courses selected from History M127A through 127D, Political Science 128A, 128B, 156A.

Students may petition to substitute courses after consulting with the undergraduate adviser.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Slavic, East European, and Eurasian Languages and Cultures offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Slavic, East European, and Eurasian Languages and Cultures.

Bulgarian

Upper Division Courses

101A-101B-101C. Elementary Bulgarian. (5-5-5) Lecture, five hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Basic courses in Bulgarian language. P/NP or letter grading.

Central and East European Studies

Lower Division Course

91. Culture and Society in Central and Eastern Europe. (5) Lecture, three hours; discussion, one hour. Interdisciplinary course to introduce students to main themes and concepts of central and east European studies, including historical background, nation states and ethnic groups, languages spoken in area, and

culture and politics in communist and post-communist periods: religion, literature, mass media, music, art, and cinema. P/NP or letter grading.

Upper Division Courses

125. Interwar Central European Prose. (4) (Formerly numbered Slavic 125.) Lecture, three hours. Analysis of selected novels, stories, plays, and essays of representative authors of 1920s and 1930s in translation. Special attention to relation between literature and historical and ethnic concerns. P/NP or letter grading.

126. Coldwar Central European Culture. (4) Lecture, three hours. Examination of coldwar Central European culture through prism of prose fiction, essays, and film from 1947 to 1992. Analysis of strategies of Polish, Czech, Hungarian, and East German writers as articulation of tensions, contradictions, and compromises informing communist rule in central and eastern Europe, with focus on culture as node of resistance as well as accommodation to communist system. P/NP or letter grading.

191. Variable Topics Research Seminars: Central and East European Studies. (4) Seminar, three hours. Study and discussion of specialized issues and approaches in history, structure, and theatics of one or more literary traditions of central and eastern Europe. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

Czech

Upper Division Courses

101A-101B-101C. Introduction to Czech Language and Culture. (5-5-5) Lecture, five hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Beginning Czech language courses with strong cultural component. P/NP or letter grading.

102A-102B-102C. Advanced Czech. (4-4-4) Lecture, three hours. Recommended preparation: course 101C (may be waived with consent of instructor). Course 102A is recommended preparation for 102B, which is recommended preparation for 102C. Each course may be waived with consent of instructor. P/NP or letter grading.

103. Intensive Elementary Czech. (12) Lecture, 25 hours. Intensive basic course in Czech equivalent to courses 101A, 101B, 101C. Offered in summer only. P/NP or letter grading.

104. Intensive Advanced Czech. (12) Lecture, 25 hours. Intensive advanced course in Czech equivalent to courses 102A, 102B, 102C. Offered in summer only. P/NP or letter grading.

155. Survey of Czech Literature from Middle Ages to Present. (4) Lecture, three hours. Lectures and readings in English. P/NP or letter grading.

187A. Advanced Tutorial Instruction in Czech. (2) Tutorial, one hour; laboratory, one hour. Enforced requisite: course 102C or Czech placement test. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

187B-187M. Advanced Tutorial Instruction in Czech. (2 each) Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Czech placement test. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

Hungarian

Upper Division Courses

101A-101B-101C. Elementary Hungarian. (4-4-4) Lecture, three to four hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Introduction to grammar; instruction in speaking, listening, reading, and writing. P/NP or letter grading.

102A-102B-102C. Advanced Hungarian. (4-4-4) Lecture, three hours. Recommended preparation: course 101C (may be waived with consent of instructor). Course 102A is recommended preparation for 102B, which is recommended preparation for 102C. Each course may be waived with consent of instructor. P/NP or letter grading.

121. Survey of Hungarian Literature in Translation. (4) Lecture, three hours. Designed for students in general and comparative literature, as well as students interested in Finno-Ugric studies. Survey of main trends and contacts with other literatures. P/NP or letter grading.

187A. Advanced Tutorial Instruction in Hungarian. (2) Tutorial, one hour; laboratory, one hour. Preparation: two years of Hungarian and/or Hungarian placement test. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

187B-187M. Advanced Tutorial Instruction in Hungarian. (2 each) Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Hungarian placement test. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

197. Individual Studies in Hungarian. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Lithuanian

Upper Division Courses

101A-101B-101C. Elementary Lithuanian. (4-4-4) Lecture, five hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Basic courses in Lithuanian language. P/NP or letter grading.

102A-102B-102C. Advanced Lithuanian. (4-4-4) Lecture, three hours. Recommended preparation: course 101C (may be waived with consent of instructor). Course 102A is recommended preparation for 102B, which is recommended preparation for 102C. Each course may be waived with consent of instructor. Review and reinforcement of grammar introduced in first year of study, expansion of vocabulary, further training in written and oral expression. P/NP or letter grading.

Polish

Upper Division Courses

101A-101B-101C. Elementary Polish. (5-5-5) Lecture, five hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Basic courses in Polish language. P/NP or letter grading.

102A-102B-102C. Advanced Polish. (4-4-4) Lecture, three hours. Recommended preparation: course 101C (may be waived with consent of instructor). Course 102A is recommended preparation for 102B, which is recommended preparation for 102C. Each course may be waived with consent of instructor. P/NP or letter grading.

152A-152B-152C. Survey of Polish Literature. (4-4-4) Lecture, three hours. Lectures and readings in English. Letter grading. **152A.** From the Middle Ages to Neoclassicism; **152B.** Reimagining a Nation. Readings in 19th-century Polish literature and culture. **152C.** Dreaming, Mocking, and Writing "as if." Readings in modern Polish literature and culture.

C180. Variable Topics in Polish Literature. (4) Seminar, three hours. Reading knowledge of Polish recommended but not required. Topics include major writers, genres, or periods. May be repeated for credit with topic change. Concurrently scheduled with course C280. P/NP or letter grading.

187A. Advanced Tutorial Instruction in Polish. (2) Tutorial, one hour; laboratory, one hour. Preparation: two years of Polish and/or Polish placement test. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

187B-187M. Advanced Tutorial Instruction in Polish. (2 each) Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Polish placement test. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

Graduate Course

C280. Variable Topics in Polish Literature. (4) Seminar, three hours. Reading knowledge of Polish recommended but not required. Topics include major writers, genres, or periods. May be repeated for credit with topic change. Concurrently scheduled with course C180. S/U or letter grading.

Romanian

Lower Division Course

90. Introduction to Romanian Civilization. (4) Lecture, three hours. Introductory survey of social and cultural institutions of Romanian people and their historical background. P/NP or letter grading.

Upper Division Courses

101A-101B-101C. Elementary Romanian. (5-5-5) Lecture, five hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Basic courses in Romanian language. P/NP or letter grading.

102A-102B-102C. Advanced Romanian. (5-5-5) Lecture, five hours. Recommended preparation: course 101C (may be waived with consent of instructor). Course 102A is recommended preparation for 102B, which is recommended preparation for 102C. Each course may be waived with consent of instructor. Differences between oral and written discourse, expansion of students' general and academic vocabulary, and increase of range of grammatical structures for use in speaking and writing. Cultural information to be included in readings. P/NP or letter grading.

103. Intensive Elementary Romanian. (12) Lecture, 25 hours. Intensive basic course in Romanian equivalent to courses 101A, 101B, 101C. P/NP or letter grading.

152. Survey of Romanian Literature. (4) Lecture, three hours. Lectures and readings in English. Survey of Romanian literature from Middle Ages to present. P/NP or letter grading.

187A. Advanced Tutorial Instruction in Romanian. (2) Tutorial, one hour; laboratory, one hour. Enforced requisite: course 102C or Romanian placement test. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

187B-187M. Advanced Tutorial Instruction in Romanian. (2 each) Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Romanian placement test. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

Russian

Lower Division Courses

1. Elementary Russian. (5) Recitation, five hours; laboratory, one hour. P/NP or letter grading.

2. Elementary Russian. (5) Lecture, five hours; laboratory, one hour. Requisite: course 1 or Russian placement test. P/NP or letter grading.

3. Elementary Russian. (5) Lecture, five hours; laboratory, one hour. Requisite: course 2 or Russian placement test. P/NP or letter grading.

4. Intermediate Russian. (5) Lecture, five hours; laboratory, one hour. Requisite: course 3 or Russian placement test. P/NP or letter grading.

5. Intermediate Russian. (5) Lecture, five hours; laboratory, one hour. Requisite: course 4 or Russian placement test. P/NP or letter grading.

6. Intermediate Russian. (5) Lecture, five hours; laboratory, one hour. Requisite: course 5 or Russian placement test. P/NP or letter grading.

10. Intensive Elementary Russian. (12) Lecture, 19 hours. Intensive basic course in Russian language equivalent to courses 1, 2, 3. P/NP or letter grading.

15A-15B. Accelerated Elementary Russian. (8-7) Recitation, five hours; laboratory, two hours. Material of first-year Russian course to be covered in two terms, with extensive use of language laboratory and the Russian Room. P/NP or letter grading.

20. Intensive Intermediate Russian. (12) Lecture, 19 hours. Intermediate instruction in reading, writing, and speaking Russian equivalent to courses 4, 5, 6. P/NP or letter grading.

25. Great Russian Novel. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 25W. Designed for nonmajors. Knowledge of Russian not required. Study of major works by great 19th-century Russian novelists. P/NP or letter grading.

25W. Great Russian Novel. (5) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 25. Designed for nonmajors. Knowledge of Russian not required. Study of major works by great 19th-century Russian novelists. Satisfies Writing II requirement. Letter grading.

30. Russian Literature and World Cinema. (4) Lecture, three hours; discussion, one hour. Examination of Russian literary masterpieces and their screen adaptations in various national cinematic traditions, with focus on problems of perception and misperception arising when literature is translated into cinema, and one national culture is viewed through the eyes of another. P/NP or letter grading.

31. Introduction to Russian Film. (5) Lecture, three hours; discussion, one hour; film screening, two hours. Key works, names, events, and concepts of Russian cinematic tradition. Development of skills in analyzing and interpreting films and acquisition of critical terminology of film studies. How film form and aesthetics are conditioned by technology, ideology, economics, theory, tradition, and culture. How cinema in Russia has created and contested narratives of his-

tory and identity, how cinema has served interests of state, and how it has defied them. P/NP or letter grading.

32. Russia and Asia: Cultural Dialogues. (5) Lecture, three hours; discussion, one hour. Since end of Soviet Union, cultural and political flux within non-Christian lands neighboring Russia has increased dramatically. Given radical rejection of Russian heritage in most former Soviet territories, key distinctions in humanities have become unclear, including fundamental confusion between limits of Slavic and Near Eastern studies. Examination of relation of Russia's culture to its borders: Caucasus, Central Asia, China, and Japan. P/NP or letter grading.

90A. Introduction to Russian Civilization. (5) Lecture, three hours; discussion, one hour. Introduction to Russian culture and society from earliest times to 1917. P/NP or letter grading.

90B. Russian Civilization in 20th Century. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 90BW. Survey of literature, theater, cinema, television, press, music, and arts. Emphasis on contemporary period, with constant reference to Russian and early Soviet antecedents. P/NP or letter grading.

90BW. Russian Civilization in 20th Century. (5) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 90B. Survey of literature, theater, cinema, television, press, music, and arts. Emphasis on contemporary period, with constant reference to Russian and early Soviet antecedents. Weekly discussions focus on varied approaches to writing addressing class topics. Five short papers required. Satisfies Writing II requirement. Letter grading.

Upper Division Courses

100A-100B-100C. Literacy in Russian. (4-4-4) Lecture, three hours. Course 100A or Russian placement test is enforced requisite to 100B; course 100B or Russian placement test is enforced requisite to 100C. For students who speak Russian but have difficulty reading and writing. Focus on improving reading and writing skills, increasing vocabulary, and developing speaking skills required for academic discourse. P/NP or letter grading.

101A-101B-101C. Third-Year Russian. (5-5-5) Lecture, three hours; discussion, two hours. Enforced requisite: course 6 or Russian placement test. Course 101A or Russian placement test is enforced requisite to 101B; course 101B or Russian placement test is enforced requisite to 101C. Advanced grammar, reading, and conversation, with strong multimedia component. P/NP or letter grading.

102A-102B-102C. Topics in Advanced/Superior Russian. (4-4-4) Lecture, three hours. Enforced requisite: course 101C or Russian placement test. Course 102A or Russian placement test is enforced requisite to 102B; course 102B or Russian placement test is enforced requisite to 102C. Discussion and composition, with emphasis on vocabulary development and review of selected grammar topics. Readings in fiction and nonfiction, films, and videos, and use of Internet. Each course may be taken independently and may be repeated for credit. P/NP or letter grading.

103A-103B-103C. Russian for Native and Near-Native Speakers. (4-4-4) Lecture, three hours. Course 103A is not requisite to 103B, which is not requisite to 103C. Improvement of oral and written language skills, emphasizing correct and diversified use of language and addressing individual grammatical difficulties. May be repeated for credit with topic and/or instructor change. P/NP or letter grading. **103A. Russian National Identity.** Readings in literature, philosophy, criticism, film. **103B. Literature and Film.** Film adaptations of Russian literature. Readings and screenings. **103C. Special Topics.**

107A-107B-107C. Russian for Social and Cultural Studies. (4-4-4) Lecture, three hours. Recommended preparation: third-year Russian. Lectures and readings in Russian. Exploration of texts and media in social sciences and culture, with emphasis on press, television, and Internet. Each course may be taken independently and may be repeated for credit. P/NP or letter grading.

108. Russian for Business: Language and Culture. (4) Lecture, three hours. Discussion of economics and business in Russia, language of advertising, business and official correspondence. P/NP or letter grading.

110. Russian Flagship Program Abroad: Intensive Advanced Russian. (12) Lecture, 19 hours. Enforced requisites: courses 101A, 101B, 101C or equivalent coursework as determined by department. Taught in Russian. Designed for students with high proficiency in Russian. Intensive advanced seven-week course in Russian language covering reading, writing, speaking, listening, and grammar. Lectures on Russian history also included. Opportunity to interact with Russian speakers outside of class and serve as volunteers. Part of Russian Flagship Program Abroad. May not be repeated for credit. Offered in summer only. Letter grading.

111A-111B-111C. Russian Flagship Program Abroad: Superior Russian. (5-5-5) Lecture, three hours. Enforced requisite: course 110 or equivalent coursework as determined by department. Course 111A is enforced requisite to 111B, which is enforced requisite to 111C. Taught in Russian. Designed for students with advanced proficiency. Development of skills in Russian phonetics, conversation, and grammar. Acquisition of advanced syntactical structures and expansion of lexical repertoire. Emphasis on formal interpersonal and presentational modes. Letter grading.

112A-112B-112C. Russian Flagship Program Abroad: Russian Literature and Culture. (4-4-4) Lecture, three hours. Enforced requisite: course 110 or equivalent coursework as determined by department. Course 112A is enforced requisite to 112B, which is enforced requisite to 112C. Taught in Russian. Critical reading, analysis, and discussion of Russian literature, with exposure to Russian cultural and intellectual norms. Readings and essays, with emphasis on formal and academic writing. Letter grading.

113A-113B-113C. Russian Flagship Program Abroad: Professional and Academic Russian and Experiential Learning. (5-5-5) Lecture, three hours. Enforced requisite: course 110 or equivalent coursework as determined by department. Course 113A is enforced requisite to 113B, which is enforced requisite to 113C. Taught in Russian. Use of discourse practices (speaking, listening, reading, and writing) to participate effectively in discussions of professional topics and situations outside of course. Opportunity to communicate in Russian in authentic contexts by participating in courses with local students, providing service to community, or interning in one business. Letter grading.

M118. History of Russia, Origins to Rise of Muscovy. (4) (Same as History M127A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Kievan Russia and its culture, Appanage principalities and towns; Mongol invasion; unification of Russian state by Muscovy, Autocracy and its Servitors; serfdom. P/NP or letter grading.

119. Golden Age and Great Realists. (4) Lecture, three hours. Designed for juniors/seniors. Russian majors are advised to take this course in their sophomore year. Lectures and readings in English. Survey of 19th-century Russian literature (Pushkin, Gogol, Tolstoy, Dostoevsky, Chekhov) in its cultural, political, and social contexts. P/NP or letter grading.

120. Literature and Revolution. (4) Lecture, three hours. Designed for juniors/seniors. Russian majors are advised to take this course in their sophomore year. Lectures and readings in English. Major works of the 20th century (Belyi, Pasternak, Bulgakov, Solzhenitsyn, and others) from prerevolutionary avant-garde to the present. P/NP or letter grading.

121. Russian Pop Culture. (5) Lecture, three hours. Designed for juniors/seniors. Lectures and readings in English. Overview of Russian popular culture today, with examination of status of Russia's classic(al) traditions for artists and audiences working in modern Russia. Death of one tradition and attempts at creation of another lead away from written word into neighboring forms of expression, primarily visual. Consideration of battles of modern storytelling with cinema, television, animation, music videos, and Internet. Letter grading.

122. Siberia. (5) Lecture, three hours. Introductory survey in which current cultural and ecological issues are situated in their geographical and historical background, including analysis of Siberian human geography before first contact with European colonizers and development of modes of interaction among different cultural groups. Reading in English of selection of literary works by well-known 20th-century Siberian writers whose texts serve as locus for closer examination of Siberian regional literary culture and ecological network within which it exists. Letter grading.

C124C. Studies in Russian Literature: Chekhov. (4) (Formerly numbered 124C.) Lecture, three hours. Lectures and readings in English. Survey of short stories, novellas, and major plays (*The Seagull*, *Uncle Vanya*, *Three Sisters*, *The Cherry Orchard*), with discussion of Russian and American productions. Concurrently scheduled with course C224C. P/NP or letter grading.

C124D. Studies in Russian Literature: Dostoevsky. (4) (Formerly numbered 124D.) Lecture, three hours. Lectures and readings in English. In-depth reading of major fictional works such as *Crime and Punishment*, *Notes from the Underground*, and *The Brothers Karamazov*. Concurrently scheduled with course C224D. P/NP or letter grading.

C124G. Studies in Russian Literature: Gogol. (4) (Formerly numbered 124G.) Lecture, three hours. Lectures and readings in English. Short stories, novel *Dead Souls*, and selected plays. Concurrently scheduled with course C224G. P/NP or letter grading.

C124N. Studies in Russian Literature: Nabokov. (4) Lecture, three hours. Lectures and readings in English. Russian novelist (*The Gift*), American novelist (*Lolita*), autobiographer (*Speak Memory*), and critic. Concurrently scheduled with course C277. P/NP or letter grading.

C124P. Studies in Russian Literature: Pushkin. (4) (Formerly numbered 124P) Lecture, three hours. Lectures and readings in English. Major works in all genres, including lyric poetry, narrative poems, plays, prose fiction, and selected letters. Concurrently scheduled with course C224P. P/NP or letter grading.

C124T. Studies in Russian Literature: Tolstoy. (4) (Formerly numbered 124T) Lecture, three hours. Lectures and readings in English. Early and late stories and novellas, excerpts from the diaries and one major novel such as *War and Peace* or *Anna Karenina*. Concurrently scheduled with course C224T. P/NP or letter grading.

125. Russian Novel in Its European Setting. (4) Lecture, three hours. Designed for juniors/seniors. Lectures and readings in English. Emphasis on 19th- and 20th-century novelists.

126. Russian Theater: Plays and Performance. (4) Lecture, three hours. Lectures and readings in English. Major Russian plays and living tradition of performance from classical to avant-garde. P/NP or letter grading.

M127. Women in Russian Literature. (4) (Same as Gender Studies M127.) Lecture, three hours. Designed for juniors/seniors. Lectures and readings in English. Introduction to alternative tradition of women's writings in Russia and Soviet Union. Emphasis on images of women expressed in this tradition as compared with those found in works of contemporary male writers. P/NP or letter grading.

128. Russian Science Fiction. (4) Lecture, three hours. Readings in English. Introduction to Russian science fiction in the 20th century. Emphasis on func-

tion of science fiction in development of Russian culture before and after the October Revolution. P/NP or letter grading.

129. Animation and Music Video. (5) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Lectures and readings in English. Humanities have recently passed through so-called visual turn: traditional emphases on language(s) in field have been reconsidered in light of society's increasingly visual workings. New attitude toward our own changing culture (i.e., toward its future) has equal value if applied retrospectively to multiple cultures of one erstwhile empire. In territory where many tongues or traditions needed to be ironed out, visual often plays special role in social cohesion. Because of past politics and today's profit-driven events, small fickle forms of visual narrative reflect change and social chance much better than ponderous grandeur of feature-length cinema. Letter grading.

130A-130B-130C. Russian Poetry. (4-4-4) Lecture, three hours. Preparation: third-year Russian recommended. Lectures and readings in Russian. May be repeated for credit with topic and/or instructor change. **130A.** Introduction to Analysis of Russian Poetry. Role of biography, cultural subtexts, rhetoric, and form in interpreting poetic texts. **130B.** Poetry of Russian Neoclassicism, Romanticism, and Realism. Major works of late 18th and 19th centuries in their historical and cultural contexts. **130C.** Russian Poetry in the 20th Century. Major poetic schools from early modernism (symbolism, futurism, acmeism) to contemporary avant-garde.

131. History of Russian Cinema. (4) Lecture, three hours. Overview of most popular art form in world's largest nation to show how cinema struggled under incipient capitalism in Russia, how moviemaking on other side of world departed from path marked out by Hollywood and London, how films operate as form of nationwide persuasion, relationship between word and image in those acts of persuasion, how even frightening dogma cannot escape importance of audience desire(s), different forms of social existence as refuge from both capitalism and communism, and what values of world's biggest country are. Role of language in self-definition. Is selfhood verbal or visual matter? P/NP or letter grading.

M132. Comparative Media Studies. (4) (Same as Comparative Literature M132.) Lecture, three hours. History, form, and function of various media. Grounded in political and commercial experience of Eastern Europe, comparative investigation of media technologies, today's burgeoning markets, and yesterday's tragic abuses. Development of media form(s) and content across various times, places, and cultures, with special attention to Slavic phenomena. Letter grading.

140A-140D. Russian Prose Fiction. (4 each) Lecture, three hours. Preparation: third-year Russian recommended. Lectures and readings in Russian. May be repeated for credit with topic and/or instructor change. P/NP or letter grading. **140A.** Introduction to Analysis of Russian Narrative Prose. Close analysis of genre, narrative, and rhetorical strategies and interplay of literature, history, and culture. **140B.** Russian Romantic Prose. Karamzin, Pushkin, Gogol, and others. **140C.** Great Realists. Dostoevsky, Tolstoy, and others. **140D.** 20th-Century Modernism.

150. Russian Folk Literature. (4) Lecture, four hours. Lectures and readings in Russian. P/NP or letter grading.

C170. Russian Folklore. (3 to 5) Lecture, three hours. Lectures and readings in English. General introduction to Russian folklore, including survey of genres and related folkloric phenomena. Concurrently scheduled with course C240. P/NP or letter grading.

187A. Advanced Tutorial Instruction in Russian. (2) Tutorial, one hour; laboratory, one hour. Enforced requisite: course 102C or Russian placement test. Tutorial and guided independent study of advanced Russian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

187B-187M. Advanced Tutorial Instruction in Russian. (2 each) Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Russian placement test. Tutorial and guided independent study of advanced Russian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

191. Variable Topics Research Seminars: Russian Literature. (4) Seminar, three hours. Requisite: course 6. Reading and discussion of selected authors; culminating seminar paper required. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

Graduate Courses

201A-201B-201C. Russian: Vocabulary, Pronunciation, Style. (4-4-4) Lecture, three hours. Requisite: course 102C. Conducted in Russian. Reading and analysis of texts with focus on vocabulary, pronunciation, and style, respectively, in three consecutive terms. S/U or letter grading.

204. Introduction to History of Russian Literary Language. (4) Lecture, three hours. Requisites: course 220A, Slavic 201. Required for MA (linguistics) and PhD (literature). Evolution of literary Russian from the 11th to 20th centuries. Analysis of texts. S/U or letter grading.

211A. Literature of Medieval Rus'. (4) Lecture, three hours. Required for MA (literature). Survey of the literature from its beginning through the Kievan and Muscovite periods up to end of the 17th century.

211B. 18th-Century Russian Literature. (4) Lecture, three hours. Required for MA (literature). Lectures and readings in major and secondary writers. Analysis of related literary works.

212A-212B. 19th-Century Russian Literature. (4-4) Lecture, three hours. S/U or letter grading:

212A. Golden Age. Lecture, three hours. Required for MA (literature). Survey of major literary movements and schools following demise of neoclassicism: sentimental school, early and late Romanticism, and beginnings of natural school. Discussion of representative works of Karamzin, Zhukovsky, Batyushkov, Pushkin, Baratynsky, Lermontov, Gogol. S/U or letter grading.

212B. Age of Realism. Lecture, three hours. Required for MA (literature). Survey devoted to emergence of critical and psychological realism, beginning with early works of Turgenev, Goncharov, and Dostoevsky, moving to major novels of Tolstoy, Dostoevsky, and Saltykov-Shchedrin, and concluding with works of the presymbolist period, especially short stories of Chekhov. S/U or letter grading.

213A. 20th-Century Russian Literature, 1890 to 1929. (4) Lecture, three hours. Required for MA (literature). Lectures and readings in major literary trends of modernist period, such as decadence, symbolism, futurism, acmeism, and ornamental school. Analysis of representative works by Blok, Belyj, Khlebnikov, Pasternak, Platonov, and others. S/U or letter grading.

213B. 20th-Century Russian Literature, 1930 to 1989. (4) Lecture, three hours. Required for MA (literature). Lectures and readings in major literary trends, including socialist realism, *The Thaw*, and second- and third-wave emigration. S/U or letter grading.

214. Contemporary Russian Literature. (4) Lecture, three hours. Requisites: courses 213A, 213B. Required for PhD (literature). Close readings in selected texts of poetry and prose, metropolitan and emigre, of recent vintage. May be repeated for credit. Letter grading.

220A-220B. Structure of Modern Russian. (4-4) Lecture, three hours. S/U or letter grading. **220A.** Required for MA (literature, linguistics). Survey of basic concepts and categories (graphics, phonetics, phonology, morphology, syntax, discourse). **220B.** Requisite: course 220A. Required for MA (linguistics). Selected problems and approaches in structure of Russian.

C224C. Studies in Russian Literature: Chekhov. (4) Lecture, three hours. Lectures and readings in English. Survey of short stories, novellas, and major plays (*The Seagull*, *Uncle Vanya*, *Three Sisters*, *The Cherry Orchard*), with discussion of Russian and American productions. Concurrently scheduled with course C124C. S/U or letter grading.

C224D. Studies in Russian Literature: Dostoevsky. (4) Lecture, three hours. Lectures and readings in English. In-depth reading of major fictional works such as *Crime and Punishment*, *Notes from the Underground*, and *The Brothers Karamazov*. Concurrently scheduled with course C124D. S/U or letter grading.

C224G. Studies in Russian Literature: Gogol. (4) Lecture, three hours. Lectures and readings in English. Short stories, novel *Dead Souls*, and selected plays. Concurrently scheduled with course C124G. S/U or letter grading.

C224P. Studies in Russian Literature: Pushkin. (4) Lecture, three hours. Lectures and readings in English. Major works in all genres, including lyric poetry, narrative poems, plays, prose fiction, and selected letters. Concurrently scheduled with course C124P. S/U or letter grading.

C224T. Studies in Russian Literature: Tolstoy. (4) Lecture, three hours. Lectures and readings in English. Early and late stories and novellas, excerpts from the diaries and one major novel such as *War and Peace* or *Anna Karenina*. Concurrently scheduled with course C124T. S/U or letter grading.

C240. Russian Folklore. (3 to 5) Lecture, three hours. Lectures and readings in English. General introduction to Russian folklore, including survey of genres and related folkloric phenomena. Concurrently scheduled with course C170. S/U or letter grading.

264. History of the Russian Literary Language. (4) Lecture, three hours. Requisites: course 204, Slavic 201. Evolution of literary Russian from the 11th to 20th century. Lectures and analysis of texts.

270. Russian Poetics. (4) Lecture, three hours. Introduction to technical study of Russian poetics and versification, with attention to metrics, stanza forms, rhyme, and development of various verse types from the 18th into the 20th century.

C277. Studies in Russian Literature: Nabokov. (4) Lecture, three hours. Lectures and readings in English. Russian novelist (*The Gift*), American novelist (*Lolita*), autobiographer (*Speak Memory*), and critic. Concurrently scheduled with course C124N. S/U or letter grading.

292. Seminar: 19th-Century Russian Literature. (4) Seminar, three hours. Requisites: courses 212A, 212B. Selected authors and works from 19th-century poetry, prose, and drama. May be repeated for credit with consent of instructor and graduate adviser.

293. Seminar: 20th-Century Russian Literature. (4) Seminar, three hours. Requisite: course 213A. Selected authors and works from 20th-century poetry, prose, and drama. May be repeated for credit with consent of instructor and graduate adviser. S/U or letter grading.

294. Seminar: Russian Literary Criticism. (4) Seminar, three hours. Requisites: courses 211B, 212A, 212B, 213A. Detailed study of specific school of literary criticism, single literary critic, or period in Russian literary history as reflected in literary criticism. Simultaneous or similar phenomena in literary criticism in West. May be repeated for credit with consent of instructor and graduate adviser. S/U or letter grading.

296. Seminar: History of Russian Culture. (4) Discussion, three hours. Reading and discussion on selected topics in history of Russian culture.

Serbian/Croatian

Upper Division Courses

101A-101B-101C. Elementary Serbian/Croatian. (5-5-5) Lecture, five hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Basic courses in Serbian/Croatian. P/NP or letter grading.

102A-102B-102C. Advanced Serbian/Croatian. (4-4-4) Lecture, three hours. Recommended preparation: course 101C (may be waived with consent of instructor). Course 102A is recommended preparation for 102B, which is recommended preparation for 102C. Each course may be waived with consent of instructor. P/NP or letter grading.

103. Intensive Elementary Bosnian, Serbian, Croatian. (12) Lecture, 25 hours. Intensive basic course in Bosnian, Serbian, Croatian equivalent to courses 101A, 101B, 101C. P/NP or letter grading.

154. South Slavic Literature. (4) Lecture, three hours. Lectures and readings in English. Survey of South Slavic literature from Middle Ages to the present. P/NP or letter grading.

187A. Advanced Tutorial Instruction in Serbian/Croatian. (2) Tutorial, one hour; laboratory, one hour. Enforced requisite: course 102C or Serbian/Croatian placement test. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

187B-187M. Advanced Tutorial Instruction in Serbian/Croatian. (2 each) Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Serbian/Croatian placement test. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

Slavic

Lower Division Courses

5. Introduction to Eurasia. (5) Lecture, three hours; discussion, one hour (when scheduled). Interdisciplinary survey of Eurasia. Introduction to history, culture, and geography of diverse area that is often vaguely understood as not quite Europe and not quite Asia, yet both at the same time home to several of history's most powerful overland empires, as well as its most notorious figures: Genghis Khan, Alexander the Great, Ivan the Terrible, and others. Exploration of contemporary issues in modern states of Russia, China, Mongolia, Kazakhstan, Uzbekistan, Tajikistan, Iran, and Azerbaijan. P/NP or letter grading.

M20. Visible Language: Study of Writing. (5) (Same as Asian M20, Indo-European Studies M20, Near Eastern Languages M20, and Southeast Asian M20.) Lecture, three hours; discussion, one hour. Consideration of concrete means of language representation in writing systems. Earliest representations of language known are those of Near East dating to end of 4th millennium B.C. While literate civilizations of Egypt, Indus Valley, China, and Mesoamerica left little evidence of corresponding earliest developments, their antiquity and, in case of China and Mesoamerica, their evident isolation mark these centers as loci of independent developments in writing. Basic characteristics of early scripts, assessment of modern alphabetic writing systems, and presentation of conceptual basis of semiotic language representation. Origins and development of early non-Western writing systems. How Greco-Roman alphabet arose in 1st millennium B.C. and how it compares to other modern writing systems. P/NP or letter grading.

M40. Christianities East and West. (5) (Same as Religion M40.) Lecture, three hours; discussion, one hour. Survey of three major historical branches of

Christianity—Eastern and Oriental Orthodoxy, Roman Catholicism, and Protestantism, contrasting how history, dogma, culture, and community structures develop in those three traditions. P/NP or letter grading.

87. Languages of Los Angeles. (5) Lecture, three hours; discussion, one hour. Comprehensive interdisciplinary investigation of Los Angeles as multilingual and multicultural metropolis. Review and analysis of features of major linguistic communities in Los Angeles area (Armenian, Cantonese, Japanese, Korean, Mandarin, Russian, Spanish, and others), with particular attention to social and cultural factors that play role in maintenance of language used in any given ethnic group. Familiarization with discipline and methodology of urban linguistics as part of urban geographical studies and as tool for investigating growing linguistic and cultural diversity of America's large cities. P/NP or letter grading.

90. Introduction to Slavic Civilization. (5) Lecture, three hours; discussion, one hour. Introductory survey of social and cultural institutions of Slavic peoples and their historical background. P/NP or letter grading.

Upper Division Courses

CM114. Teaching and Learning of Heritage Languages. (4) (Same as Asian CM124 and Near Eastern Languages CM114.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and instructor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLs) regarding teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM214. P/NP or letter grading.

191H. Senior Honors Thesis in Slavic Languages and Literatures. (4) Seminar, three hours. Limited to senior departmental majors. Planning and development of senior honors capstone thesis. Introduction to research methods and presentation skills; use of student target language for research required. Verbal and written presentations required. P/NP or letter grading.

191TA. Senior Capstone Thesis in Slavic Languages and Literatures. (2) (Formerly numbered 191T) Seminar, three hours. Limited to senior departmental majors. Planning and completion of senior capstone thesis. Introduction to research methods and presentation skills; use of student target language for research required. Verbal and written presentations required. Letter grading.

191TB. Senior Capstone Thesis in Slavic Languages and Literatures. (2) Seminar, three hours. Enforced requisite: course 191TA. Limited to senior departmental majors. Editing and completion of senior capstone thesis. Use of student target language for research required. Letter grading.

197. Individual Studies in Slavic Languages and Literatures. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198A-198B. Honors Research in Slavic Languages and Literatures. (4-4) Tutorial, three hours. Course 198A is requisite to 198B. Limited to senior departmental honors program students. Development and completion of honors thesis under direct supervision of faculty member. Individual contract required. Letter grading.

199. Directed Research in Slavic Languages and Literatures. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Literary Proseminar. (4) Seminar, three hours. Required for MA (literature). Designed to prepare incoming graduate students for scholarly work by introducing them to resources (departmental, intramural, and extramural), methodologies, and techniques for analysis of literary materials and cultural studies. Letter grading.

200B. Proseminar: Slavic Linguistics. (4) Seminar, three hours. Required for MA (linguistics). Introduction to synchronic and diachronic study of Slavic languages and to research tools and methodologies associated with Slavic linguistics. S/U or letter grading.

201. Introduction to Old Church Slavic. (4) Lecture, three hours. Required for MA (linguistics, literature). Introduction to phonology and grammar; readings.

202. Introduction to Comparative Slavic Linguistics. (4) Lecture, three hours. Requisite: course 201. Required for MA (linguistics). Introduction to comparative phonology and grammar of Slavic languages.

CM214. Teaching and Learning of Heritage Languages. (4) (Same as Asian CM224 and Near Eastern Languages CM214.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and instructor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLLs) regarding teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM114. S/U or letter grading.

M229. Introduction to Slavic Bibliography. (2) (Same as Information Studies M229C.) Introduction to Slavic and East European bibliography for the humanities and social sciences. Emphasis to be determined by requirements and background of enrolled students. Topics include relevant library terminology and concepts; survey of languages and transliteration systems; acquisition of Slavic and East European library materials; Slavic and East European scholarship in the West; relevant reference sources, archival resources, and research methods; survey of online databases; compilation of bibliographies. S/U grading.

230A-230B-230C. Topics in Comparative Slavic Literature. (4-4-4) Lecture, three hours. Recommended preparation: upper division courses in Czech, Polish, Russian, and Yugoslav literatures. Two terms required for PhD (literature). May be repeated for credit with consent of instructor and graduate adviser. **230A.** Middle Ages through Baroque; **230B.** Classicism to Romanticism; **230C.** Realism to Modernism.

251. Introduction to Baltic Linguistics. (4) Lecture, three hours. Requisite: course 202. Introduction to Baltic linguistics, with special attention to relationship between Baltic and Slavic.

281. Seminar: Slavic Linguistics. (4) Seminar, three hours. Selected topics in comparative and historical Slavic linguistics. May be repeated for credit with consent of instructor and graduate adviser.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guid-

ance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Slavic Languages at College Level. (4) Seminar, 90 minutes; discussion, 90 minutes. Designed for graduate students. Theory and practice of language teaching. Discussion of contemporary language teaching methodology as well as problems of pedagogical grammar. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U grading.

597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for PhD Dissertation. (2 to 12) Tutorial, to be arranged. S/U grading.

Ukrainian

Upper Division Courses

101A-101B-101C. Elementary Ukrainian. (5-5-5) Lecture, five hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Basic courses in Ukrainian language. P/NP or letter grading.

102A-102B-102C. Advanced Ukrainian. (4-4-4) Lecture, three hours. Recommended preparation: course 101C (may be waived with consent of instructor). Course 102A is recommended preparation for 102B, which is recommended preparation for 102C. Each course may be waived with consent of instructor. Development of advanced listening, speaking, reading, and writing skills. P/NP or letter grading.

152. Ukrainian Literature. (4) Lecture, three hours. Lectures and readings in English. Survey of writers, literary trends, and issues in Ukrainian literature from the late 18th century to the present. Special attention to works of such major figures as Kotlyarevsky, Shevchenko, Franko, Ukrainka, and Tychyna.

C180. Variable Topics in Ukrainian Literature. (4) Seminar, three hours. Reading knowledge of Ukrainian recommended but not required. Topics include major writers, genres, or periods. May be repeated for credit with topic change. Concurrently scheduled with course C280. P/NP or letter grading.

187A. Advanced Tutorial Instruction in Ukrainian. (2) Tutorial, one hour; laboratory, one hour. Preparation: two years of Ukrainian and/or Ukrainian placement test. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

187B-187M. Advanced Tutorial Instruction in Ukrainian. (2 each) Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Ukrainian placement test. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

Graduate Course

C280. Variable Topics in Ukrainian Literature. (4) Seminar, three hours. Reading knowledge of Ukrainian recommended but not required. Topics include major writers, genres, or periods. May be repeated for credit with topic change. Concurrently scheduled with course C180. S/U or letter grading.

SOCIAL SCIENCE

*Interdepartmental Program
College of Letters and Science*

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David L. Rigby, PhD (*Geography, Statistics*)
Abel Valenzuela, Jr., PhD (*Chicana and Chicano Studies, Urban Planning*)
Thomas S. Weisner, PhD (*Anthropology*)
Juliet A. Williams, PhD (*Gender Studies*)

Scope and Objectives

The UCLA Division of Social Sciences is home to leading researchers working to advance understanding of human societies around the globe. With over 250 faculty members housed in more than 15 departments and programs, the division encourages students to explore diverse perspectives and approaches to the study of social life.

The Social Science Interdepartmental Program offers the Master of Social Science (MSS) self-supporting degree. Drawing from current theories, methods, and professional practices from across the social sciences, students develop proficiency with quantitative and qualitative research methods used to address complex social problems. The intensive one-year curriculum emphasizes creative problem-solving and collaborative research practices. Graduates will be prepared for academic and professional careers.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Social Science Program offers a self-supporting Master of Social Science (MSS) degree.

SOCIAL THOUGHT

*Interdisciplinary Minor
College of Letters and Science*

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Jeffrey Prager, PhD, *Chair*

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Jeffrey Prager, PhD (*Sociology*)
Melvin L. Rogers, PhD (*African American Studies, Political Science*)
Peter J. Stacey, PhD (*History*)
Brian D. Walker, PhD (*Political Science*)
Matthew Norton Wise, PhD (*History, Institute for Society and Genetics*)

Scope and Objectives

The Social Thought minor provides an opportunity for students to take a series of courses that focus on modern social and intellectual thought from the 17th through the 20th century. The minor builds on lower division introductory exposure to the history of modern ideas as embodied in a number of key texts by significant thinkers such as Descartes, Hobbes, Locke, Smith, Rousseau, Wollstonecraft, Mill, Marx, Weber, Darwin, Nietzsche, Freud, DuBois, de Beauvoir, and others and promotes more intense and broad exposure to the great ideas and modern thinkers of the contemporary world. It culminates with enrollment in a two-term senior thesis tutorial related to a theme from previous coursework and closely supervised by a faculty mentor. The senior thesis occurs in conjunction with a weekly research colloquium where students meet with faculty members to discuss their senior thesis work or related work in the minor.

The minor is intended to supplement the liberal arts education of undergraduates who, through their major, are interested in finding an area of specialization related to career objectives and who seek broad and systematic training in the major ideas of the modern world.

Undergraduate Study

Social Thought Minor

The Social Thought minor is limited to students who formally apply and are admitted. To apply, students must submit an application, a personal statement supporting their interest in pursuing the minor, a letter of recommendation from a faculty mentor, and a transcript to the College Academic Counseling Office, A316 Murphy Hall.

To enter the minor, students must have an overall grade-point average of 2.0 or better

and apply for admission only after successfully completing the following lower division requirements: General Education Clusters 21A and 21B, OR two courses from German 56, Honors Collegium 20, 21W, 55, 57, 83W, Philosophy 6, Political Science 10, Sociology 10.

Required Upper Division Courses (16 to 20 units): Four courses spanning at least two different departments selected from African American Studies M114C, Anthropology 181, 182, Civic Engagement M115, Classics M124, Economics 107, Education 138, History 122A, 122C through 122F, 131A, 142A, 142B, Honors Collegium 110, Philosophy 151A, C151B, 153A, C153B, 154, C156, Political Science M111A through 114, M115B, M115C, 116A, 116B, 119, M119A, M180A, M180B, Public Policy M126, Sociology 101, 102.

Required Research Colloquia and Senior Thesis (12 units): Students must also complete Social Thought 190A and 199A in one term and courses 190B and 199B in the following term.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Social Thought

Upper Division Courses

190A-190B. Research Colloquia in Social Thought I, II. (2-2) Seminar, two hours. Corequisite for course 190A: course 199A; for 190B: course 199B. Limited to juniors/seniors. Required of students in Social Thought minor. Designed to bring together students undertaking supervised senior thesis work in seminar setting with one or more faculty members to discuss their work or related work in Social Thought minor. Led by one supervising faculty member. Course 190A may be repeated for credit. P/NP grading.

199A-199B. Directed Research or Senior Thesis in Social Thought I, II. (4-4) Tutorial, to be arranged. Corequisite for course 199A: course 190A; for 199B: course 190B. Limited to juniors/seniors. Required of students in Social Thought minor. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

SOCIAL WELFARE

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Aurora P. Jackson, PhD, *Chair, Doctoral Program*
Gerardo P. Laviña, LCSW, MSW, *Director, Field Education*

Professors

Laura S. Abrams, PhD
David Cohen, PhD (*Marjorie Crump Professor of Social Welfare*)
Todd M. Franke, PhD
Bridget J. Freisthler, PhD
Aurora P. Jackson, PhD
Mark S. Kaplan, DrPH
Paul M. Ong, PhD
Ananya Roy, PhD
Fernando M. Torres-Gil, PhD

Professors Emeriti

Rosina M. Becerra, PhD
A.E. Benjamin, PhD
Diane S. de Anda, PhD
Yeheskel Hasenfeld, PhD
Doris S. Jacobson, PhD
Stuart A. Kirk, DSW (*Marjorie Crump Professor Emeritus of Social Welfare*)
James E. Lubben, DSW
Barbara J. Nelson, PhD
Alex J. Norman, DSW
Jack Rothman, PhD
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Lené F. Levy-Storms, PhD
Ailee Moon, PhD

Assistant Professors

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Leyla Karimli, PhD
Laura Wray-Lake, PhD

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Fieldwork Consultants

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Sergio R. Serna, MSW
Michelle Talley, LCSW

Scope and Objectives

The primary objectives of the Department of Social Welfare graduate program are to prepare leaders for the profession of social work and to develop the empirical base for all facets of practice. In response to changing demographic trends and the emergence of new social problems, the department provides leadership in the areas of policy, practice, and research and in the development of an innovative curriculum for training students and professionals to meet the service needs of a multicultural clientele.

The educational program is based on the premise that all students need to acquire a common body of knowledge and basic skills, and a common understanding of the philosophy and values of the profession. These then form a sound foundation for the development of more specialized knowledge and skills along the lines of each student's interests and the needs of the field.

Students are encouraged to take advantage of the resources within the University by selecting

elective courses in related disciplines. In addition, as a department within the Luskin School of Public Affairs, the program affords students instructional opportunities in the other affiliated departments—Public Policy and Urban Planning.

Beyond national opportunities in the profession of social work, there is increasing demand for qualified and experienced social workers to serve in the international field, where many social service programs are conducted under the auspices of the United Nations, the U.S. government, and national sectarian organizations. Graduates of the doctoral program generally secure appointments at major universities or research centers.

The challenge to the department, the profession, and those who join us as students is to prepare to forge the paths, build the bridges, and shape the future to ensure that all individuals, families, and communities enjoy better education, better healthcare, better job training, and better economic futures.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Social Welfare offers the Master of Social Welfare (MSW) degree and the Doctor of Philosophy (PhD) in Social Welfare degree. Four concurrent degree programs (Social Welfare MSW/Asian American Studies MA, Social Welfare MSW/Law JD, Social Welfare MSW/Public Health MPH, and Social Welfare MSW/Public Policy MPP) are also offered.

Social Welfare

Upper Division Courses

100A. Introduction to Social Welfare: Policies and Programs. (4) Lecture, four hours. Origin and development of major U.S. social welfare programs and policies guiding them, with emphasis on analysis of policy developments/issues related to provision of social welfare services. Study of historical and current responses of profession to major social problems. P/NP or letter grading.

100B. Social Welfare Policy: Overview. (4) Lecture, four hours. Requisite: course 100A. Review of existing policy regarding major social issues in field of social welfare. Examination of discrepancy between need and capacity of social agencies to address need. Exploration of differential impact of policy on various populations. P/NP or letter grading.

101. Social Welfare in Multicultural Society. (4) Lecture, four hours. Social policy viewed from perspective of various cultural groups. Students to become aware of their own cultural perspective and learn to recognize similarities and differences in values, perspectives, and beliefs across cultural groups. P/NP or letter grading.

102. Social Welfare Organizations and Community Systems. (4) Lecture, four hours. Recommended requisites: courses 100A, 100B. Detailed demonstration of implementation of policy via functioning of human

service organizations. Examination of organizational structures/functions. Exploration of characteristics and organization of community and forces that influence its development and change. P/NP or letter grading.

103. Introduction to Direct Practice with Individuals, Families, and Groups. (4) Lecture, four hours. Requisites: courses 100A, 100B, 101. Description and demonstration of basic skills employed in direct social work practice via casework process. Students practice these skills in written, role-play, small group, and video or audio exercises. P/NP or letter grading.

M104C. Diversity in Aging: Roles of Gender and Ethnicity. (4) (Same as Chicana and Chicano Studies M106B, Gender Studies M104C, and Gerontology M104C.) Lecture, four hours. Exploration of complexity of variables related to diversity of aging population and variability in aging process. Examination of gender and ethnicity within context of both physical and social aging, in multidisciplinary perspective utilizing faculty from variety of fields to address issues of diversity. Letter grading.

M104D. Public Policy and Aging. (4) (Same as Gerontology M104D.) Lecture, four hours. Examination of theoretical models and concepts of policy process, with application to aging policy. Analysis of decision-making processes that affect aging policy. Description of history of contemporary aging policy. Exploration of current policy issues affecting elderly. P/NP or letter grading.

M104E. Social Aspects of Aging. (4) (Same as Gerontology M104E.) Lecture, four hours. Topics include theories of aging, economic factors, changing roles, social relationships, and special populations. Weekly seminars organized around key aspect of social gerontology. P/NP or letter grading.

105. Social Welfare Policy in Modern America: Historical Perspectives. (4) Lecture, three hours; outside study, nine hours. Historical overview of American social policy dealing with three core societal problems: poverty, sickness, and joblessness. Programs developed by governments to ameliorate these problems have typically been public insurance programs or cash transfers such as unemployment insurance, welfare, and Social Security. Collectively these programs are known as "the welfare state"; examination of origins of the U.S. welfare state, its development over time, and features that make it distinctive as compared to welfare states in other nations. Letter grading.

106. Research Seminar and Field Observation: Social Welfare. (4) Seminar, three hours; discussion, one hour; outside study, eight hours. Didactic component with focus on development of basic skills in the areas of research. Students select one field of observation experience (module) from a number of field settings. P/NP or letter grading.

107. Field Practicum: Social Welfare. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 106. In field practicum students are placed in a specific agency where they combine observation of agency functions with participation in specific agency tasks and roles under instructional supervision of an agency mentor and a UCLA faculty member. P/NP or letter grading.

M108. Biomedical, Social, and Policy Frontiers in Human Aging. (5) (Same as Gerontology M108.) Lecture, four hours. Limited to juniors/seniors. Course of human aging charted in ways that are based on variety of recent research frontiers. Use of conceptual frameworks to increase relevance of aging to students' lives and enhance their critical thinking—biopsychosocial approach that is based on recognition that aging is inherently interdisciplinary phenomenon, and life course perspective that is distinguished by analytical framework it provides for understanding interplay between human lives and changing social structures, and allows students to understand how events, successes, and losses at one stage of life can have important effects later in life. Focus on individuals as they age within one particular sociohistorical context. Letter grading.

M110. Inequality and Democracy: Analysis and Praxis of Public Problems. (4) (Same as Urban Planning M110.) Lecture, three hours; discussion, one hour. Analysis and praxis of public problems. Taking up case of persistent inequality in liberal democracies, coverage of key frameworks and methodologies for understanding and analyzing poverty and inequality and examination of forms of action, from role of government to social movements, that seek to intervene in such problems. Study of problems, programs, policies, and politics in globally interconnected, transnational world, while avoiding analytical divide between global north and global south. Letter grading.

130A-130B. Community Research and Services Seminars. (4-4) Seminar, three hours; service learning, four hours; outside study, five hours. Course 130A is requisite to 130B. Limited to juniors/seniors. History and roles of social welfare policy within government, organizations, and communities. Reflections about service-learning site experiences, with application of issues related to lecture and seminar readings. Students to be assigned to two-term tutoring/mentoring site where they apply tutoring techniques as they assist middle school children living in impoverished areas of Los Angeles County. In Progress (130A) and P/NP or letter (130B) grading.

131. Poverty, Poor, and Welfare Policy. (4) Seminar, three hours. Limited to juniors/seniors. Current research and policy issues concerning poverty in the U.S., with specific emphasis on single-parent households. Overview of measurements and characteristics of poor people; alternative theoretical explanations of poverty; historical overview of major social welfare policies to combat poverty, particularly Aid to Families with Dependent Children (AFDC) and Personal Responsibility and Work Opportunity Reconciliation Act (PROWA); and critical appraisal of recently enacted state welfare reform policies. Relationship between research knowledge about poverty and current policies, and effects of gender, ethnicity, and class on patterns of poverty and policy responses. P/NP or letter grading.

132. Community Analysis and Community Needs. (4) Lecture, three hours. Limited to juniors/seniors. Theoretical and practical foundation for understanding and depicting demographic composition of communities and for determining community needs. Use of systems theory as organizing framework. Community-level interventions are affected by community's social ecology, culture, economic system, political system, ethnic composition, and class structure. Agencies often seek to define community needs and develop interventions to respond to those needs. Knowledge of community infrastructure necessary for ascertaining its strengths and resources that can be mobilized for addressing and responding to community needs, issues, and concerns. Social service agencies and communities can work together in partnership to enhance quality of community life. P/NP or letter grading.

M140. Introduction to Study of Aging. (4) (Same as Psychology M140.) Lecture, three hours. Designed for juniors/seniors. Perspectives on major features of human aging—biological, social, psychological, and humanistic. Introduction to information on range of influences on aging to prepare students for subsequent specialization. P/NP or letter grading.

M142SL. Intergenerational Communication across Lifespan. (4) (Same as Gerontology M142SL.) Lecture, three hours; fieldwork, one hour. Limited to juniors/seniors. What do you say to your parents in conversation? How do you talk to your grandparents? Does your family talk well to one another as group? How do you communicate well with boss who is 30 years older than you? Individuals of all ages interact with one another, and their interactions have significance throughout their lives. Introduction to psychological, interpersonal, and societal issues related to intergenerational communication across lifespan. Letter grading.

151. Child Welfare Policy in America. (4) Lecture, three hours. Limited to juniors/seniors. Examination of public child welfare system in the U.S. Review of so-

cial policies and programs that impact children. History of social policies and programs for children, including discussion of orphanges, foster care, and adoptions. Transformation of public child welfare system into child protection system. Impact of welfare reform on child policies and programs in the U.S. Major programs designed to provide safety net for disadvantaged children, including welfare, food stamps, child care, child support, and children's allowance programs. Review of research and analysis in this area. Overview of social policies and programs that impact children in the U.S. Examination of comparative policies in other countries. P/NP or letter grading.

162. Health Policy and Services. (4) Seminar, three hours. Limited to juniors/seniors. Contemporary issues in healthcare financing and delivery and historical perspective on these issues. Role of government in healthcare and ways controversy about this role continues to shape and constrain public policy in health. Major public programs, notably Medicare and Medicaid, and their relationship to issues of access and cost for diverse vulnerable populations. Various public and private approaches to healthcare reform and ways of thinking about their predicted impact, cost, and political feasibility. Issues in care of persons with chronic illness and debate about public and private approaches to long-term care reform. Social work roles in healthcare policy and practice. P/NP or letter grading.

163. Prevention of Risky Substance Use and Related Problems. (4) Lecture, four hours. Limited to juniors/seniors. Prevention of substance use and related harms from legal and illegal substances is major concern to parents, communities, and nations. Examination of research related to patterns of drug use and related harm (such as crime and mental health disorders) and effectiveness of interventions to reduce these problems. Through review of science-based programs and policies, evaluation of effectiveness of evidence-based interventions to increase student knowledge, skills, and expertise in determining effective interventions to reduce drug-related harm, using most up-to-date information. P/NP or letter grading.

164. HIV Prevention in U.S. and Developing World. (4) Lecture, three hours. Limited to juniors/seniors. Examination of various approaches to HIV prevention, drawing on infectious disease paradigms from public health and theories of behavior change from fields of psychology, sociology, and communications. Sexual behavior and injection drug use, existing and promising technologies to reduce HIV transmission, and fiscal, cultural, ethical, and moral dilemmas in allocation of prevention resources. P/NP or letter grading.

M165. Disability Policy and Services in Contemporary America. (4) (Same as Disability Studies M130 and Gerontology M165.) Lecture, three hours. Limited to juniors/seniors. Growing numbers of people of all ages with disabilities are leading active and productive lives in American communities. Many others are struggling to lead such lives. Who are people with disabilities in contemporary America? How has U.S. responded over time to various needs and aspirations of people with disabilities, young and old? What demands have been made over time by disability advocates? How has government addressed demands of advocates for various disability populations? What do we know about extent to which public policies and programs are responsive to people in need? How do demographics, economics, and politics continue to influence evolving public policy responses? P/NP or letter grading.

181. Nonprofit Sector, State and Civil Society. (4) Lecture, three hours; outside study, nine hours. Use of political economy perspective to analyze forces that have shaped rise and characteristics of nonprofit sector and its constituent elements. Examination of social history of nonprofit sector in U.S. Exploration of legal and policy environments and distinct organizational forms. Comparative perspective between U.S. and other countries. P/NP or letter grading.

191. Variable Topics Research Seminars: Social Welfare. (4) Seminar, three hours; outside study, nine hours. Examination in depth of particular subfield of social welfare (e.g., child welfare, children and youth, nonprofit, health, mental health). Limits of investigation set by individual instructor. May be repeated for credit with topic change. Letter grading.

194. Internship Seminars: Social Welfare. (1) Seminar, one hour; outside study, three hours. Corequisite: course 195. Not open to freshmen. Introduction to topics relevant to psychosocial determinants of children's health and community resources for children and families, with opportunity to gain breadth and depth of knowledge in seminar setting. May be repeated for credit. P/NP grading.

195. Community Internships in Social Welfare. (2) Tutorial, four hours. Corequisite: course 194. Not open to freshmen. Introductory course in community-based child health and advocacy. Students learn about community resources for children and families through service learning experience and work with pediatric patients and families in UCLA pediatric unit. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. Letter grading.

199. Directed Research in Social Welfare. (2 or 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

201A-201B-201C. Dynamics of Human Behavior. (3-3-3) Lecture, three hours. Biopsychosocial factors associated with individual and group behavior and development as applicable in social functioning of individuals and groups. Emphasis on theoretical issues and research evidence that contribute to unified theory of human development. Letter grading.

202A-202B. Dynamics of Human Behavior. (4-4) Lecture, two and one half hours. Requisites: courses 201A, 201B. Deviations and pathologies or stresses in physical, emotional, and social areas of human functioning as those problems relate to role and function of social workers. S/U or letter grading.

203A-203B-203C. Integrative Seminars. (2-2-4) Seminar, two and one half hours. Integrative courses that bring together theory and practice of social work in variety of topic areas relevant to profession. Includes identification of problem areas and populations-at-risk requiring further examination. S/U or letter grading.

M203F-M203G-M203H. Child Abuse and Neglect. (2-2-1) (Same as Community Health Sciences M245A-M245B-M245C, Dentistry M300A-M300B-M300C, Education M217G-M217H-M217I, Law M281A-M281B, Medicine M290A-M290B, and Nursing M290A-M290B-M290C.) Lecture, two hours. Course M203F is requisite to M203G, which is requisite to M203H. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of Schools of Dentistry, Law, Medicine, Nursing, and Public Health and Departments of Education and Psychology, as well as by relevant public agencies. Letter grading.

205. Cross-Cultural Awareness. (4) Lecture, two hours; discussion, two hours. Designed to aid students in development of professional perspectives that will allow them to work effectively with members of myriad cultural groups, to discuss with clarity alternative concepts of culture in determination of individual behavior responses, and to identify their own personal cultural values and assumptions. S/U or letter grading.

M206A. Homelessness: Housing and Social Service Issues. (4) (Same as Urban Planning M270.) Lecture, 90 minutes; discussion, 90 minutes; one field trip. Review of current status of homelessness: who homeless are, what social services and housing are available, existing and proposed programs—appro-

priate architecture, management, and sources of funding. Outside speakers include providers of services to homeless. Letter grading.

220. History and Philosophy of Social Welfare. (2) Discussion, two hours. History of social work as field: body of knowledge, method and process, and point of view analyzed within context of economic, political, social, philosophical, and scientific climate of period. S/U or letter grading.

M221A. Foundations of Social Welfare Policy. (4) (Same as Public Policy M260 and Urban Planning M241.) Lecture, two hours; discussion, one hour. Nature, roles, and history of welfare institutions in different societies; applicable social system theory of different components of welfare system; theory and research about welfare policies and organizational forms. S/U or letter grading.

221B. Social Welfare Policy and Services II. (4) Lecture, three hours; outside study, nine hours. Understanding of significant theoretical constructs and relevant empirical evidence dealing with how organizations develop and maintain their internal functions. Development of beginning skill in organizational analysis. Special attention to organizational analysis of social welfare services. S/U or letter grading.

222A-222B. Foundations of Social Welfare. (2-2) Lecture, two hours; discussion, one hour. Overview of history of social work profession and how social justice has shaped its underpinnings and influenced social policy that affects profession's primary fields of practice. How social work profession has addressed social service needs of racial and ethnic populations. In Progress (222A) and S/U or letter (222B) grading. **222A.** History. Five weeks in fall quarter. **222B.** Policy. Five weeks in spring quarter. Requisite: course 222A.

223. Seminar: Social Work Profession. (2) Seminar, two hours. Nature and role of social work in contemporary society; relationships with other professions; probable future trends in profession; social work ethics, professional organizations, certification licensing; professional responsibility for continued self-criticism and improvement of profession. S/U grading.

225A-225B. Social Welfare Policy. (4-4) Seminar, three hours. Designed for PhD students. Letter grading:

225A. Formulation and Analysis. (4) Seminar, three hours. Designed for PhD students. Examination of principal issues in development, formulation, and adoption of U.S. social welfare policies, with particular focus on income distribution and redistribution. Emphasis on analysis of social policy issues and conceptual frameworks for analysis. Letter grading.

225B. Implementation and Evaluation. (4) Seminar, three hours. Designed for PhD students. Examination of issues in implementation and evaluation of social welfare policies, particularly those pertaining to provision, organization, and delivery of social services, including auspices funding, distribution, criteria for effectiveness, and use of quantitative methods in policy analysis. Letter grading.

229A. Craft of Social Welfare Scholarship I. (4) Lecture, three hours; outside study, nine hours. Limited to PhD students. Exploration of one problem for study—its history, current state of knowledge about why problem exists, and what might be done about it. Survey of several problems and alternative ways in which problems have been conceptualized and studied to understand how scholars use theory and empirical evidence to advance what is known, what is yet unknown, where there are important gaps in understanding particular problems, and what might be done to solve them. Letter grading.

229B. Craft of Social Welfare Scholarship II. (4) Lecture, three hours; outside study, nine hours. Enforced requisite: course 229A. Limited to PhD students. Continued narrowing of student focus on one social welfare research problem, moving from understanding of evolution and context of general problem to more detailed and intensive review of research literature on specific researchable question to deepen student understanding of existing knowledge on topic and begin to identify one or more critical gaps in

knowledge to explore. Discussion of different methods of summarizing research literatures, identifying seminal studies, and interpreting contradictory findings. Regular meetings to discuss ongoing work and to encourage students to review their work with their faculty advisers and/or other mentors with expertise in their problem areas. Letter grading.

229C. Craft of Social Welfare Scholarship III. (2) Lecture, 90 minutes; outside study, four and one half hours. Enforced requisite: course 229B. Limited to PhD students. Focus on craft of scholarly writing for publication to help students develop effective narrative frame for presentation, make choices about extent of detail and shape of literature review, and achieve cogent presentation and conclusion. Consideration of elements of effective professional writing. Letter grading.

230A-230B-230C. Theory of Social Welfare Practice with Individuals, Families, and Groups I, II, III. (2-2-2) Lecture, three hours. Corequisite: required social work practicum. Introduction to theory of social work with individuals and small groups and to principles of practice that are derivative of this and related theory. S/U or letter grading.

231A-231B-231C. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups IV, V, VI. (4-4-4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of theories, concepts, and principles underlying social casework practice. Specific attention to deviation and stress as conditions affecting functioning of individuals and groups and to diagnostic knowledge and competence required in rehabilitation and prevention. S/U or letter grading.

231E. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups: School Social Work. (4) Lecture, three hours; outside study, nine hours. Integration of theory and practice as they pertain to role of social workers in school settings. Biopsychosocial/ecological assessment of students (including, but not limited to, differences due to ethnic and/or cultural diversity and to students who are learning handicapped), ecological intervention strategies, collaboration within multidisciplinary team, and role of liaison between pupils, family, school, and community. Use of discussion, videos, current literature, and case presentation to explore impact of school social workers as change agents. S/U or letter grading.

231F. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups: Cognitive-Behavioral Theories and Methods. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of key contributors, essential concepts, core theories, current controversies, and recent research findings in contemporary cognitive-behavioral therapy; case conceptualization from cognitive-behavioral perspective; specific cognitive and behavioral assessment methods and intervention techniques and their typical applications; contextual considerations, including human diversity and other sociocultural and developmental factors, in arriving at case conceptualizations and treatment plans. S/U or letter grading.

231G. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups: Substance Abuse Intervention. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of major intervention approaches—individual, family, group, and environmental—to treating substance abuse and dependency. Specific attention to skills and self-awareness to integrate biological, psychological, and social factors in assessing and intervening with substance-using clients and target populations. S/U or letter grading.

231J. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups: Child Welfare. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of role of public child

welfare worker in relationship to consumer, agency, and community. Further development of social work and case management skills in context of public child welfare practice. Clinical case management explored as intervention in its own right in addition to its use as mechanism for linking children and families to other social systems, professions, and forms of intervention. Interpretation of current public child welfare events, trends, terms, and laws and their relationship to direct practice issues. S/U or letter grading.

231K. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups: Mental Health. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Designed to provide students with grounding in social work practice with adults in mental health settings. Emphasis on evidence-based approaches to providing services to pervasive and persistent mentally ill. Exploration of strengths-based recovery-oriented approaches that are consistent with knowledge and values of social work practice. Exposure to range of interventions applicable to most common mental health problems and barriers to service delivery for this vulnerable population, such as stigma, criminalization, cultural bias, and gaps in knowledge. S/U or letter grading.

231M. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups: Health. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of various roles that social workers occupy in health settings and strategies for working with healthcare teams. From case-based approach, examination of variety of clinical challenges, assessment techniques for use in multiple settings, and interventions to implement with individuals, families, groups, and multidisciplinary healthcare teams. Evaluation of policy implications that impact social work practice in health settings. S/U or letter grading.

231N. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups: Children, Adolescents, and Families. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of advanced direct practice specializing in child, adolescent, and family practice cases encountered in variety of agency-based practice settings. Advanced theory, methods, and research in child, adolescent, and family clinical social work practice. S/U or letter grading.

231P. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups: Gerontology. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of theoretical models related directly to practice with diverse population of older adults. Presentation of comprehensive tools for multidimensional geriatric assessment. How to engage in collaborative treatment planning across range of late-life problems and address impediments to intervention process. Theoretical underpinnings and most effective practice models to enable students to serve needs of older clients and their families as they adjust to late-life transitions, as well as to health and mental health problems most prevalent for older adults. Client populations range from well elderly to physically frail and/or demented from diverse backgrounds. S/U or letter grading.

240A-240B. Theory of Social Welfare Practice in Organizations, Communities, and Policy Settings I, II. (3-3) Lecture, three hours. Corequisite: required social work practicum. Historical and theoretical developments in administration, planning, and community organization; understanding the community as a social system; administration of organizations; role of the practitioner in identification, analysis, and evaluation of needs, existing programs, policies, structures, and strategies of intervention. Letter grading.

241A-241B-241C. Advanced Theory of Social Welfare Practice in Organizations, Communities, and Policy Settings IV, V, VI. (4-4-4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Emphasis on various patterns of community action for attaining social welfare objec-

tives; research and field experience directed toward study of social problems within context of community planning; emerging patterns of physical, economic, and social planning within framework of social change theory. S/U or letter grading.

M241E. Leadership, Development, and Governance of Nonprofit Organizations. (4) (Same as Public Policy M228 and Urban Planning M288.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Various patterns of community action for attaining social welfare objectives; research and field experience directed toward study of social problems within context of community planning; emerging patterns of physical, economic, and social planning within framework of social change theory. Letter grading.

M241F. Strategic Planning for Public and Nonprofit Organizations. (4) (Same as Public Policy M247 and Urban Planning M290.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Technical processes of problem solving regarding substantive social welfare problems at community level. This form of community practice fills niche between professional and knowledge and skill set possessed by agency and program administrators on one hand and by policy analysts and policymakers on other. Letter grading.

241G. Advanced Theory of Social Welfare Practice in Organizations, Communities, and Policy Settings: Community Mapping. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Designed to familiarize students with use of geographic data in community practice. Development of skill base for community practice that provides students with tools necessary to organize and plan effectively for political, economic, and social justice in communities. How to use geographic information systems (GIS) to inform community practice. S/U or letter grading.

241H. Advanced Theory of Social Welfare Practice in Organizations, Communities, and Policy Settings: Human Service Organizations. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Conceptual framework and analytic tools provided to understand organizational features of human services. Human service organizations work on people to improve, sustain, or prevent decline of well-being. Because of their function these organizations have special attributes that distinguish them from other organizations. Examination of these attributes, theoretical perspective to study them, and analysis of factors that shape nature of work they do. Explanation of determinants of relations between workers and clients by looking at such variables as policy environment, values and mission, internal structure, service technology, reward structure, organizational responses to staff and client diversity, and power relations between workers and clients. S/U or letter grading.

241I. Advanced Theory of Social Welfare Practice in Organizations, Communities, and Policy Settings: Grant Writing. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Process of grant writing, with emphasis on learning necessary skills to construct functional grant proposals. Application of problem-solving knowledge to development of human service grants. Various steps in writing grant proposals and opportunity to design/prepare grant proposals. S/U or letter grading.

241J. Advanced Theory of Social Welfare Practice in Organizations, Communities, and Policy Settings: Community Practice. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Designed to deepen student knowledge of community practice methods and empirical base that supports these methods in field of social welfare. Theory, practice, and research methods related to major community practice approaches in context of evidence-based philosophies and processes. Development of skills to address community problems using best available data by applying course concepts to student projects. S/U or letter grading.

241K. Advanced Theory of Social Welfare Practice in Organizations, Communities, and Policy Settings: Policy Practice. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Methods of social work policy practice and policy advocacy as problem-solving process. Analysis of consequences of existing social policies, particularly for marginalized populations, development of alternative policies, and use of different advocacy tools/techniques to gain support for policy change. S/U or letter grading.

245A-245B. Development of Social Work Practice Theory. (4-4) Seminar, three hours. Designed for PhD students. Letter grading:

245A. Epistemology of Practice. (4) Seminar, three hours. Designed for PhD students. Guiding scientific models of practice theories; process of emergence, development, and change of practice theories; intellectual foundations of practice theories; how professionals learn, apply, accumulate, and modify their practice knowledge; science and practice interplay. Letter grading.

245B. Models of Social Work Practice Research. (4) Seminar, three hours. Designed for PhD students. Research for practice, with major emphasis on methods of intervention research that seek to design, test, evaluate, and disseminate innovative intervention technologies. Letter grading.

249A-249B-249C. Foundations of Scientific Inquiry I, II, III. (4-4-4) Lecture, three hours; outside study, nine hours. Limited to PhD students. Introduction to underlying logic(s) of scientific inquiry to provide students with building blocks for independent scholarship. Letter grading. **249A. Experimental and quasi-experimental approaches in intervention research, ways of enhancing internal, external, and statistical conclusion validity, and inferring causality.** **249B. Enforced requisite: course 249A.** Survey design, sampling strategies and external and construct validity, methods of data collection, and reliability as measurement issue. **249C. Enforced requisite: course 249B.** Introduction to array of qualitative research strategies.

251A. Advanced Theory of Social Welfare Practice: Domestic and Sexual Violence. (4) Lecture, three hours. Designed for second-year MSW students in macro and clinical social work. One most pervasive aspect of women's existence has been violence against them as consequence of their gender. Factual information and critical examination of theories, research, and clinical and policy practices in social work regarding various forms of violence against women and girls in their homes, workplaces, and communities provided. Exploration of macro- and micro-level interventions in social work practice to address impact of violence on communities and individuals. Letter grading.

251B. Advanced Theory of Social Welfare Practice: Military Social Work. (4) Lecture, two and one half hours. Designed for second-year MSW students. Foundational understanding of contemporary issues being experienced by U.S. service members, veterans, and their families, following longest wars in U.S. history. Exploration of different modes of military service and identities (i.e., active duty, National Guard, Reserve, and veteran) along with correlative issues for family members. Examination of family life cycles and military policies and approach to families. Use of trauma-informed practice lens to focus on working with veteran community of all campaigns, as well as current military members and their families. Discussion of military and veteran policies, programs, and practices in context of both social work theory and research, as basis for military social work practice at direct service and policy practice levels. Vicarious trauma, care for caregivers, and provider self-care also addressed. Letter grading.

258. Critical Problems in Social Welfare. (2) Discussion, two hours. Designed for PhD students. Current problems in field of social welfare. Specific topics vary depending on research and educational interests and needs of class. May be repeated for credit. S/U grading.

259. Variable Topics in Statistics in Social Sciences. (4) Lecture, three hours. Limited to graduate students. Designed to provide in-depth understanding of particular topics in area of applied statistics/measurement to graduate students engaged in conducting research in broad array of fields that comprise social sciences. Letter grading.

280. Knowledge Acquisition, Evidence-Based Practice, and Research in Social Welfare. (4) (Formerly numbered 280A-280B.) Lecture, two and one half hours. Limited to first-year MSW students. Designed to stimulate student thinking around importance and relevance of evidence in social work practice. Introduction to foundations of critical thinking to develop student capacity to examine ideas, beliefs, and knowledge. Examination of variable meanings of research and introduction to some basic components of scientific method. Critical examination of utility and role systematic literature review plays in building knowledge/evidence. S/U or letter grading.

281A-281B-281C. Advanced Social Welfare Research. (2-2-2) Discussion, two hours. Individual or group research projects requiring intensive examination and analysis of social problem area, directed toward development of research knowledge and techniques for social work practice. In Progress (281A, 281B) and S/U or letter (281C) grading.

285A-285B-285C. Research in Social Welfare. (4-4-4) Discussion, three hours. Review of areas of research of concern to social workers, with special attention to design, instrument construction, data collection, data processing, data reduction, analysis, and interpretation. Designs studied include survey, panel, experimental observation, and theory development research. S/U or letter grading.

285D. Research in Child Welfare. (4) Lecture, three hours. Integrated examination of development of empirical research in child welfare field. Critical assessment of current approaches to meet needs of children who come to attention of child welfare agencies. Examination of research and theory in child welfare field. Review of student knowledge of research methods and statistics. Letter grading.

285E. Research in Gerontology. (4) Lecture, three hours. Overview of research in aging. Development of research questions, selecting appropriate theoretical frameworks, conducting literature reviews, selecting appropriate research design, identifying sampling methods. Special considerations in aging research, including sampling, questionnaire design, and recruitment issues. Letter grading.

285F. Research in Health. (4) Lecture, three hours. Research in area of health policy and services. Discussions of readings about range of research from field of health services. Identification of research design issues, design of research instruments, analysis of strengths and limitations of current approaches to health services research, consideration of alternative roles for social work practitioners in arena of health services. Letter grading.

285G. Research in Mental Health. (4) Lecture, three hours. Research methods in mental health. Application of experimental designs, survey research methods, ethnographic methods, single-subject designs, and observational methods. Operational definition of variables and selection and design of appropriate measures for research in mental health. Practice in critiquing published research related to mental health issues. Letter grading.

285H. Program Evaluation Research. (4) Lecture, three hours. Discussion of differences and similarities between evaluation and other research, alternative program evaluation methods, roles and limitations of evaluation research in real world, development of proposals for feasible program evaluation research. Letter grading.

285I. Research in Youth Populations. (4) Lecture, three hours. Research methods as applied to problems, issues, and interventions pertaining to youth populations. Instruction and experience in applying experimental and quasi-experimental designs, survey research methods, ethnographic methods, single-subject designs, and observational methods. Opera-

tional definition of variables and selection and design of appropriate measures for research with children and adolescents. Letter grading.

286A. Survey of Research Methods. (4) Seminar, three hours. Basic concepts underlying research methods. Content includes theoretical and conceptual approaches to research problem formulation; research design, including experimental, comparative, and survey; sampling; statistical methods; methods of observation and techniques of data analysis. Letter grading.

286B. Advanced Research Methods. (4) Seminar, three hours. Advanced concepts underlying research methods. Continuing study of theoretical and conceptual approaches to research problem formulation; research design, including experimental, comparative, and survey; sampling; statistical methods; methods of observation and techniques of data analysis. Letter grading.

286C. Research Internship. (4) Fieldwork, four hours. Supervised study and training through participation in on-going research project or one initiated by students and carried out under faculty supervision, enabling students to apply research skills developed in prior courses. May be repeated for credit. S/U grading.

290A-290B-290C. Seminars: Social Work. (4-4-4) Seminar, three hours; outside study, nine hours. Series of seminars dealing with trends in social work and social welfare, with focus on current social problems affecting individuals, groups, and communities and new patterns of intervention based on recent demonstrations and research. S/U or letter grading.

M290I. Children with Special Healthcare Needs: Systems Perspective. (4) (Same as Community Health Sciences M420 and Health Policy M420.) Lecture, three hours; fieldwork, one hour. Examination and evaluation of principles, policies, programs, and practices that have evolved to identify, assess, and meet special needs of infants, children, and adolescents with developmental disabilities or chronic illness and their families. Letter grading.

M290J. Child Welfare Policy. (4) (Same as Public Policy M212.) Lecture, three hours. Development of social policy as it affects families and children from different cultural backgrounds and as it is given form in public child welfare system. Examination of development of an infrastructure to support needs of children and families. S/U or letter grading.

M290K. Mental Health Policy. (4) (Same as Public Policy M213.) Lecture, three hours. Examination of evolution of social policy and services for mentally ill, with emphasis on political, economic, ideological, and sociological factors that affect views of mentally ill and services they are provided. S/U or letter grading.

M290L. Poverty, Poor, and Welfare Reform. (4) (Same as Public Policy M214 and Urban Planning M246.) Lecture, three hours. Major policy and research issues concerning poverty and social welfare policy directed toward poor in U.S. S/U or letter grading.

M290M. Health Policy. (4) (Same as Public Policy M215.) Lecture, three hours. Introduction to contemporary issues in healthcare financing and delivery, providing historical perspective on emergence of these issues. Examination of major public programs and their relationship to issues of access and cost. S/U or letter grading.

M290N. Public Policy for Children and Youth. (4) (Same as Public Policy M216.) Lecture, three hours. Policy issues that affect children and adolescents in relation to their interaction with schools and community, with emphasis on impact of policy across federal, state, and local levels. S/U or letter grading.

M290P. Aging Policy, Elderly and Families. (4) (Same as Public Policy M261.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Examination of theoretical models and concepts of policy process and application to aging policy. Analysis of decision-making processes that affect social policies. Description of historical development of contemporary policy. Exploration of current proposals and issues. Letter grading.

M290Q. Social Welfare Policy in Asian American Communities. (4) (Same as Asian American Studies M290Q.) Seminar, three hours. Overview of social welfare policy in Asian American communities. Introduction to major social welfare policies and programs in the U.S. and impact on Asian American communities. Policy development, approaches, processes of implementation, evaluation, and strategies to effect policy. S/U or letter grading.

M290R. Law and Poor. (4) (Same as Public Policy M295 and Urban Planning M248.) Lecture, three hours. Designed for graduate students. Study of major income-maintenance programs in U.S., with emphasis on interaction of moral attitudes toward poor and structure and implementation of law, policy, and administration. Current reform consensus and major reforms. Letter grading.

M290S. Politics, Power, and Philanthropy. (4) (Same as Public Policy M227 and Urban Planning M287.) Lecture, three hours; outside study, nine hours. Use of political economy perspective to analyze forces that have shaped rise and characteristics of nonprofit sector and its constituent elements. Examination of social history of nonprofit sector in U.S. Exploration of legal and policy environments and distinct organizational forms. Comparative perspective between U.S. and other countries. S/U or letter grading.

290T. Social Work and Juvenile Justice System. (4) Lecture, three hours; outside study, nine hours. Designed for graduate students. Exploration of evolution of juvenile justice system in the U.S. and issues that have shaped current-day practice. Role of social workers in system to be theme throughout course. Letter grading.

M290U. Community Development and Housing Policies: Roles of State, Civil Society, and Non-profits. (4) (Same as Public Policy M243 and Urban Planning M275.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Examination of role of U.S. housing policy and role of government agencies and community organizations. Is problem housing or economic development? Should interventions be directed toward inner city housing markets or through neighborhood strategies? What lessons can be learned from experiences of other countries? Letter grading.

M290V. Management Challenges and Tools for Nonprofit Sector. (4) (Same as Public Policy M226 and Urban Planning M286.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Fundamental building blocks for successful management in nonprofit sector. Students develop management skills in strategic thinking/problem solving, project management, team building, and negotiation. Use of case studies to troubleshoot critical challenges, from finance to crisis management to marketing, that nonprofit managers typically face. Letter grading.

290W. International Social Welfare. (4) Lecture, three hours; outside study, nine hours. Intended for graduate students interested in pursuing analysis of key international social welfare issues. Topics approached from perspective of globalization of social, economic, and political activities. Problems of global poverty, social injustice and inequality, and issues of racial, ethnic, and cultural diversity, with emphasis on multifaceted contributions of social work, social services, and social welfare and international social development within rich and poor countries. Acquisition of knowledge of international social welfare activities, as well as analytical skills to address and debate complex international issues. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

401A-401B-401C. Practicum: Social Work. (3-3-3) Laboratory, 16 hours. Educationally directed practicum conducted in selected health, welfare, and educational facilities. Provides opportunities for students to test their theoretical knowledge and to acquire disciplined practice foundation in profession. In Progress (401A, 401B) and letter (401C) grading.

402A-402B-402C. Advanced Practicum: Social Work. (4-4-4) Laboratory, 24 hours. Requisites: courses 401A, 401B, 401C. Practicum in social work, arranged for students in keeping with their major field of study. In Progress (402A, 402B) and S/U (402C) grading.

490. Professional Communication for Social Welfare. (2) Lecture, two hours. Writing workshop on students' papers in progress, with eye toward scholarly publication. Analysis and group discussion of rhetorical and stylistic principles. May be repeated once. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596A. Special Study and Research in Social Welfare. (2 to 8) Tutorial, to be arranged. Individual programming for selected students to permit pursuit of subject in greater depth. S/U or letter grading.

596B. Special Study and Research for PhD Candidates. (2 to 12) Tutorial, to be arranged. Limited to PhD students. S/U grading.

597A. Preparation for MSW Comprehensive Examination. (2 to 8) Tutorial, to be arranged. S/U grading.

597B. Preparation for PhD Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Limited to PhD students. S/U grading.

599. PhD Dissertation Research in Social Welfare. (2 to 12) Tutorial, to be arranged. Limited to PhD students. S/U grading.

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Vilma Ortiz, PhD
Anne R. Pebley, PhD
Jeffrey Prager, PhD
Abigail C. Saguy, PhD
Judith A. Seltzer, PhD
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Katherine Stone, JD (*Arjay and Frances Fearing Miller Professor of Law*)
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Christopher C. Tilly, PhD
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Roger Waldinger, PhD

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Lynne G. Zucker, PhD

Professors Emeriti

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Rodolfo Alvarez, PhD
Ronald M. Andersen, PhD (*Fred W. and Pamela K. Wasserman Professor Emeritus of Health Services*)
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Scope and Objectives

Sociology is the study of the organization, dynamics, and consequences of social life. The scope of the discipline is as broad and diverse as social life itself. Sociologists study social interaction and relationships, organizations and institutions, communities and whole societies. The methods of sociological investigation are also varied: sociologists immerse themselves in the daily life of groups, interview group participants, examine recorded interaction, interpret historical documents, analyze census data, and conduct large surveys. The methods and concepts of sociology yield powerful insights

SOCIETY AND GENETICS

See Institute for Society and Genetics

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Professors

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Patrick C. Heuveline, PhD
Darnell M. Hunt, PhD
Jack Katz, PhD

into the social processes shaping lives, problems, and possibilities in contemporary society. The capacity to identify and understand these processes—a capacity that C.W. Mills called the “sociological imagination”—is valuable preparation for personal and professional participation in a changing and complex world.

In addition to contributing to a liberal arts education, the Sociology major prepares individuals for a broad range of career options and graduate and professional studies. The analytic perspectives and skills gained in the major are a foundation for careers in law, social welfare, urban planning, business, education, and public health. The major also provides a foundation for students intending to pursue graduate work in sociology and related fields. Employment opportunities available to the graduate with a Bachelor of Arts degree in Sociology also include work in community service organizations and health agencies, government service, and human resources.

The Department of Sociology faculty includes internationally renowned scholars who address topics ranging in scope from the organization of face-to-face interaction to the consequences of globalization. The department boasts outstanding teachers—five of whom have won Distinguished Teaching Awards—and excellently trained teaching assistants, many of whom have also won awards. The select honors program has a record for training students in the fundamentals of research and generating honors theses of substantial accomplishment.

The PhD in Sociology usually leads to a career in research and/or teaching. Although most sociologists are employed by universities, there are increasing career opportunities in government and other nonuniversity research centers.

Undergraduate Study

Sociology BA

Sociology Premajor

Only students with less than 90 units completed (excluding Advanced Placement units/credit) may declare the Sociology premajor once they complete either Sociology 1 or 20 with a grade of C or better.

Preparation for the Major

Required: Sociology 1, 20, and one course from Political Science 6, Statistics 10, or 13.

A minimum grade of C is required in each preparation for the major course. Students with a grade-point average less than 2.0 in the preparation coursework are not eligible for admission to the major. Students who repeat any preparation course more than once are automatically denied admission to the major.

Freshman Students

Students must petition to declare the Sociology major. If Sociology 101 or 102 has already been completed, a grade of C or better is required. Grades in any other completed sociology courses for the major must be C– or better.

Transfer Students

Transfer applicants to the Sociology premajor with 90 or more units must complete the following introductory courses prior to admission to UCLA: one introduction to sociology course and one statistics course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division courses, including (1) two theory courses—Sociology 101, 102; (2) one methods course from Sociology 106A, 106B, 110, 111, 112, 113, M124A, 191H, or Statistics 112; (3) one course from each of the following core areas: (a) *interactions*—Sociology 111, M124A, CM125, 126, 130, 132, 133, 134, or 152, (b) *institutions and social processes*—course 116, 143, 151, 158, 172, 173, M174, M175, M176, or 181B, (c) *power and inequality*—course M115, M155, 156, 157, M161, M162, M164, M165, 181A, 182, 183, 185, or 186; and (4) any five upper division sociology elective courses.

Students should complete course 101 and the core courses before taking other upper division courses. Each course for the major must be taken for a letter grade. To graduate, students must have at least a 2.0 grade-point average in their upper division major courses, with grades of C or better in Sociology 101 and 102.

Only 8 units of Sociology 199 are allowed. The two theory courses, three core area courses, one methods course, and one sociology elective (seven courses total) must be taken while in residence in the College of Letters and Science at UCLA.

Honors Program

The honors program in sociology provides opportunity for outstanding students to undertake an independent year-long research project under the guidance of a faculty member. Students who successfully complete the honors program graduate with departmental honors.

As preparation for the honors program, students must complete all preparation for the major courses.

After acceptance into the honors program, students are required to take courses 191H, 198A, 198B, and 198C (honors thesis seminars) which may be applied as electives toward the major requirements.

Students must have a 3.5 overall grade-point average, have completed the sociology preparation requirements and, in most cases, have completed the required theory course. Applications are available from the Undergraduate Counselor's Office, 254E Haines Hall.

Computing Specialization

Majors in Sociology may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the major, (2) completing Program in Computing 10A, 10B,

10C, and (3) completing Sociology 111, 113. Each course must be taken for a letter grade. Students graduate with a bachelor's degree in sociology and a specialization in Computing.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Sociology offers Master of Arts (MA), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Sociology.

Sociology

Lower Division Courses

1. Introductory Sociology. (5) Lecture, four hours; discussion, one hour. Survey of characteristics of social life, processes of social interaction, and tools of sociological investigation. P/NP or letter grading.

M5. Social Organization of Black Communities. (5) (Same as African American Studies M5.) Lecture, four hours; discussion, one hour; field trips. Analysis and interpretation of social organization of black communities, with focus on origins and development of black communities, competing theories and research findings, defining characteristics and contemporary issues. Letter grading.

10. Social Thought and Origins of Sociology. (5) Lecture, three hours; discussion, two hours. Introduction to history of social thought, with special emphasis on theoretical precursors to development of discipline of sociology. Exposition and analysis of selected social theorists and concepts, especially from the 17th to 19th centuries. Letter grading.

20. Introduction to Sociological Research Methods. (5) Lecture, three hours; discussion, one hour. Introduction to methods used in contemporary sociological research, with focus on issues of research design, data collection, and analysis of data. Fieldwork may be required. Letter grading.

40. American Racism: Psychosocial Analysis. (5) Lecture, four hours; discussion, one hour. Examination of long-standing history of American racism, beginning with institution of slavery, Jim Crow legislation, separate but equal doctrine, Brown versus Board of Education, Civil Rights legislation of 1960s, and Obama presidency. Focus on persistence over time of racist beliefs and mechanisms through which racism becomes passed on from one generation to next. Racism toward African Americans and harms it has inflicted on African American community, as well as on nation as whole. Examination of psychology and sociology of racism through video clips, social scientific texts, essays by prominent American humanists, and American literature that deals centrally with racism. P/NP or letter grading.

51. Sociology of Migration. (5) Lecture, three hours; discussion, one hour. Introduction to fundamental theories, themes, and research methods used in sociological research through comparative study of international migration. Examination of theoretical debates and empirical analysis of causes and consequences of transnational migration in countries of origin and destination, with focus on issues of race, ethnicity, social networks, development, citizenship, and state in comparative context. Letter grading.

M72A-M72B-M72CW. Sex from Biology to Gendered Society. (6-6-6) (Same as Communication Studies M72A-M72B-M72CW, GE Clusters M72A-M72B-M72CW, and Society and Genetics M72A-M72B-M72CW.) Course M72A is enforced requisite to M72B, which is enforced requisite to M72CW. Limited to first-year freshmen. Letter grading. **M72A-M72B.** Lecture, three hours; discussion, two hours. Examination of many ways in which sex and sexual identity shape and are shaped by biological and social forces, approached from complementary perspectives of anthropology, biology, medicine, and sociology. Specific topics include biological origins of sex differences, intersex, gender identity, gender inequality, homosexuality, sex differences, sex/gender and law, and politics of sex research. **M72CW.** Special Topics. Seminar, three hours. Enforced requisite: course M72B. Topics may include politics of reproduction, sexuality, sexual identity, social construction of gender, and reproductive technologies. Satisfies Writing II requirement.

97. Variable Topics Research Seminars: Sociology. (4) Seminar, three hours. Requisite: course 1. Designed for freshman/sophomores. Study of selected topics in sociology at introductory level. May be repeated for credit. Letter grading.

Upper Division Courses

101. Development of Sociological Theory. (5) Lecture, three hours; discussion, one hour. Comparative survey of basic concepts and theories in sociology from 1850 to 1920. P/NP or letter grading.

102. Contemporary Sociological Theory. (5) Lecture, three hours; discussion, one hour. Requisite: course 101. Critical examination of significant theoretical formulations from 1920 to present. P/NP or letter grading.

106A. Field Research Methods I. (6) Lecture, two hours; discussion, two hours; fieldwork, eight to 10 hours. Research practicum in which students write field notes on their experiences in and observations of intensive internship field placement. Readings focus on fieldwork roles and relations, observing and describing, writing field notes, field interviewing, ethical issues, and preliminary data analysis. Fieldwork and extensive field notes required. Letter grading.

106B. Field Research Methods II. (6) Lecture, two hours; discussion, two hours; fieldwork, 10 hours. Requisite: course 106A. Collection and analysis of both field notes and unstructured interview data from student field placement. Use of techniques of qualitative data analysis, including qualitative coding, analytic memoing, and grounded theory methods, to analyze these materials and to write ethnographic paper. Letter grading.

110. Sociohistorical Methods. (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. General problems of scientific abstraction, generalization, inference, and verification and particular problems of historical specification, comparison, and counterfactual reasoning in constructing and testing replicable explanation of historical event. P/NP or letter grading.

111. Social Networks. (4) Lecture, three hours; laboratory, one hour. Analysis of how social networks create social structure, how social actors utilize them, and their unexpected effects. Topics include job search, firm efficiency, and social movements. Visualization programs, computer simulations, and research project. P/NP or letter grading.

112. Introduction to Mathematical Sociology. (4) Lecture, three hours; laboratory, one hour. Requisites: Mathematics 2, 3A (course whose content includes introductions to probability theory, matrix algebra, and differential and integral calculus). Statistics 10. Mathematical treatment of several sociological phenomena, such as occupational mobility, population growth, organizational structure, and friendship patterns, each covered in some detail, including initial development and subsequent evaluation and modification (emphasizing both deductive and computational aspects of mathematics). Letter grading.

113. Statistical and Computer Methods for Social Research. (4) Lecture, three hours; laboratory, one hour. Requisite: Statistics 10. Continuation of Statistics 10, covering more advanced statistical techniques such as multiple regression, analysis of variance, or factor analysis. Content varies. Students learn how to use computer and write papers analyzing prepared data sets. P/NP or letter grading.

115. Environmental Sociology. (4) (Same as Environment M133 and Society and Genetics M133.) Lecture, three hours; discussion, one hour. Relationship between society and environment. Analysis in detail of interrelations between social factors (such as class, race, gender, and religion) and environmental factors (such as pollution, waste disposal, sustainability, and global warming). P/NP or letter grading.

116. Social Demography. (4) Lecture, three hours; discussion, one hour. Studies of past, present, and future trends in population growth. Sociological theories of causes and consequences of population growth and redistribution. Emphasis on correlates of fertility, mortality, and migration. P/NP or letter grading.

117. Family Demography. (4) Lecture, three hours; discussion, one hour. Examination of demographic behaviors, such as marriage, divorce, and childbearing, associated with family and household organization. Sociological approach to understanding causes and consequences of trends and differentials in family formation and dissolution. P/NP or letter grading.

118. Simulating Society: Exploring Artificial Communities. (5) (Same as Honors Collegium M148.) Seminar, three hours; computer laboratory, one hour. Examination of social behavior through computer simulations of behavior in artificial communities. P/NP or letter grading.

119. Primate Societies. (4) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Selected topics on diverse behaviors and cultural forms of primate cousins, with special focus on baboons, chimpanzees, and gorillas. Examination of primate socioecology, sexual competition, demography and kinship, politics, communication, and interactions within and between groups. Implications for our lives as human primates. P/NP or letter grading.

120. Disability Rights Law. (4) (Same as Disability Studies M149.) Lecture, four hours. Examination of disability-related issues impacting people of all ages across wide spectrum of settings in both public and private sectors—from preschool to higher education, from military to workplace, and from intensely urban environments to online and virtual worlds. Topics range from persistent and recurring disputes to novel controversies fueled by new technologies and changing times. P/NP or letter grading.

M124A-M124B. Conversational Structures I, II. (4-4) (Same as Communication Studies M144A-M144B.) Lecture, three hours; discussion, one hour. P/NP or letter grading. **M124A.** Introduction to some structures that are employed in organization of conversational interaction, such as turn-taking organization, organization of repair, and some basic sequence structures with limited expansions. **M124B.** Requisite: course M124A. Consideration of some more expanded sequence structures, story structures, topical sequences, and overall structural organization of single conversations.

CM125. Talk and Social Institutions. (4) (Same as Communication Studies M125.) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Practices of communication and social interaction in number of major institutional sites in contemporary society. Setting varies but may include emergency services, police and courts, medicine, news interviews, and political oratory. Concurrently scheduled with course C258. P/NP or letter grading.

126. Study of Norms. (4) Lecture, three hours; discussion, one hour. Properties of norms, of normatively governed conduct, of lay and professional methods for describing, producing, using, and validating norms in contrasting settings of socially organized activities;

relevance of these properties for programmatic problems of analytic sociology. Fieldwork required. P/NP or letter grading.

127. Mind and Society. (4) Lecture, two and one half hours; discussion, one hour. Requisite: course 1. Study of social production of modes of thought and forms of knowledge. Study of ways in which bodies of knowledge and cognitive styles are produced, used, and transformed in everyday, organizational, and extraordinary contexts. P/NP or letter grading.

128. Sociology of Emotions. (4) Lecture, three hours; discussion, one hour. Requisite: course 1. Designed for juniors/seniors. Sociological theories and explanations of social conditions shaping and producing emotional experiences; effects of individual expression of emotions on social conditions; relations between thought, sensations, and emotions; self and emotions; social construction of emotions. P/NP or letter grading.

129. Sociology of Time. (4) Lecture, three hours; discussion, one hour. Conceptualizations of time seen from scientific, philosophical, historical, and sociological perspectives; “cyclical” and “linear” time in primitive, ancient, and medieval societies; ritual, the sacred, and experience of the eternal; structuring of urban, modern, and postmodern societies by clock, calendar, and schedule; future value orientation and notion of progress; time, labor, and social domination. P/NP or letter grading.

130. Self and Society. (4) Lecture, three hours; discussion, one hour. Examination of social processes shaping experience, definition, and enactment of self and personal identity. P/NP or letter grading.

132. Social Psychology: Sociological Approaches. (4) Lecture, three hours; discussion, one hour. Survey of contribution of sociologists to theory and research in social psychology, including theories of social control; conformity and deviation; reference groups; and interaction process. P/NP or letter grading.

133. Collective Behavior. (4) Lecture, three hours; discussion, one hour. Requisite: course 1. Designed for juniors/seniors. Characteristics of crowds, mobs, publics, social movements, and revolutions; their relation to social unrest and their role in developing and changing social organization. P/NP or letter grading.

134. Culture and Personality. (4) Lecture, three hours; discussion, one hour. Requisite: course 1. Designed for juniors/seniors. Theories of relation of variations in personality to culture and group life, in primitive and modern societies, and influence of social role on behavior. P/NP or letter grading.

138. Death, Suicide, and Trauma. (4) (Same as Psychology M163.) Lecture, three hours; discussion, one hour. Sociological analysis of incidence of violent death. Suicide is eighth leading cause of death in U.S. and third leading cause for young people aged 15 to 24. Both kinds of violent deaths are often dismissed as extreme psychopathology, reflecting individual mental health issues. Sociologists argue that suicide and homicide are social facts. Suicide and homicide do not occur randomly in society but are stratified according to social factors such as age, gender, race, sexual orientation, and class. Analysis of strength of this sociological argument and evaluation of explanatory potential of different theories to make sense of violent death, paying particular attention to forensic and medicolegal system to determine suicide and solve homicides. Review of historic and contemporary studies to examine how research and conceptualizations of suicide and homicide have changed, as well as social responses to these phenomena. P/NP or letter grading.

141A. Migration and Labor in Mexico-U.S. Context. (5) Seminar, 20 hours. Mexico-U.S. migration is largest and oldest continuous international population flow of contemporary world. In recent decades, prompted by swift economic transformations, rural and urban Mexicans from every corner of Mexico have joined this migratory flow, settling well beyond southwestern region and into far-reaching areas of U.S. interior. Migration is binding U.S. and Mexico stronger than ever, putting this complex and multifaceted phenomena at top of bilateral agenda. Examina-

tion of sociological dynamics of international migration and labor as they apply to Mexico-U.S. context, including demographic, political, and economic dynamics of migration, economic and social infrastructures that support cross-border mobility, and connections of migration with binational, national, regional, and local labor markets. Comparative insights to contrast this flow with other contemporary population streams. Offered in summer only. Letter grading.

141B. Migration and Labor in Mexico-U.S. Context: Research Seminar. (5) Seminar, 10 hours; fieldwork, 10 hours. Development of qualitative micro-study and research paper on migration and labor in Mexico-U.S. context. Research topic of interest to be selected so students become familiar with commonly employed qualitative methods of research. Designed to help students understand basics of methodological reasoning, how to formulate research questions, and how to frame and investigate one particular issue related to migration and labor. How to make ethical decisions about conducting research. Development of student abilities as researchers by conducting secondary and primary research culminating in final research paper to be presented to faculty members and peers. Offered in summer only. Letter grading.

M142. Healthcare in Transitional Communities. (4) (Same as Public Health M151.) Lecture, three hours; discussion, one hour. Analysis of social, cultural, economic, and political processes affecting organization and accessibility of healthcare in transitional and disadvantaged communities. Fieldwork required. Letter grading.

143. Human Health and Society. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1, 20, 101. Exploration of long-run historical trends in relationship between human health and social organization, drawing on historical, anthropological, demographic, and sociological concepts, theories, and data. P/NP or letter grading.

145. Sociology of Deviant Behavior. (4) Lecture, three hours; discussion, one hour. Examination of leading sociological approaches to study of deviation and general survey of major types of deviation in American society. P/NP or letter grading.

C146. Sociology of Interpersonal Conflict. (4) Lecture, three hours; discussion, one hour. Origins, development, and outcomes of interpersonal conflicts and troubles that arise in close relationships, households, workplaces, and public places in contemporary societies. Concurrently scheduled with course C229A. Letter grading.

147A. Sociology of Crime. (4) Lecture, three hours; discussion, one hour. Sociological theories of social origins, organization, and meanings of crime and criminal behaviors. P/NP or letter grading.

147B. Sociology of Criminal Justice. (4) Lecture, three hours; discussion, one hour. Examination of structures and routine decision-making processes of key criminal justice institutions, including police, courts, probation and parole, jails and prisons. P/NP or letter grading.

M148. Sociology of Mental Illness. (4) (Same as Disability Studies M148.) Lecture, three hours; discussion, one hour. Analysis of major sociological and social psychological models of madness. Study of social processes involved in production, recognition, labeling, and treatment of mental illness. P/NP or letter grading.

149. Youth, Trouble, and Juvenile Justice. (4) Lecture, three hours; discussion, one hour. Examination of processes through which youth become involved in juvenile justice system. Analysis of this system as people-processing and people-changing institution as context for considering critical issues in juvenile justice. P/NP or letter grading.

M150. Sociology of Aging. (4) (Same as Gerontology M150.) Lecture, three hours; discussion, one hour. Study of sociological processes shaping definition, experience, and response to aging in contemporary society. Topics include race, class, and gender in aging over life course; interpersonal relations and so-

cial worlds of aged; caregiving relations and institutions; professions concerned with aged and aging. Letter grading.

151. Comparative Immigration. (4) Lecture, three hours; discussion, one hour. Survey of immigration of Europeans, Asians, and Hispanics to the U.S. since the mid-19th century. Overview of immigration experience on ethno-racial groups that migrated voluntarily to this country, with emphasis on immediate postimmigration settlement. P/NP or letter grading.

152. Comparative Acculturation and Assimilation. (4) Lecture, three hours; discussion, one hour. Requisite: course 151. Comparison of acculturation and assimilation of Europeans, Africans, Mexicans, and Asians in the U.S., with emphasis on long-term cultural consequences of immigration. P/NP or letter grading.

M153. Chinese Immigration. (4) (Same as Asian American Studies M130C.) Lecture, three hours; discussion, one hour. Survey of sociological studies of Chinese immigration, with focus on international context, organization, and institutions of Chinese America and its interactions with social environment. P/NP or letter grading.

154. Race and Ethnicity: International Perspectives. (4) Lecture, three hours; discussion, one hour. Not open to freshmen. Role of race and ethnicity in political, economic, and social lives of nations other than the U.S. P/NP or letter grading.

M155. Latinos in U.S. (4) (Same as Chicana and Chicano Studies M155A.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Exploration of history and social conditions of Latinos in Los Angeles as well as nationally, with particular emphasis on their location in larger social structure and on comparisons with other minority groups. Topics include migration, family, education, and work issues. P/NP or letter grading.

156. Race and Ethnicity in American Life. (4) Lecture, three hours; discussion, one hour. Role of race and ethnicity in the U.S., including interplay between racial and ethnic structures and meanings. Special attention to comparison of African American and European American experiences and to transformation of Asian American and Latino communities and the nation generally, wrought by renewal of mass migration in second half of the 20th century. P/NP or letter grading.

157. Social Stratification. (4) Lecture, three hours; discussion, one hour. Analysis of American social structure in terms of evaluational differentiation. Topics include criteria for differentiation, bases for evaluation, types of stratification, composition of strata and status systems, mobility, consequences of stratification, and problems of methodology. P/NP or letter grading.

158. Urban Sociology. (4) Lecture, three hours; discussion, one hour. Description and analysis of urbanization and urbanism in the U.S. and world. P/NP or letter grading.

M161. Comparative American Indian Societies. (4) (Same as American Indian Studies M161.) Lecture, three hours. Requisite: course 1 or American Indian Studies M10. Comparative and historical study of political, economic, and cultural change in indigenous North American societies. Several theories of social change, applied to selected case studies. Letter grading.

M162. Sociology of Gender. (5) (Same as Gender Studies M162.) Lecture, three hours; discussion, one hour. Enforced requisite: course 1 or Gender Studies 10. Examination of processes by which gender is socially constructed. Topics include distinction between biological sex and sociological gender, causes and consequences of gender inequality, and recent changes in gender relations in modern industrial societies. P/NP or letter grading.

M163. Gender and Work. (4) (Same as Gender Studies M163.) Lecture, three hours. Requisite: course 1 or Gender Studies 10. Exploration of relationship of gender to work, concentrating on the U.S. experience but also including some comparative ma-

terial. Particular emphasis on analysis of causes and consequences of job segregation by gender and of wage inequality. P/NP or letter grading.

M164. Politics of Reproduction. (4) (Same as Gender Studies M164.) Lecture, three hours; discussion, one hour. Title refers to intersection between politics and life cycle. Topics include social construction of gender and population, reproductive issues, politicization of mothers, motherhood, and mothering, surrogacy, and new reproductive technologies. Letter grading.

M165. Sociology of Race and Labor. (4) (Same as African American Studies M165 and Labor and Workplace Studies M165.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Exploration of relationship between race/ethnicity, employment, and U.S. labor movement. Analysis of underlying racial divisions in workforce and how they evolved historically. Consideration of circumstances under which workers and unions have excluded people of color from jobs and unions, as well as circumstances under which workers and unions have organized people of color into unions in efforts to improve their wages and working conditions. Impact of globalization on these dynamics. P/NP or letter grading.

168. Organizations and Society. (4) Lecture, three hours; discussion, one hour. Sociological analysis of organizations and their social environment. Introduction to basic theories, concepts, methods, and research on behavior of organizations in society. P/NP or letter grading.

169. Law and Society. (4) Lecture, three hours; discussion, one hour. Specific topics may include law in preindustrial and industrialized societies, legalization of contemporary social relations, participants' experiences of legal processes, lay perceptions of justice, social movements toward equal justice, roles of lawyers and judges, social impact of court decisions. P/NP or letter grading.

170. Medical Sociology. (4) Lecture, three hours; discussion, one hour. Requisite: course 1. Provides majors in Sociology and other social sciences, as well as students preparing for health sciences careers, with understanding of health-seeking behavior and interpersonal and organizational relations that are involved in receipt and delivery of health services. P/NP or letter grading.

171. Occupations and Professions. (4) Lecture, three hours; discussion, one hour. Description and analysis of representative occupations and professions, with emphasis on contemporary U.S. P/NP or letter grading.

172. Entrepreneurship. (4) Lecture, three hours; discussion, one hour. Description and analysis of entrepreneurship, with special reference to historical origins, ideology, international comparisons, women and ethnic minority participation, legal and illegal forms, public and private auspices. P/NP or letter grading.

173. Economy and Society. (4) Lecture, three hours; discussion, one hour. Sociology of economic life, with emphasis on principal economic institutions of the U.S. P/NP or letter grading.

M174. Sociology of Family. (4) (Same as Gender Studies M174.) Lecture, three hours; discussion, one hour. Theory and research dealing with modern family, its structure, and functions, including historical changes, variant family patterns, family as institution, and influence of contemporary society on family. P/NP or letter grading.

M175. Sociology of Education. (5) (Same as Education M108.) Lecture, four hours; discussion, one hour. Study of how U.S. educational system both promotes socioeconomic opportunities and maintains socioeconomic inequalities: historical and theoretical perspectives on role of education in U.S. society; trends in educational attainment; ways in which family background, class, race, and gender affect educational achievement and attainment; stratification between and within schools; effects of education on socioeconomic attainment, family, health, attitudes, and social participation; educational policies to improve school quality and address socioeconomic inequalities. Letter grading.

M176. Sociology of Mass Communication. (4) (Same as Communication Studies M147.) Lecture, four hours; discussion, one hour (when scheduled). Studies in relationship between mass communication and social organization. Topics include history and organization of major media institutions, social forces that shape production of mass media news and entertainment; selected studies in media content, and effects of media on society. P/NP or letter grading.

M178. Sociology of Caribbean. (4) (Same as African American Studies M178.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Historical sociology of Caribbean, with emphasis on colonialism and decolonization, development and underdevelopment, race-making institutions and evolution of race relations, nationalism and migration. P/NP or letter grading.

180A-180Z. Special Topics in Sociology. (4 each) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Study of selected topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit and may be applied as elective units toward Sociology major. P/NP or letter grading.

181A-181B. Sociology of Contemporary China. (4-4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Each course may be taken independently for credit. P/NP or letter grading. **181A.** Exploration of 20th-century changes in China, including end of dynasties, Republican era, Communist Revolution, and market reform. Topics include transformation in Chinese social structure and institutions and everyday practices. Survey of changes and analysis of forces shaping contemporary China and global impact and current implications. **181B.** Survey of changes in Chinese society from beginning of 20th century to present. Topics include social mobility and inequality, family and household, and population. Emphasis on changes post-Reform Era and in present. Focus on interaction of economic and political change plus family organization. Contrasts and similarities between China and West, China's place in social sciences, and challenges due to social organization that originated from studying Western societies.

182. Political Sociology. (4) Lecture, three hours; discussion, one hour. Contributions of sociology to study of politics, including analysis of political aspects of social systems, social context of action, and social bases of power. P/NP or letter grading.

183. Comparative and Historical Sociology. (4) Lecture, three hours; discussion, one hour. Requisite: course 1. Survey of central themes of comparative and historical studies in sociology. Various aspects of development of modern society, including development of nation-state, emergence of capitalism, industrialization, and population growth. Variation in contemporary society, viewed from variety of theoretical perspectives. P/NP or letter grading.

185. American Society. (4) Lecture, three hours; discussion, one hour. Analysis of major institutions in the U.S. in historical and international perspective, with emphasis on topics such as industrialization, work, state, politics, community, family, religion, and American culture. Theories of social change, conflict, and order applied to case of the U.S. P/NP or letter grading.

186. Latin American Societies. (4) Lecture, three hours; discussion, one hour. Social structure and social conflict in Latin America, with special attention to racial and class structures and dilemmas of economic and political development. Country and specific focus varies each term. P/NP or letter grading.

188A. Careers in Sociology. (2) Lecture, two hours. Limited to juniors/seniors. Examination of possible career paths for Sociology majors, including such fields as business, nonprofit sector, government, healthcare, entertainment, and other areas. Development of career-relevant materials and skills. Letter grading.

191A. Undergraduate Seminar: Self and Identity. (5) Seminar, three hours. Limited to junior/senior Sociology majors. Examination of cultural, historical, and interactional contexts shaping definition, enactment, and experience of self. Reading, discussion, and development of culminating project. Letter grading.

191B. Undergraduate Seminar: Sociology of Humor and Laughter. (5) Seminar, three hours. Limited to junior/senior Sociology majors. Selected topics. Reading, discussion, and development of culminating project. Letter grading.

191C. Undergraduate Seminar: Money and Emotions. (5) Seminar, three hours. Limited to junior/senior Sociology majors. Selected topics. Reading, discussion, and development of culminating project. Letter grading.

191D. Undergraduate Seminar: Sociology of Development. (5) Seminar, three hours. Limited to juniors/seniors. Taught in Spanish. Selected topics on development in Third World from global perspective. Reading, discussion, and development of culminating project. Letter grading.

191DC. CAPPP Washington, DC, Research Seminars. (8) (Same as Communication Studies M191DC, History M191DC, and Political Science M191DC.) Seminar, three hours; laboratory, 24 hours. Limited to CAPPP Program students. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

191E. Undergraduate Seminar: Population Growth Models. (5) Seminar, three hours. Limited to juniors/seniors. Selected topics. Reading, discussion, and development of culminating project. Letter grading.

191F. Undergraduate Seminar: Sociology of Globalization. (5) Seminar, three hours. Limited to juniors/seniors. Great extension of social relations across globe has occurred over last 50 years. What are causes and mechanisms of this process, how far has it transformed human societies, and how far will it go in future? Economic, cultural, political, and military aspects of globalization, with focus on extent to which global expansion of capitalism, nation-state system, and American imperialism reinforce or undercut each other, producing new lines of division and conflict across world. Reading, discussion, and development of culminating project. Letter grading.

191H. Honors Seminars: Sociology. (4) Seminar, three hours. In-depth introduction to process of producing scholarly sociological research for students who intend to write undergraduate thesis for departmental honors. Letter grading.

191I. Undergraduate Seminar: Health and Inequality. (5) Seminar, three hours. Limited to juniors/seniors. During past century, social inequalities in health and survival were widening in the U.S. as in other developed societies. Broad overview of these trends and their causes. Reading, discussion, and development of culminating project. Letter grading.

191J. Undergraduate Seminar: Mexican Society. (5) Seminar, three hours. Selected topics on contemporary Mexican society and vital transformations it has undergone in recent years. Reading, discussion, and development of culminating project. Letter grading.

191K. Undergraduate Seminar: Cigarettes and Western Civilization—Sociological History of Smoking. (5) Seminar, three hours. Limited to juniors/seniors. Use of history of tobacco and cigarette smoking to explore important themes in sociology, history, and culture. History of tobacco from its roots in Native American culture, its contribution to foundation of European colonies in New World, its cultural incorporation in western Europe, its role in rise of industrial way of life and health consequences, and its demise as legitimate soft drug for modern urban people. Letter grading.

191L. Undergraduate Seminar: Environmental Justice and Sustainability. (5) Seminar, three hours. Limited to juniors/seniors. Sociological approach to study of environmental issues and problems. Topics include ecopolitics and ecofeminism, environmental racism, global environmental change, sustainable development, and society-environment interface. Reading, discussion, and development of culminating project. Letter grading.

191M. Undergraduate Seminar: Social Ecology. (5) Seminar, three hours. Limited to juniors/seniors. Fundamentals of sociological approach to social ecology, also known as human ecology. Study of adaptation of population to its environment. Topics include density, maintaining personal space, space and territoriality, and effects of environment on humans. Reading, discussion, and development of culminating project. Letter grading.

191N. Undergraduate Seminar: Urban and Suburban Sociology. (5) Seminar, three hours. Limited to juniors/seniors. History and present condition of cities and suburbs in America, with stress on global cities such as New York and Los Angeles, and comparisons to London and Shanghai. Process of suburbanization as it began in early 19th century and still continues. Analysis of city politics, house and architectural styles, crime, urban terror, public housing and ghettos, segregation and integration of neighborhoods, question of gentrification, immigration, urban culture (especially art, museums, and movie and music industries), and environmentalism. Concurrently scheduled with course C297. Letter grading.

191NY. Undergraduate Seminar: Urban and Suburban Sociology in New York City. (5) Seminar, eight hours. Limited to students in summer UCLA Travel Study Program. Cutting-edge urban issues in country's largest city, including New York's attempt to plan for city of 9.2 million, rebuilding of World Trade Center, Robert Moses (New York's master builder), urban economic development, green New York, transportation systems, urban politics, house and architectural styles, including New York's famous skyscrapers, historic preservation, crime and police departments, ghetto, education, urban poor, public housing, and search for affordable housing. Offered in summer only. Letter grading.

191O. Undergraduate Seminar: Ideals of Love in Historical Perspective. (5) Seminar, three hours. Limited to juniors/seniors. Exploration of historically specific understandings of love. Reading, discussion, and development of culminating project. Letter grading.

191P. Undergraduate Seminar: Politics of Reproduction (5) Seminar, three hours. Limited to juniors/seniors. Social and human reproduction is global policy issue. Government efforts to influence reproduction are important feature of modern state: political intervention into private life, intimacy, and sexuality. Exploration of politics of reproduction—intersection between politics and life cycle or between public sphere and private lives—and coverage of broad range of issues addressing prevention and promotion of reproduction from historical-comparative approach. Reading, discussion, and development of culminating project. Letter grading.

191Q. Undergraduate Seminar: Communication in Medical Care. (5) Seminar, three hours. Limited to juniors/seniors. Sociology dimensions of patient care in primary care context. Use of microsociological methods to examine main facets of American primary care medical visits, including detailed analysis of interactional conduct of those visits and development of microanalytical constructs into quantitative measures. Emphasis on direct contact with empirical materials and development of observational and analytic skills. Reading, discussion, and development of culminating project. Letter grading.

191R. Undergraduate Seminar: Cultural Sociology. (5) Seminar, three hours. Limited to juniors/seniors. Introduction to classic theoretical approaches and contemporary developments in study of social worlds dedicated to creating and handling cultural institutions such as literature, journalism, film/television, art,

architecture, music, dance, and museums. Discussion of such issues as contemporary validity of distinction between high and popular/low culture, relationship of mainstream and marginal culture, how culture expresses and reinforces social inequality, organizational context of culture, and how people express and decipher meaning in cultural objects. Reading, discussion, and development of culminating project. Letter grading.

191S. Undergraduate Seminar: Sociology of Gender and Sexuality. (5) Seminar, three hours. Limited to juniors/seniors. Sexuality is important site for enactment of gender and gender identity. Sexual preference and sexual behavior can also form basis for social identity, repression, discrimination, and privilege, independent of gender. Social factors such as social class, ethnicity, generation, and networks shape our sexual practices and choice of partners. Reading and writing about variety of original sociological, historical, and anthropological texts and development of culminating project. Letter grading.

191T. Undergraduate Seminar: War and Society. (5) Seminar, three hours. Limited to juniors/seniors. Study of relationship between society's military and its social organization in general, with particular attention to shock-based civic militarism characteristic of the West. Topics include honor, discipline, bureaucracy, conscription, logistics, total war, guerilla war, terrorism, and counterinsurgency. Reading, discussion, and development of culminating project. Letter grading.

191V. Variable Topics Research Seminars: Sociology. (5) Seminar, three hours. Limited to juniors/seniors. Study of selected topics of sociological interest. Reading, discussion, and development of culminating project. Consult Schedule of Classes for topics and instructors. May be repeated for credit and may be applied as elective units toward Sociology major. Letter grading.

194. Research Group Seminars: Sociology. (2) Seminar, two hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field. May be repeated for credit. P/NP or letter grading.

M194DC. CAPP Washington, DC, Research Seminars. (4) (Same as History M194DC and Political Science M194DC.) Seminar, three hours. Limited to CAPP Quarter in Washington students and other students enrolled in UC Washington Center programs. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

195. Community or Corporate Internships in Sociology. (4) Tutorial, three hours. Limited to juniors/seniors. Internship in community agency or business to be supervised jointly by Center for Community Learning and faculty adviser. Students meet on regular basis with instructor and provide weekly reports of their experience. Normally only 4 units of internship are allowed. Individual contract with supervising faculty member required. P/NP or letter grading.

195CE. Community and Corporate Internships in Sociology. (4) Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. May be repeated for credit with consent of Center for Community Learning. No more than 4 units may be applied toward major; units applied must be taken for letter grade. Individual contract with supervising faculty member required. P/NP or letter grading.

M195DC. CAPP Washington, DC, Internships. (4) (Same as History M195DC and Political Science M195DC.) Tutorial, four hours. Limited to junior/senior CAPP Program students. Internships in Washington, DC, through Center for American Politics and Public Policy. Students meet on regular basis with instructor and provide periodic reports of their experience. Individual contract with supervising faculty member required. P/NP grading.

198A-198B-198C. Honors Research in Sociology. (4-4-4) Tutorial, one hour. Requisite: course 191H. Limited to sociology honors program students. May be repeated for credit. Individual contract required. Letter grading. **198A.** Design of research project to serve as student's honors thesis. Research proposal, detailed bibliography, and regular meetings with sponsoring faculty member required. **198B.** Requisite: course 198A. Continuation of work initiated in course 198A. Development of honors thesis in consultation with instructor. **198C.** Requisite: course 198B. Completion of honors thesis under direct supervision of honors faculty director.

199. Directed Research in Sociology. (2 to 4) Tutorial, one hour. Preparation: 3.0 grade-point average in major. Requisites: course 1, and Political Science 6 or Statistics 10 or 13. Limited to junior/senior Sociology majors. Independent intensive study designed for students who want to do research under guidance of faculty mentor. Scheduled meetings to be arranged between faculty member and student. Culminating paper or project required. May be repeated for maximum of 16 units, but only 8 units may be applied toward major. Individual contract required; see undergraduate counselor. P/NP or letter grading.

Graduate Courses

201A-201B-201C. Proseminars: Sociology. (2-2-2) Seminar, two hours every other week. Required of first-year graduate sociology students. Introduction to range of theoretical and research interests represented by department faculty members. S/U grading.

202A-202B. Theory and Research in Sociology. (4-4) Lecture, two hours; discussion, two hours. Required of first-year graduate sociology students. Examination of interrelations of theory, method, and substance in exemplary sociological works, with analytical and skills-centered orientation. In Progress (202A) and S/U or letter (202B) grading.

203. How to Write a Lot. (4) Seminar, three hours. Designed to help graduate students develop regular and productive writing practices. Appropriate for students in their second year or beyond who have one full draft of their MA paper written and want to revise and publish it in timely manner. Development of regular writing schedules and protecting them from competing demands. Learning of specific genres of writing for academic journals, books, and op-eds. Editing of students' own work and that of classmates. S/U or letter grading.

204. Topics in Sociological Theorizing. (4) Seminar, four hours. Examination of selected issues and problems in classical or contemporary sociological theory. S/U or letter grading.

205. Family and Social Change. (4) Lecture, three hours. Examination of sources of change in family and household organization, with major focus on relationships among economic institutions, family structure, and content of family life. Consideration of concepts, theories, and data about kinship. S/U or letter grading.

M206. Understanding Fertility: Theories and Methods. (4) (Same as Community Health Sciences M222.) Lecture, three hours. Preparation: one formal or social demography course. Requisite: Biostatistics 100A. Application of demographic theories and methods to describe fertility trends and differentials and social and proximate determinants of fertility, with emphasis on understanding key proximate determinants. For advanced students interested in population, demography of health, and social demography. Letter grading.

208A-208B. Social Network Methods. (4-4) Lecture, three hours; laboratory, one hour. Requisites: courses 210A, 210B. Techniques for measuring characteristics of networks and positions in networks. Centrality of positions, centralization and density of networks, structural equivalence, cliques. Readings of exemplars of network research. Computer programs. S/U or letter grading.

210A-210B. Intermediate Statistical Methods I, II. (4-4) Lecture, three hours; discussion, two hours. Intermediate statistical methods using computers: probability theory, sampling distributions, hypothesis testing, interval estimation, multiple regression and correlation, experimental design, analysis of variance and covariance, contingency tables, sampling theory. S/U or letter grading.

210C. Intermediate Statistical Methods III. (4) Lecture, three hours; discussion, one hour. Requisite: course 210B. Survey of advanced statistical methods used in social research, with focus on problems for which classical linear regression model is inappropriate, including categorical data, structural equations, longitudinal data, incomplete and erroneous data, and complex samples. S/U or letter grading.

211A-211B. Comparative and Historical Methods. (4-4) Lecture, three hours. In Progress (211A) and S/U or letter (211B) grading. **211A.** Strategies of Research and Conceptualization. Topics include relationship of theory and fact to social sciences, logic of comparative and historical analysis, and substantive paradigms of comparative and historical analysis. Reading involves methodological examination of basic works in representative problem areas. **211B.** Research Techniques. Requisite: course 211A. Topics include problem of evidence, quantitative and qualitative data. Techniques of data analysis, including use of manuscript census, content analysis, collective biography, and secondary analysis.

212A. Quantitative Data Analysis. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 210A, 210B. Course 212A is enforced requisite to 212B. Analysis and interpretation of primarily nonexperimental quantitative data, with focus on sample survey and census data. Extensive practice at utilizing statistical methods encountered in previous courses, culminating in term paper proposal in style of *American Sociological Review* or similar journal article. Topics include simple tabular analysis, correlation, log-linear analysis, ordinary least squares regression, regression with interactions, robust regression, diagnostic procedures, and methods for handling complex sample survey designs. In Progress grading (credit to be given only on completion of course 212B).

212B. Quantitative Data Analysis. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 212A. Analysis and interpretation of primarily nonexperimental quantitative data, with focus on sample survey and census data. Extensive practice at utilizing statistical methods encountered in previous courses, culminating in term paper in style of *American Sociological Review* or similar journal article. Topics include missing data; binomial, multinomial, and ordinal logistic regression; factor analysis and scale construction; methods for causal inference, including fixed effects and propensity score matching; and primer on advanced topics, including structural equations and multilevel models. S/U or letter grading.

212C. Study Design and Other Issues in Quantitative Data Analysis. (4) Lecture, three hours. Designed for graduate and undergraduate students who have had some exposure to statistics and quantitative methods. Introduction to study design, including experimental, longitudinal, cohort, time-series designs, contextual, and other designs. Discussion of suitability of various design classes for specific analytic goals, as well as their comparative strengths and weaknesses. S/U or letter grading.

M213A. Introduction to Demographic Methods. (4) (Same as Biostatistics M208, Community Health Sciences M208, and Economics M208.) Lecture, four hours. Preparation: one introductory statistics course.

Introduction to methods of demographic analysis. Topics include demographic rates, standardization, decomposition of differences, life tables, survival analysis, cohort analysis, birth interval analysis, models of population growth, stable populations, population projection, and demographic data sources. Letter grading.

213B. Applied Event History Analysis. (4) Lecture, three hours. Preparation: exposure to binary response models. Requisites: courses 210A, 210B. Introduction to regression-like analyses in which outcome is time to event. Topics include logit models for discrete-time event history models; piecewise exponential hazards models; proportional hazards; nonproportional hazards; parametric survival models; heterogeneity; multilevel survival models. S/U or letter grading.

213C. Population Models and Dynamics. (4) Lecture, three hours. Enforced requisite: course M213A. Population models and their dynamics in population processes. How demographic models are used in estimation of population size, age structure, and associated dynamics. Computer simulations of demographic processes to gauge conclusions from demographic models. Estimation of demographic models in human population and broader relevance of demographic analysis to study of any population or system, including health and social systems. S/U or letter grading.

216A-216B. Survey Research Design. (4-4) Lecture, 90 minutes; discussion, 90 minutes. Requisite: course 210A. History of survey method; facet metatheory and concept formation; questionnaire and item design; scales, indices typologies; data collection—planning and management; network, snowball, and experience sampling; multistage probability sampling, stratification and clustering. Students participate in survey research project. Letter grading.

217A. Analyzing Ethnographies. (4) Seminar, three hours. Analysis of ethnographic monographs. S/U or letter grading.

217B-217C. Ethnographic Fieldwork. (4-4) Seminar, three hours. Recommended requisite: course 217A. Theories and techniques of ethnographic fieldwork. Kinds of problems amenable to ethnographic approaches, methods, and techniques for doing fieldwork, and ethical problems involved in such research. In Progress (217B) and letter (217C) grading.

220. Self and Society. (4) Lecture, three hours. Examination of social and cultural processes shaping definition and experience of the self, embodied interactional practices through which the self is constructed in everyday and institutional contexts, formation and transformation of self during life course, and construction of collective identity. Letter grading.

222. Foundations of Ethnomethodological, Phenomenological, and Analytic Sociologies. (4) Lecture, three hours. Designed for graduate students. Basic issues, methods, and topics of ethnomethodological, phenomenological, conversation-analytic, and related varieties of inquiry. Central themes such as world of everyday life, problem of rationality, rules/norms and tacit knowledge, problem of social order, speaking and discourse, constitutive practices, and production of ordinary interaction in first part; guest presentations by affiliated faculty in second part. S/U or letter grading.

223. Phenomenological and Interactionist Perspectives on Selected Topics. (4) Lecture, three hours. Comparison of phenomenological and symbolic and perspectives by examining particular body of live or currently unresolved substantive issues. Topics vary; attention on development of phenomenological and interactionist thought on topic of concern, with special concern for ambiguities and divergences both within and between two approaches. When relevant, attention to logical and historical relations of phenomenology and interactionism of pragmatist, existentialist, and ordinary language philosophies. S/U or letter grading.

M225A. California Population Research Topical Seminar Series. (4) (Same as Economics M204A.) Seminar, three hours. Examination of issues such as demography, health, aging, labor, and broad array of

topics concerned with effects of economic, social, and political transformations on human behavior both in U.S. and abroad. May be taken independently for credit. S/U grading.

226A-226B. Introduction to Theory and Major Empirical Research in Social Demography. (4-4) Lecture, two hours; discussion, one hour. Requisite: course 210A. Survey and critical examination of population theories and related major empirical research. Emphasis on interrelation of cultural, socioeconomic, and demographic factors. Introduction to elementary demographic methods utilizing microcomputers. S/U or letter grading.

227. Sociology of Knowledge. (4) Lecture, three hours. Designed for graduate students. Survey of theories and research concerning social determinants of systems of knowledge and role of intellectual and artistic elites in Western societies. S/U or letter grading.

228. Critical Issues in Macrosociology. (4) Lecture, three hours. Conceptual introduction to area of macrosociology in which exemplary works are read, studied for substance and methods, and critiqued in seminar and in written papers. S/U or letter grading.

C229A. Sociology of Interpersonal Conflict. (4) Lecture, three hours; discussion, two hours. Origins, development, and outcomes of interpersonal conflicts and troubles that arise in close relationships, households, workplaces, and public places in contemporary societies. Concurrently scheduled with course C146. Letter grading.

229B. People-Processing Institutions. (4) Lecture, three hours; discussion, two hours. Course C229A is not requisite to 229B. Theory and research analyzing operation and decision-making processes of variety of people-processing institutions, including police, courts, schools, psychiatry, human service agencies, and medicine. Letter grading.

230A-230B. Comparative Ethnicity, Race, and Nationalism. (4-4) Seminar, three hours. Preparation for independent research in area of comparative ethnicity, race, and nationalism through close reading of key theoretical and empirical works. S/U or letter grading.

230C. Comparative Ethnicity, Race, and Nationalism. (4) Seminar, three hours. Introduction to comparative and historical sociology of race and ethnicity to demonstrate merits of double comparative approach to race, one that strives to be as comparative at level of theory (attending to relationship between race and other forms of social classification, including ethnicity and nationality) as it does at level of research. Exploration of cases from wide variety of countries, including Australia, Brazil, Colombia, Dominican Republic, Haiti, Mexico, modern China, modern Japan, Nazi Germany, Nicaragua, Rwanda, South Africa, Sudan, and U.S. S/U or letter grading.

M231. Race, Class, and Gender: Constructing Black Womanhood and Black Manhood in America. (4) (Same as African American Studies M200G.) Seminar, four hours. Race, class, gender, and sexual identity are axes of stratification, identity, and experience. They are not merely identities but structural locations that are often taken for granted and rarely confronted, challenged, or contested. Many times one or more of these go unrecognized. Exploration of multiple and intersecting ways these concepts shape society, individual life chances, and daily social interactions for African Americans. Examination of race, class, and gender inequalities as individual aspects of social life. How race, class, gender, and sexual identity shape societies and individual experiences in interaction with each other. How these inequalities shape and are shaped by social institutions, including cultural institutions, economy, and family, within context of experiences of black women and black men in contemporary U.S. Letter grading.

232. Class, Politics, and Society. (4) Lecture, four hours. Nature of class structure and how it affects relation of class structure to politics and political power. Issue of salience of class versus other identities such as gender, age, race, and nationalism. Examination of contemporary "globalization" tendencies of capitalism. Letter grading.

233. Foundations of Political Sociology. (4) Lecture, three hours. Designed for graduate students. Survey of field of political sociology, oriented around critical themes in major theoretical traditions and contemporary exemplars. Special attention to competing perspectives on power, theory of state, and relationship of class structure to politics. S/U or letter grading.

234. Sociology of Development. (4) Seminar, three hours; discussion, one hour. Readings and discussion of theoretical, historical, and specific issues in sociology of development (e.g., world system theory, developmental state, import substitution industrialization, export promotion industrialization, neoliberalism in Latin America, new approaches). S/U or letter grading.

235A-235B. Race/Ethnicity in U.S. (4-4) (Formerly numbered 235 and 261.) Lecture, three hours. Survey of theoretical and empirical literature on race, ethnicity, and immigrant groups in U.S. to provide comparative analysis of racial/ethnic groups as well as provide detailed knowledge of particular racial/ethnic groups, to situate contemporary experiences within historical contexts, to understand structural integration into U.S. society (i.e., structural assimilation or socioeconomic mobility), and to examine theoretical approaches to understanding race and ethnicity in contemporary society. Preparation for field examination in race and ethnicity. S/U or letter grading.

236A-236B-236C. International Migration. (4-4) Lecture, three hours. S/U or letter grading:

236A. (4) Lecture, three hours. Comprehensive overview of key current theoretical debates in study of international migration, with focus on exploration of possibilities of comparative (historical and cross-national) research program in field, linking North American, European, and other global experiences of migration. S/U or letter grading.

236B. (4) (Formerly numbered 236B.) (Same as Geography M243.) Lecture, three hours. Further exploration of key current theoretical debates in study of international migration, with emphasis on exploring both theoretical debates of field and empirical data and case studies on which those debates hinge, to encourage students to undertake research in field. S/U or letter grading.

236C. (4) Lecture, three hours. Designed for students beginning or undertaking original research in field of international migration. Outside lectures, oral presentations of student projects, circulation of completed or draft student papers. S/U or letter grading.

237. Seminar: Theory and Research in Comparative Social Analysis. (2) Seminar, two hours. Designed for graduate students. Emphasis on one issue of particular importance for comparative analysis of capitalism and socialism, North America and Western Europe, developed capitalist and socialist countries and Third World, and implications for theory construction and social research. S/U grading.

238. Feminist Theory. (4) (Same as Gender Studies M238.) Seminar, three hours. Designed for graduate students. Analysis of current American feminist theory relevant to sociologists. Exploration of critiques of second wave feminism by working class feminists and/or feminists of color, feminist scholars from other countries, and recent "antifeminist" feminists. Discussion of directions for future feminist sociology. Letter grading.

239A-239B. Social Stratification, Mobility, and Inequality. (4-4) Lecture, three hours. Enforced requisites: courses 210A, 210B. Course 239A is enforced requisite to 239B. Introduction to literature on social stratification, mobility, and inequality in U.S. and abroad, with focus on concepts, data, methods, and facts about occupational and class structure; intergenerational transmission of socioeconomic status; effects of family, school, and labor market on socioeconomic achievement, careers, and inequality; earnings, income, and wealth distribution; poverty; social mobility; socioeconomic factors and marriage; gender and ethnic stratification; and health disparities. In Progress (239A) and letter (239B) grading.

241. Theories of Gender in Society. (4) Lecture, one hour; discussion, two hours. Gender stratification in society and sociology; extent of gender diversity in human societies past and present; why gender is absent in classical macrosociology; can masculinist paradigms make space for gender or does feminist-informed sociology necessitate fresh approach? S/U or letter grading.

244A-244B-244C. Conversation Analysis I, II, III. (6-6-6) Lecture, three hours; discussion, two hours. S/U or letter grading. **244A.** Introduction to some structures basic to organization of conversational interaction: turn-taking organization and sequence organization. **244B.** Requisite: course 244A. Continuation of introduction to some structures basic to organization of conversational interaction: organization of repair, and practices of word selection and reference to persons, places, time, and action. **244C.** Requisites: courses 244A, 244B. Continuation of introduction to some structures basic to organization of conversational interaction: practices of action formation, storytelling organization, and overall structural organization of single conversations.

245. Cultural Sociology: Classical and Contemporary Approaches. (4) Lecture, one hour; discussion, two hours. Exploration of classical approaches to cultural dimension of social life—Weberian, Durkheimian, Parsonian, and critical—and living traditions they have spawned. Examination of contemporary efforts at constructing new cultural sociology. Theoretical focus, with consideration of case studies. S/U or letter grading.

246. Sociology of Culture. (4) Seminar, three hours. Theoretical and methodological issues in structural approaches to culture. Perspectives include cultural economics, political economy, and production of culture. S/U or letter grading.

247. Sociology of Emotions. (4) Lecture, two hours; discussion, one hour. Designed for graduate students. Sociological theories of emotional expression; experiential approaches to emotions: motivational, cognitive, psychophysiological, and behavioral; repression, social oppression, and emotions; creativity and expressed affect; thought, sensations, and emotions; specific emotions; cultural differences in emotional expression; measurement of emotions. Letter grading.

248. Selected Topics in Culture and Society. (4) Seminar, three hours. Designed for graduate students. Seminar on selected topics on culture and society. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

250. Sociology of Health. (4) Seminar, three hours. Exploration of literature of human health as product of society. Macro focus and micro focus used to examine relevance of macro organizational features of national society (culture, economy, politics) while maintaining awareness of micro pathways that link these wider influences to personal experience (mind, body, emotion). Main focus on modern industrial societies and organized around many leading issues in sociology of health. S/U or letter grading.

251. Social Movements. (4) Seminar, three hours. In-depth exploration of current theoretical debates and empirical research on social movements, collective action, and contentious politics, examining case studies, comparative analyses, and large-N investigations, with focus on developing student expertise in understanding social movement research and conceptualizing research projects. S/U or letter grading.

M252. Selected Topics in Sociology of Gender. (4) (Same as Gender Studies M252.) Lecture, two hours; discussion, two hours. Designed for graduate students. Seminar on selected topics in sociology of gender. May be repeated for credit. Letter grading.

253. Politics of Reproduction, Gender, and Family. (4) Seminar, three hours. Human reproduction and its regulation have long been focus of contentious politics around world and remain topical today. Reproduction refers both to biological and social reproduction; their interdependence shapes policies and practices pertaining to them. Government efforts to

influence fertility behavior call attention to one important feature of modern states: political intervention into private life, intimacy, and sexuality. Politics of reproduction refers to intersection between politics and life cycle, or between public sphere and private lives. Expansion of state into bodies and lives of citizens has blurred lines between public and private interests. Exploration of diverse aspects of politics of reproduction, their gendering, and their impact on changing family forms to encourage students to think comparatively and historically about these issues in different contexts and cultures. Letter grading.

254. Human Capital, Social Capital, and Cultural Capital. (4) Lecture, three hours. Designed for graduate students. Intellectual history of these concepts, points of difference and similarity among these concepts, current exemplars of research that utilize these concepts, and critical reflection on research traditions. Letter grading.

M255. Cross-Cultural Perspectives on Gender. (4) (Same as Gender Studies M255.) Seminar, three hours. How does gender manifest itself in lives of different groups of women in U.S. and abroad? Are universal analytical categories or united feminist movements possible or is gender too different cross-culturally? S/U or letter grading.

256. Demography. (4) Lecture, four hours. S/U or letter grading.

257. Demography of Marriage Formation and Dissolution. (4) Discussion, three hours. Requisite: course 210A. Extensive and intensive critical examination of major approaches to analysis of marriage formation and dissolution, with focus primarily on demographic literature. S/U or letter grading.

C258. Talk and Social Institutions. (4) Lecture, four hours; discussion, one hour. Practices of communication and social interaction in number of major institutional sites in contemporary society. Setting varies but may include emergency services, police and courts, medicine, news interviews, and political oratory. Concurrently scheduled with course CM125. S/U or letter grading.

259. Social Structure and Economic Change: Historical and Comparative Perspectives. (4) Lecture, four hours. S/U or letter grading.

260. Economy and Society. Discussion, two hours. (4) Discussion, two hours. Designed for graduate students. Review and critique of major analytical traditions in economy and society. S/U or letter grading.

M262. Black Families and Relationships. (4) (Same as African American Studies M200C.) Seminar, three hours. Evaluation of social, cultural, and historical forces that affect socialization, stability, and interaction in black intimate relationships, beginning with theoretical framework from black feminism to analysis of economic and other expectations for partners in cohabiting and other types of unions. Examination of family life for both middle-class and low-income populations. Exploration of notions of black sexuality, including images of hyper-masculinity and femininity within black body and critical interrogation of notions of blackness and authenticity in racial identification. Contribution to greater understanding of black intimate relationships in different contexts, including lesbian and gay identities, Caribbean and other ethnic identities, and interracial intimacies. S/U or letter grading.

M263. Social Demography of Los Angeles. (4) (Same as Community Health Sciences M263.) Lecture, three hours. Designed for graduate students. Use of city of Los Angeles to examine major social and demographic factors that characterize cities in the U.S. Examination of role of these factors in affecting health outcomes. Letter grading.

265. Problems in Organization Theory. (4) Lecture, four hours. S/U or letter grading.

266. Selected Problems in Analysis of Conversation. (4) Lecture, three hours. Requisites: courses 244A, 244B. Variable topics/formats course. Consult instructor for topics and formats to be offered in specific term. May be repeated for credit with topic change. S/U or letter grading.

268. Selected Problems in Psychoanalytic Sociology. (4) Discussion, three hours. Recommended preparation: at least one year of methods courses. Selected problems in interpretation of sociology and psychoanalysis, which may be substantive (group development, socialization, culture, deviance, collective behavior) or methodological; latter focuses on clinical fieldwork and experimental use of psychoanalytic and sociological techniques. S/U or letter grading.

M269A-M269B-M269C. Relationship Science Forums. (2-2-2.) (Same as Anthropology M295A-M295B-M295C, Education M298A-M298B-M298C, and Psychology M237A-M237B-M237C.) Seminar, 90 minutes. Limited to graduate students. Current research and theory about personal relationships presented by members of seminar, faculty members, and guest speakers from diverse fields, including anthropology, education, psychology, and sociology. May be repeated for credit. S/U grading.

M270. Interdisciplinary Relationship Science. (4) (Same as Anthropology M295S, Education M297, and Psychology M236.) Lecture, three hours. Limited to graduate students. Diverse approaches to relationship science in fields of anthropology, education, psychology, and sociology. Focus on theme of understanding biological, behavioral, and cultural aspects of relationships through diverse theoretical and methodological approaches. Use of broad definition of interpersonal relationships, including relationships such as parent-child, teacher-student, sibling, peer, kin, romantic relationships, marriages, and friendships. S/U or letter grading.

272. Topics in Political Sociology. (4) Lecture, four hours. S/U or letter grading.

M275. Contemporary Issues of American Indians. (4) (Same as American Indian Studies M200C and Anthropology M269.) Seminar, three hours. Introduction to most important issues facing American Indians as individuals, communities, tribes, and organizations in contemporary world, building on historical background presented in American Indian Studies M200A and cultural and expressive experience of American Indians presented in American Indian Studies M200B. Letter grading.

276. Selected Topics in Sociology of East Asia. (4) Lecture, three hours. Designed for graduate students. Selected problems in China, or in China and Japan comparatively. Possible topics include (1) China's Great Proletarian Cultural Revolution, (2) internal contradictions in Chinese society: male/female relations, city and countryside, minority nationalities, class struggle under socialism, etc., (3) China and Japan: two models of development. S/U or letter grading.

278. Sociology of Latin America. (4) Lecture, one hour; discussion, two hours. Designed for graduate students. Selected topics in sociological study of Latin America. Possible topics include social movements, race and ethnicity, stratification, and social development. Letter grading.

M280. Trafficking, Gender, Health, and Human Rights. (4) (Same as Law M577.) Seminar, four hours. Review and critical assessment of diverse literature on international traffic of persons, with emphasis on significance of sociological, legal, and gender aspects of trafficking. Primary focus on trafficking for sex work and blurred lines between discourse on commercial sex trade and trafficking. Additional issues include role of political and economic transition, militarization, health implications of trafficking, trafficking for non-sexual labor, and role of advocacy. S/U or letter grading.

281. Selected Problems in Mathematical Sociology. (4) Lecture, three hours. Exploration of some mathematical models of sociological processes. Possible topics include models of small groups, social mobility, kinship relations, organizations, social interaction. S/U or letter grading.

282. Sociology of Medicine. (4) Seminar, three hours. Review of major concepts and issues in sociology of medicine. Topics include medicine, culture, and capitalism, professions and power, challenge of managed care, sick role and social control, interactionism and negotiation of sickness, sickness and self, debates

over medicalization and demedicalization. Designed as preparation for field examination in sociology of health and medicine and specifically for themes traditionally included under medical sociology/sociology of medicine. S/U or letter grading.

283. Communication in Medical Care. (4) Seminar, three hours. Review and development of empirical knowledge about doctor-patient relationship. Analysis of nature and dynamics of routine office visits, with focus on nature and role of norms in regulating doctor-patient conduct, role of expertise and power in doctor-patient relationship, and methodological questions concerning how doctor-patient relationship can be analyzed. S/U or letter grading.

284. Topics in Mental Health and Illness. (4) Lecture, two to three hours. Requisite: course M148. Designed for graduate students. S/U or letter grading.

285A-285Z. Special Topics in Sociology. (4 each) Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

287. Topics in Chinese Society. (4) Seminar, three hours. Preparation: at least two upper division courses on China in any social sciences discipline. Introduction to current research questions in Chinese sociology, as well as major themes in study of Chinese society, both historical and contemporary, including demographic, economic, political, and social change before and after 1949. S/U or letter grading.

288A-288B-288C. Mental Health Services for Persons with AIDS. (4-4-4) Lecture, four hours. Designed for graduate students. Analysis of current research on mental health service systems for persons with AIDS. S/U grading.

289A-289B. Practicum in Conversation Analysis. (2-4) Requisites: courses 244A, 244B. S/U grading.

289A. Data Analysis. Laboratory, two hours. Practice in analysis of conversational data. May be repeated for credit. **289B. Developing Work in Progress.** Seminar, three hours. Opportunity to advance research projects in progress and to develop skills of constructive criticism in discussing work of others.

M290A-M290B. Immigration, Racial Change, and Education in 21st-Century Metropolis. (4-4) (Same as Education M289A-M289B, Political Science M287A-M287B, and Public Policy M289A-M289B.) Seminar, four hours. Examination of metropolitan American society and institutions at beginning of 21st century. Consideration of best available information on patterns of settlement, changing functions of urban space and institutions, and issues of opportunity linked to urban structure in society facing unprecedented demographic change that will end primarily European domination of our society by mid-century, creating democracy with no racial or ethnic majority. How this demographic transition and postindustrial transformation of urban functions and space interact to shape opportunity and inequality. Vast economic transformations, brought about by globalization of workplace and dramatic decline of industrial employment in advanced nations, not only greatly raise stakes on creating equal opportunity but also cut off what were previously extremely important parts of intergenerational mobility. In Progress (M290A) and letter (M290B) grading.

291. Social Capital. (4) Seminar, three hours. Requisite: course 254. Designed for graduate students. Survey of social capital literature, including history of subject, macro and micro approaches, and applications of social capital to multiple outcomes. S/U or letter grading.

295. Working Group in Sociology. (1 to 4) Discussion, two hours. Variable topics, including sociology of gender; ethnography; social networks; race, ethnicity, immigration; and social demography and stratification. Advanced study and analysis of current topics in specialized areas of sociology. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

C297. Urban and Suburban Sociology. (5) Seminar, three hours. History and present condition of cities and suburbs in America, with stress on global cities such as New York and Los Angeles, and comparisons to London and Shanghai. Process of suburbanization as it began in early 19th century and still continues. Analysis of city politics, house and architectural styles, crime, urban terror, public housing and ghettos, segregation and integration of neighborhoods, question of gentrification, immigration, urban culture (especially art, museums, and movie and music industries), and environmentalism. Concurrently scheduled with course C191N. Letter grading.

298. Workshop in Culture and Society. (4) Seminar, two hours every other week. Interdisciplinary workshop for graduate students and faculty pursuing theory and research in topics related to interplay of culture and society, whether social, literary, or philosophical in nature. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

M402. Practices of Evaluation in Health Services: Theory and Methodology. (4) (Same as Health Policy M422.) Lecture, four hours. Requisites: Health Policy 200A, 200B. Introduction to evaluation of health services programs and policies. Exposure to basic theoretical concepts and specific evaluation methodologies and designs. Letter grading.

495. Supervised Teaching of Sociology. (2) Seminar, two hours. Preparation: appointment as teaching assistant in Sociology Department. Special course for teaching assistants designed to deal with problems and techniques of teaching introductory sociology. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

595. Directed Research for Master's Paper. (4 to 12) Tutorial, to be arranged. Directed research for and writing of MA degree paper under guidance of student's MA committee chair. S/U grading.

596. Directed Individual Study and Research in Sociology. (2 to 12) Tutorial, to be arranged. S/U grading.

597. Individual Study for Examinations. (4 to 12) Tutorial, to be arranged. Preparation for PhD qualifying examinations. S/U grading.

599. Research in Sociology for PhD Candidates. (4 to 12) Tutorial, to be arranged. S/U grading.

SPANISH AND PORTUGUESE

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Associate Professor

Jorge Marturano, PhD

Lecturer

Juliet A. Falce-Robinson, PhD

Scope and Objectives

The Department of Spanish and Portuguese is dedicated to the study and teaching of the languages, literatures, and cultures of the Hispanic heritage in all areas of the world, particularly on the continents of Europe and America. It maintains a strong commitment to the value of original research and professional instruction at all levels of its activities.

Whether studying for the BA, MA, or PhD degree, students are given careful guidance in the choice of courses and in the preparation of a study program. The richness of Hispanic culture is amply represented in the extensive range of courses in language, linguistics, and literature. Although the literatures of Spain, Portugal, Brazil, and Spanish America predominate, courses are also offered in Chicano literature. The breadth of courses offered by the department allows undergraduate students to pursue many possible interests and enables graduate students to concentrate in depth in several areas of specialization.

SOUTH ASIAN STUDIES

See International and Area Studies

SOUTHEAST ASIAN STUDIES

See International and Area Studies

The department's courses are primarily designed to serve the five BA programs: BA in Spanish, BA in Spanish and Community and Culture, BA in Spanish and Linguistics, BA in Spanish and Portuguese, and BA in Portuguese, as well as to prepare students for its three graduate programs: MA in Spanish, MA in Portuguese, and PhD in Hispanic Languages and Literatures. The courses are also functionally supportive of such interdepartmental programs as the BA, MA, and PhD programs in Chicana and Chicano Studies, BA and MA programs in Latin American Studies, and MA and PhD programs in Comparative Literature.

Undergraduate Study

Two of the majors in the Spanish and Portuguese Department are designated capstone majors: Spanish, and Spanish and Community and Culture.

For the Spanish major, seniors complete a capstone seminar that provides unique opportunity to work closely with a faculty member on a focused topic of research. Through their capstone work students are expected to demonstrate mastery of the Spanish language, along with specific skills and expertise acquired in earlier coursework. Additionally, students acquire a working knowledge of scholarly discourse relative to a specialized topic, conceive and execute an associated project, and engage with a community of scholars, presenting their work to peers and helping to further peers' work through discussion and critique.

For the Spanish and Community and Culture major, undergraduate students participate in community-based experiential learning courses coupled with elective and adjunct courses. Reflective journals, final projects, and in-class presentations are required. Through their capstone work, students should have mastery of the Spanish language, ability to conduct and interpret research to determine the needs of specific communities, critical understanding and ability to apply theories within a service context, sensitivity to diversity and cultural differences, and ability to perform scholarly presentations that tie current issues to research and theory.

Undergraduate Courses

Spanish 1 through 3 use *Unidos*. The method is inductive. Selected examples are given to enable students to inductively grasp the rules and develop their own grammar. This enables students to use language effectively and creatively. The courses are taught entirely in Spanish—students simultaneously learn to understand, speak, read, and write Spanish.

Students with one or more years of high school Spanish who plan to enroll in Spanish 1 through 25 should take the departmental online placement examination. Consult the Schedule of Classes or the department office for more information.

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in Spanish and Portuguese grammar and/or composition.

Spanish BA

Capstone Major

Preparation for the Major

Required: Spanish 25 or 27 or equivalent, and 42 and 44 or equivalent as determined by the undergraduate adviser. Each course must be passed with an average grade of C or better prior to beginning upper division work in the major.

Transfer Students

Transfer applicants to the Spanish major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Spanish, one Spanish civilization course, and one Spanish American civilization course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Two core courses (Spanish 119 and 120), (2) eight upper division Spanish elective courses in literature, culture, linguistics, media, service learning, or interdisciplinary studies, up to two of which may be from an outside department that deals with Spain or Spanish America and have been approved by the undergraduate adviser, and (3) one senior capstone seminar (Spanish 191C).

Spanish and Community and Culture BA

Capstone Major

Preparation for the Major

Required: Spanish 25 (or 27), 42, 44. Each course must be passed with an average grade of C or better prior to beginning upper division work in the major.

Transfer Students

Transfer applicants to the Spanish and Community and Culture major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Spanish, one Spanish civilization course, and one Spanish American civilization course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Spanish 100A or 100B, and 119 or 120; (2) four elective Spanish literature, culture, linguistics, or media studies courses selected from 130, 135, 140, 150, 155C, 160, 170, 175, 195; (3) two interdisciplinary studies courses selected from Chicana and Chicano Studies 100SL, CM106, M119, 120, M121, M122, 131, M144, 149, 181, Sociology M155; (4) two capstone community-based and experiential learning courses (8 to 10 units) selected from Chicana and Chicano Studies 100SL, Spanish M165SL, M172SL.

A minimum of 46 units applied toward the major requirements must be in addition to units applied toward major or minor requirements in another department or program.

Spanish and Linguistics BA

Preparation for the Major

Required: Spanish 25 or 27, M35 (or Linguistics 20), 42 or 44. Each course must be passed with an average grade of C or better prior to beginning upper division work in the major.

Transfer Students

Transfer applicants to the Spanish and Linguistics major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Spanish, one introduction to linguistics course, and one Spanish or Spanish American civilization course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Spanish 100A, 100B, Linguistics 103, 120A, 120B, (2) one course from Linguistics 160 or 165A or 165B, and (3) four upper division Spanish electives, two of which must be from Spanish 160.

Spanish and Portuguese BA

Preparation for the Major

Required: Spanish 25 or 27, 42 or 44, Portuguese 25 or 26 or 27 (27 recommended), and 46.

Transfer Students

Transfer applicants to the Spanish and Portuguese major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Spanish, one year of Portuguese, one Spanish civilization course or one Spanish American civilization course, and one Brazilian culture course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) One course from Spanish 100A or 100B and one course from Portuguese 100A or 100B, (2) Spanish 119, 120, Portuguese 130A, 130B, (3) five 4- or 5-unit upper division elective courses, two of which must be in Spanish and two in Portuguese. Only upper division courses taught in the target language may be applied toward the major.

Portuguese BA

Preparation for the Major

Required: Portuguese 25 or 26 or 27 (27 recommended), and 46, or equivalent.

Transfer Students

Transfer applicants to the Portuguese major with 90 or more units must complete the following introductory courses prior to admission

to UCLA: one year of Portuguese, one nature of language course, one Portuguese civilization course or one Brazilian civilization course, and one Brazilian culture course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Ten upper division courses (45 units minimum), including Portuguese 100A or 100B, 130A, 130B, and seven elective courses selected from 100A through 199. Two courses from outside the department that focus on Brazil, Portugal, or Lusophone Africa may be applied toward the major with approval of the undergraduate adviser. A minimum of eight of the 10 courses must be taught in Portuguese.

Double Majors

Through judicious use of electives, students may find it possible to secure the BA degree with two complete majors (e.g., Portuguese/Spanish, Portuguese/History, Portuguese/Sociology, etc.). Interested students should consult the undergraduate adviser in Portuguese as early as possible in their BA program.

Study in a Portuguese-Speaking Country

Students are encouraged to spend up to one year in a Portuguese-speaking country to study in a university or conduct research. Appropriate credit may be granted in accordance with the individual program, arranged in consultation with the undergraduate faculty adviser in Portuguese. Proposals must be submitted in advance in writing and must be approved by the department.

Honors Program

The departmental honors program is open to majors who have completed a minimum of six upper division major courses with a 3.7 grade-point average or better in those six courses. Eligibility is verified by the departmental counselor. On the basis of their coursework and special interests, students then consult a faculty member in that field and formulate a research project that they pursue under the faculty member's guidance through Portuguese 198A-198B or Spanish 198A-198B.

Portuguese 198A and Spanish 198A are 4-unit courses in which students research and prepare a draft of a thesis on a selected topic; Portuguese 198B and Spanish 198B are 2-unit courses in which students complete the final thesis draft of approximately 25 to 30 pages. Approval of the honors thesis by the faculty mentor is the final requirement for departmental honors. Portuguese 198A-198B and Spanish 198A-198B may not be applied toward the majors.

Mexican Studies Minor

The Mexican Studies minor allows students with an interest in Mexico to augment their major programs with courses that expose them to the history, literature, and culture of Mexico.

Given Southern California's proximity to Mexico, the demographics of Los Angeles, and the shared history of Mexico and the Southwest, the minor is a natural complement to many majors.

To enter the minor, students must have an overall grade-point average of 2.0 or better and must complete or show proficiency equivalent to two years of college-level Spanish. A petition to declare the minor should be filed with the undergraduate counselor in 5314 Rolfe Hall.

Required Lower Division Courses (8 to 9 units): Spanish 25 or 27, and one course from History 8A, 8B, 8C, or Spanish 44.

Required Upper Division Courses (20 to 22 units): Three Mexican culture and literature courses selected from Spanish 135 through 175 in consultation with the undergraduate adviser and two courses from Anthropology 114P, Chicana and Chicano Studies M102, M108A, 120, M125, 132, 142, 172, 184, Ethnomusicology M108A, Geography 181, History 157B, 160B.

By petition and after consultation with the undergraduate adviser, one 4-unit 197 or 199 course may be applied toward the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Portuguese Minor

To enter the Portuguese minor, students must have an overall grade-point average of 2.0 or better and must complete Portuguese 27 or equivalent.

Required Lower Division Courses (9 units): Portuguese 25 or 26 or 27 (27 recommended), and 46.

Required Upper Division Courses (20 units): Five courses selected from Portuguese 100A through 199, three of which must be taught in Portuguese. Only one 4-unit Portuguese 197 or 199 course may be applied toward the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Spanish Minor

To enter the Spanish minor, students must have an overall grade-point average of 2.0 or better and must complete or show proficiency equivalent to two years of college-level Spanish.

Required Lower Division Courses (9 units): Spanish 25 or 27, and 42 or 44.

Required Upper Division Courses (20 to 22 units): Spanish 119 or 120 and four Spanish literature, culture, linguistics, service learning, or media studies courses.

By petition and after consultation with the undergraduate adviser, one 4-unit 197 or 199 course may be applied toward the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Spanish Linguistics Minor

To enter the Spanish Linguistics minor, students must have an overall grade-point average of 2.0 or better and must complete or show proficiency equivalent to two years of college-level Spanish.

Required Lower Division Courses (9 units): Spanish 25 or 27, and M35.

Required Upper Division Courses (20 to 21 units): Spanish 100A, 100B, and three upper division Spanish electives, two of which must be from Spanish 160.

By petition and after consultation with the undergraduate adviser, one 4-unit 197 or 199 course may be applied toward the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Spanish and Portuguese offers the Master of Arts (MA) degree in Spanish, Master of Arts (MA) degree in Portuguese, and Candidate in Philosophy (CPhil) and Doctor of Philosophy (PhD) degrees in Hispanic Languages and Literatures.

Indigenous Languages of the Americas

Lower Division Courses

1. Elementary Zapotec. (4) Lecture, five hours. Introduction to Zapotec language of Tlacolula Valley of Oaxaca. P/NP or letter grading.

2. Elementary Zapotec. (4) Lecture, five hours. Enforced requisite: course 1. Introduction to Zapotec language of Tlacolula Valley of Oaxaca. P/NP or letter grading.

3. Elementary Zapotec. (4) Lecture, five hours. Enforced requisite: course 2. Introduction to Zapotec language of Tlacolula Valley of Oaxaca. P/NP or letter grading.

M5A-M5B-M5C. Elementary Nahuatl. (4-4-4) (Same as Chicana and Chicano Studies M5A-M5B-M5C and International and Area Studies M5A-M5B-M5C.) Lecture, five hours. Course M5A is enforced requisite to M5B, which is enforced requisite to M5C. Introduction to Aztec language of central Mexico. Coverage of basic Nahuatl grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

17. Intensive Elementary Quechua. (12) Lecture, 15 hours; laboratory, five hours. Intensive course equivalent to courses 18A, 18B, 18C. Language of Incas and its present-day dialects, as spoken in Andean South America. Offered in summer only. Letter grading.

18A-18B-18C. Elementary Quechua. (4-4-4) Lecture, five hours. Course 18A is enforced requisite to 18B, which is enforced requisite to 18C. Language of Incas and present-day Quechua language, as spoken in Andean South America. P/NP or letter grading.

Upper Division Courses

119A-119B-119C. Advanced Quechua. (4-4-4) Lecture, five hours. Requisite: course 18C. Course 119A is requisite to 119B, which is requisite to 119C. Readings in Quechua. Dialectal and stylistic variation. Discussions mainly in Quechua. P/NP or letter grading.

191. Variable Topics Research Seminars: Indigenous Languages. (2 or 4) Seminar, three hours. Research seminars on selected topics on various indigenous languages. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

Graduate Course

596. Directed Studies in Quechua. (1 to 8) Tutorial, to be arranged. Requisites: courses 119A, 119B, 119C. Directed individual study or research in Quechua. Four units may be applied toward MA course requirements. May be repeated for credit. S/U grading.

Portuguese

Lower Division Courses

1. Elementary Portuguese. (4) Lecture, three hours; laboratory, two hours. Taught in Portuguese. Laboratory is online. Introductory Portuguese language and culture course that is proficiency-oriented, communicative, and task-based to help develop communicative competence in four skill areas (listening, speaking, reading, and writing), as well as cultural competence. P/NP or letter grading.

2. Elementary Portuguese. (4) Lecture, three hours; laboratory, two hours. Taught in Portuguese. Laboratory is online. Introductory Portuguese language and culture course that is proficiency-oriented, communicative, and task-based to help develop communicative competence in four skill areas (listening, speaking, reading, and writing), as well as cultural competence. P/NP or letter grading.

3. Intermediate Portuguese. (4) Lecture, three hours; laboratory, two hours. Taught in Portuguese. Laboratory is online. Intermediate Portuguese language and culture course that is proficiency-oriented, communicative, and task-based to help develop communicative competence in four skill areas (listening, speaking, reading, and writing), as well as cultural competence. P/NP or letter grading.

8A-8B. Portuguese Conversation. (2-2) Discussion, three hours. Enforced requisite: course 3 with grade of B or better. P/NP or letter grading.

11A-11B. Intensive Portuguese. (5-5) Lecture, four hours; laboratory, two hours. Taught in Portuguese. Laboratory is online. Accelerated course designed only for students with proficiency in another Romance language. P/NP or letter grading.

25. Advanced Portuguese. (4) Lecture, three hours. Enforced requisite: course 3 or 11B. P/NP or letter grading.

25A. Advanced Portuguese: Summer Course. (4) Lecture, 20 hours. Enforced requisite: course 3 or 11B. Advanced Portuguese course with cultural activities, field trips, and luncheons. Offered in summer only. P/NP or letter grading.

26. Language and Popular Culture. (4) Lecture, three hours. Requisite: course 3 or 11B. Development of speaking, reading, and writing skills. Structured in thematic units, with songs, videos, and specific vocabulary emphasizing questions of Brazilian cultural identity. Letter grading.

26A. Language and Popular Culture: Summer Course. (4) Lecture, 20 hours. Enforced requisite: course 3 or 11B. Development of speaking, reading, and writing skills. Structured in thematic units, with songs, videos, and specific vocabulary emphasizing questions of Brazilian cultural identity. Includes cultural activities, field trips, and luncheons. Offered in summer only. P/NP or letter grading.

27. Advanced Composition and Style. (4) Lecture, three hours. Requisite: course 3 or 11B. Practice in writing Portuguese with appropriate vocabulary, syntactical structures, and stylistic patterns. P/NP or letter grading.

27A. Advanced Composition and Style: Summer Course. (4) Lecture, 20 hours. Enforced requisite: course 3 or 11B. Practice in writing Portuguese with appropriate vocabulary, syntactical structures, and stylistic patterns. Includes cultural activities, field trips, and luncheons. Offered in summer only. P/NP or letter grading.

M35. Spanish, Portuguese, and Nature of Language. (5) (Same as Spanish M35.) Lecture, three hours; discussion, one hour. Introduction to language study within context of Romance languages, focusing on Spanish and Portuguese. Nature of language: structure, diversity, evolution, social and cultural settings, literary uses. Study of language and its relation to other areas of human knowledge. P/NP or letter grading.

40A-40B. Portuguese, Brazilian, and African Literature in Translation. (4-5) Lecture. Reading and discussion of selected works in translation. Papers and examinations in English. P/NP or letter grading. **40A.** Portuguese and Portuguese-African Literature. Lecture, three hours; **40B.** Brazilian Literature. Lecture, four hours.

46. Brazil and Portuguese-Speaking World. (5) Lecture, four hours; discussion, one hour (when scheduled). Taught in English. Topical analysis of cultural history of Brazil in context of Portuguese-speaking world, with emphasis on comparative, trans-Atlantic relations, social development, and artistic manifestations. P/NP or letter grading.

Upper Division Courses

100A. Phonology and Morphology. (4) Lecture, four hours. Enforced requisite: course 27. Analysis of phonetic, phonemic, and morphological systems of Portuguese. P/NP or letter grading.

100B. Syntax. (4) Lecture, four hours. Enforced requisite: course 27. Review of patterns of Portuguese language. P/NP or letter grading.

130A-130B. Introduction to Literature in Portuguese. (4-4) Lecture, four hours. Requisite: course 27. Introduction to principal themes, currents, and authors from Brazil in context of Portuguese-speaking world. P/NP or letter grading.

141A. Literature and Film in Portuguese. (4) Lecture, four hours. Taught in English. Study of intertextuality and dialogism, interactions between literary and cinematic fields, question of fidelity, and equivalents between literary and cinematic expression in Portuguese-speaking world. May be repeated for credit with topic change. P/NP or letter grading.

141B. Film, Television, and Society in Brazil. (4) Lecture, four hours. Taught in English. Study of development, evolution, and impact of film and television in Brazil against backdrop of broader social, historical, and cultural contexts. May be repeated for credit. P/NP or letter grading.

141C. Documentary Film. (4) Lecture, four hours. Taught in English. Overview of documentary film production in Portuguese-speaking world, with special focus on period since 1985. May be repeated for credit with topic change. P/NP or letter grading.

142A. Brazil and Its Culture. (4) Lecture, four hours. Taught in English. Exploration of roots of contemporary Brazil through study of broad chronological periods from Portuguese colonization to present and how they shaped idea of Brazilian exceptionalism, racial mixture as source of national identity, and Luso-tropicalism and its influence on Brazilian historiography. May be repeated for credit with topic change. P/NP or letter grading.

142B. Brazil and Portugal in Comparative Perspective. (4) Lecture, four hours. Taught in English. Study of social and cultural links between Portugal and Brazil, with emphasis on issues of migration, dialogue, and contention in historical context. May be repeated for credit with topic change. P/NP or letter grading.

142C. Travel Narratives, Testimony, Autobiography. (4) Lecture, four hours. Taught in English. Exploration of travel, memory, and narrative in Portuguese-speaking world. Primary and secondary texts depict issues of displacement, cultural contact, and assimilation. Overview of connections among Portuguese-speaking cultures. May be repeated for credit with topic change. P/NP or letter grading.

143A. Colony, Intellectuals, and History. (4) Lecture, four hours. Enforced requisite: course 27. Investigation of way that Brazilian maritime expansion from 15th to early 19th century was represented and interpreted in writings from across empire. May be repeated for credit with topic change. P/NP or letter grading.

143B. Transatlantic Literature in Portuguese. (4) Lecture, four hours. Enforced requisite: course 27. Study of modern relations between Portugal and Portuguese-speaking world in literature and arts. May be repeated for credit with topic change. P/NP or letter grading.

143C. Modernism, Modernity, and Identity. (4) Lecture, four hours. Enforced requisite: course 27. Examination of concepts and practice of modernism in Portuguese-speaking world, with primary focus on 1920s. Reading and discussion, with emphasis on sociohistorical context, relations with European avant-garde, modernist poetics and polemics, and search for national identity as expressed in period's poetry and prose. May be repeated for credit with topic change. P/NP or letter grading.

143D. Contemporary Literature in Portuguese. (4) Lecture, four hours. Enforced requisite: course 27. Exploration of connections between literatures of Angola, Brazil, and Portugal against background of globalization and Internet. May be repeated for credit with topic change. P/NP or letter grading.

187FL. Special Studies: Readings in Portuguese. (2) Seminar, two hours. Requisite: course 27. Students must be concurrently enrolled in affiliated main course. Additional work in Portuguese to augment work assigned in main course, including reading and writing assignments. May be repeated for credit. P/NP or letter grading.

191. Undergraduate Variable Topics Seminars: Portuguese. (4) Seminar, three hours. Requisite: course 27. Research seminar on selected topics in Portuguese. Reading, discussion, and development of culminating project. Consult Schedule of Classes or department counselor for topic to be offered in specific term. May be repeated for credit. P/NP or letter grading.

197. Individual Studies in Portuguese. (2 to 4) Tutorial, to be arranged. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. Eight units of courses 197 and/or 199 may be applied toward major requirements. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

198A-198B. Senior Honors Research in Portuguese I, II. (4-2) Tutorial, to be arranged. Preparation: completion of minimum of six upper division major core courses with 3.7 grade-point average. Course 198A is enforced requisite to 198B. Limited to juniors/seniors. Development and completion of honors thesis under direct supervision of faculty member. May not be applied toward major requirements. Individual contract required. Letter grading.

199. Directed Research in Portuguese. (2 to 4) Tutorial, to be arranged. Requisite: course 27. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. Eight units of courses 197 and/or 199 may be applied toward major requirements. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M200. Research Resources. (4) (Same as Spanish M200.) Lecture, three hours. Identification and use of research resources for graduate students.

M201A-M201B. Literary Theory and Criticism. (4-4) (Same as Spanish M201A-M201B.) Lecture, three hours. Definition, discussion, and application of main currents of contemporary literary theory and criticism. Letter grading.

202. Synchronic Morphology and Phonology. (4) Lecture, three hours. Study of theoretical synchronic linguistics as applied to Portuguese.

204A-204B. Generative Grammar. (4-4) Lecture, three hours. Course 204A is requisite to 204B. Generative approach to the Portuguese language, with some consideration of bearing of syntax, semiology, and phonology on style, metaphor, and meter.

M205A-M205B. Development of Portuguese and Spanish Languages. (4-4) (Same as Spanish M205A-M205B.) Lecture, three hours. Intensive study of historical development of Portuguese and Spanish languages from their origin in spoken Latin.

224. Early Portuguese Literature. (4) Lecture, three hours. Enforced requisite: course 27. Study of main genres of medieval Portuguese and Galician literature through representative works. S/U or letter grading.

225. Camões and Portuguese Renaissance. (4) Lecture, three hours. Enforced requisite: course 27. Study of main genres of Renaissance Portuguese literature, with particular emphasis on works of Luis de Camões. S/U or letter grading.

226. Baroque and Neoclassical Portuguese Literature. (4) Lecture, three hours. Enforced requisite: course 27. Study of main genres of baroque and neoclassical Portuguese literature through representative works. S/U or letter grading.

227. 19th-Century Portuguese Literature. (4) Lecture, three hours. Enforced requisite: course 27. Study of principal features through representative works. May be repeated for credit with topic change. S/U or letter grading.

228. Post-Romanticism and Naturalism in Portuguese Literature. (4) Lecture, three hours. Enforced requisite: course 27. Study of principal features through representative works. S/U or letter grading.

229. 20th-Century Portuguese Literature. (4) Lecture, three hours. Enforced requisite: course 27. Study of representative trends and authors. May be repeated for credit with topic change. S/U or letter grading.

231. Colonial Brazilian Literature and Culture. (4) Lecture, three hours. Enforced requisite: course 27. Study of most important authors to 1830. May be repeated for credit with topic change. S/U or letter grading.

232. 19th-Century Brazilian Literature and Culture. (4) Lecture, three hours. Study of representative trends and authors. May be repeated for credit with topic change. S/U or letter grading.

233. Machado de Assis. (4) Lecture, three hours. Study of selected works by Joaquim Maria Machado de Assis. S/U or letter grading.

234. Brazilian Modernism. (4) Lecture, three hours. Enforced requisite: course 27. Study of principal characteristics of Brazilian modernism through representative works. S/U or letter grading.

235. 20th-Century Brazilian Literature. (4) Lecture, three hours. Enforced requisite: course 27. Study of representative trends and authors. May be repeated for credit with topic change. S/U or letter grading.

M249. Folk Literature of Spanish and Portuguese Worlds. (4) (Same as Spanish M249.) Lecture, three hours. Intensive study of folk literature of Spanish and Portuguese cultures as represented in (1) ballad and poetry, (2) narrative and drama, (3) speech. S/U or letter grading.

M251A-M251B. Studies in Galegan-Portuguese and Old Spanish. (4-4) (Same as Spanish M251A-M251B.) Lecture, two hours. Study of problems related to historical development of Galegan-Portuguese and Old Spanish. Each course may be repeated once with topic change and consent of appropriate guidance committee.

252. Studies in Early Portuguese Literature. (4) Discussion, two hours. S/U or letter grading.

253. Studies in Modern Portuguese Literature. (4) Discussion, two hours. S/U or letter grading.

254. Studies in Early Brazilian Literature. (4) Discussion, two hours. S/U or letter grading.

255. Studies in Modern Brazilian Literature. (4) Discussion, two hours. S/U or letter grading.

256A-256B. Studies in Portuguese Linguistics. (4-4) Lecture, two hours. Study of problems in analysis and description of contemporary Portuguese language. S/U or letter grading.

290. Special Topics. (4) Discussion, two hours. Designed for graduate students. Consult Schedule of Classes or department counselor for topics to be offered in a specific term. S/U or letter grading.

370. Teaching Portuguese in Secondary School. (4) Discussion, three hours. Designed for future teachers in this field. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (4 or 8) Tutorial, to be arranged. Study or research in areas or subjects not offered as regular courses. No more than 8 units may be applied toward MA course requirements. S/U or letter grading.

597. Preparation for Graduate Examinations. (4 to 12) Tutorial, to be arranged. Preparation: official acceptance of candidacy by department. Individual preparation for MA comprehensive examination or PhD qualifying examinations. May be taken only once for each degree examination and only in term that comprehensive or qualifying examinations are to be taken. S/U grading.

598. Research for MA Thesis. (4 to 12) Tutorial, to be arranged. Research in preparation of MA thesis. S/U grading.

599. Research for PhD Dissertation. (4 to 12) Tutorial, to be arranged. Limited to students who have passed PhD qualifying examinations. Research for and preparation of PhD dissertation. S/U grading.

Spanish

Lower Division Courses

1. Elementary Spanish. (4) Lecture, three hours; laboratory, two hours. Taught in Spanish. Laboratory is online. Introductory Spanish language and culture course that is proficiency-oriented, communicative, and task-based to help develop communicative competence in four skill areas (listening, speaking, reading, and writing), as well as cultural competence. P/NP or letter grading.

1G. Reading Course for Graduate Students. (4) Lecture, three hours. Knowledge of Spanish not required. May not be applied toward degree requirements. S/U grading.

2. Elementary Spanish. (4) Lecture, three hours; laboratory, two hours. Taught in Spanish. Laboratory is online. Introductory Spanish language and culture course that is proficiency-oriented, communicative, and task-based to help develop communicative competence in four skill areas (listening, speaking, reading, and writing), as well as cultural competence. P/NP or letter grading.

2A. Intensive Spanish. (4) Lecture, 20 hours; laboratory, five hours. Enforced requisite: course 1 or one year of high school Spanish. Intensive basic course in Spanish, with cultural activities, field trips, luncheons. Offered in summer only. P/NP or letter grading.

2G. Reading Course for Graduate Students. (4) Lecture, three hours. Enforced requisite: course 1G. May not be applied toward degree requirements. S/U grading.

3. Elementary Spanish. (4) Lecture, three hours; laboratory, two hours. Taught in Spanish. Laboratory is online. Introductory Spanish language and culture course that is proficiency-oriented, communicative, and task-based to help develop communicative competence in four skill areas (listening, speaking, reading, and writing), as well as cultural competence. P/NP or letter grading.

3A. Intensive Spanish. (4) Lecture, 20 hours; laboratory, five hours. Enforced requisite: course 1 or one year of high school Spanish. Intensive basic course in Spanish, with cultural activities, field trips, luncheons. Offered in summer only. P/NP or letter grading.

4. Intermediate Spanish. (4) Lecture, three hours; laboratory, two hours. Taught in Spanish. Laboratory is online. Intermediate Spanish language and culture course designed to increase communicative ability. Acquisition of cultural competence and introduction to study of literature. Comprehension of conversations and stretches of connected discourse, reading of texts with minimum use of dictionary, writing with increased grammatical accuracy and control of sentence structure, coherence, and text organization, talking about past, present, and future events, and expression of preferences, feelings, beliefs, and opinions. P/NP or letter grading.

5. Intermediate Spanish. (4) Lecture, three hours; laboratory, two hours. Taught in Spanish. Laboratory is online. Intermediate Spanish language and culture course designed to increase communicative ability. Acquisition of cultural competence and introduction to study of literature. Comprehension of conversations and stretches of connected discourse, reading

of texts with minimum use of dictionary, writing with increased grammatical accuracy and control of sentence structure, coherence, and text organization, talking about past, present, and future events, and expression of preferences, feelings, beliefs, and opinions. P/NP or letter grading.

7A. Introductory Spanish for Heritage Speakers.

(4) (Formerly numbered 7.) Lecture, three hours; laboratory, two hours. Enforced requisite: course 2 or Spanish placement test. Laboratory is online. Designed for students who are from Spanish-speaking family background and have some knowledge of Spanish. Introductory course to further develop communicative abilities, both verbal and written, and to increase knowledge of grammatical structures and achieve communicative competence. P/NP or letter grading.

7B. Intermediate Spanish for Heritage Speakers.

(4) Lecture, three hours; laboratory, two hours. Enforced requisite: course 3 or 7A or Spanish placement test. Laboratory is online. Designed for students who are from Spanish-speaking family background and have some knowledge of Spanish. Intermediate course to further develop communicative abilities, both verbal and written, and to increase knowledge of grammatical structures and achieve communicative competence. P/NP or letter grading.

8A-8B. Spanish Conversation. (2-2) Discussion, three hours. Course 8A is open to students with credit for course 4. Students who have completed course 3 with grade of B or better may be admitted. P/NP or letter grading.

9A-9B. Advanced Conversation. (2-2) Discussion, three hours. Enforced requisite: course 8B. P/NP or letter grading.

10. Intensive Elementary Spanish. (12) Lecture, 20 hours. Intensive elementary instruction in speaking, listening, reading, and writing equivalent to courses 1, 2, and 3, with emphasis on Spanish grammar and Hispanic culture. Offered in summer only. P/NP or letter grading.

11A-11B. Catalan Language and Culture I, II. (4-4) Lecture, six hours. Introduction to oral and written Catalan language. Two-term accelerated language sequence equivalent to three terms of traditional pattern and designed for advanced undergraduate and graduate students. P/NP or letter grading. **11A.** Preparation: at least two years of college-level Spanish, Portuguese, or another Romance language other than Catalan. **11B.** Requisite: course 11A.

25. Advanced Conversation and Composition. (4) Lecture, three hours. Enforced requisite: course 5. Emphasis on development of communicative abilities, both verbal and written, as well as on increasing comprehension of variety of forms of cultural production in Spanish language and on preparation for more advanced Spanish courses. P/NP or letter grading.

27. Composition for Spanish Speakers. (4) Lecture, three hours. Enforced requisite: course 5. Practice in reading and writing of Spanish for students with oral proficiency in Spanish (in lieu of course 25). P/NP or letter grading.

28A. Spanish for Special Purposes: Medical. (4) Lecture, three hours. Enforced requisite: course 5. Practice in speaking, reading, and writing Spanish using appropriate vocabulary and cultural situations for students with special interest in fields such as medicine, business, law, etc. P/NP or letter grading.

M35. Spanish, Portuguese, and Nature of Language. (5) (Same as Portuguese M35.) Lecture, three hours; discussion, one hour. Introduction to language study within context of Romance languages, focusing on Spanish and Portuguese. Nature of language: structure, diversity, evolution, social and cultural settings, literary uses. Study of language and its relation to other areas of human knowledge. P/NP or letter grading.

42. Iberian Culture. (5) Lecture, four hours; discussion, one hour. Required of majors. Lectures taught in English; discussion sections taught in either Spanish or English. Highlights of civilization of Spain, with em-

phasis on artistic, economic, social, and historical development as background for upper division courses. P/NP or letter grading.

44. Latin American Culture. (5) Lecture, four hours; discussion, one hour. Required of majors. Lectures taught in English; discussion sections taught in either Spanish or English. Highlights of civilization of Spanish America, with emphasis on artistic, economic, social, and historical development as background for upper division courses. P/NP or letter grading.

60A-60B-60C. Hispanic Literatures in Translation. (4-4-4) Lecture, three hours. Class readings and analysis of selected works in translation. Classroom discussion, papers, and examinations in English. **60A.** Spanish Literature; **60B.** Spanish-American Literature; **60C. Don Quijote.**

88A-88Z. Lower Division Seminars. (4 each) Seminar, three hours. Knowledge of Spanish not essential. Variable topics courses designed to explore various themes and issues pertinent to Hispanic literature and culture.

97. Variable Topics in Spanish. (2) Lecture, two hours. Variable topics course with lectures, discussions, and papers; consult Schedule of Classes or department counselor for topic to be offered in specific term. May be repeated for credit. P/NP or letter grading.

Upper Division Courses

100A-100B. Introduction to Study of Spanish Grammar. (4-4) Lecture, four hours. Requisite: course M35. P/NP or letter grading. **100A. Phonology and Morphology.** Analysis of phonemic and morphological systems of Spanish. **100B. Syntax.** Study of syntactical systems of Spanish.

119. Structure of Literary Work. (4) Lecture, four hours. Requisite: course 25. Introduction to methods of analyzing literary work in Spanish, Spanish-American, and Chicana/Chicano literature. Special attention to four major genres: poetry, narrative, drama, and essay. P/NP or letter grading.

120. History of Literature. (4) Lecture, four hours; discussion, one hour. Requisite: course 25. Introduction to different ways of looking at literary works as historical phenomena. Presentation of major models for writing history—great narratives, cyclic, teleological, sacred, and profane conceptions. Traditional concepts of literary history and problems of mixed categories (historical epochs versus epochs of style, national history, and world literature). P/NP or letter grading.

130. Topics in Medieval Studies. (4) Lecture, four hours. Requisite: course 25. Exploration of medieval Iberian literatures: lyric poetry, prose, and history of peninsula, with emphasis on its literary and linguistic diversity. Possible topics include *Convivencia* (peaceful coexistence), Europe and Orient, beginnings of Inquisition, oral versus written traditions, origins of Hispano-Christian expansion beyond peninsula, and flowering of Al-Andalus. May be repeated for credit with topic change. P/NP or letter grading.

135. Topics in Early Modern Studies. (4) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: course 25. Exploration of 16th and 17th centuries, with focus on early modern period of Spain and Spanish America. Possible topics include Spanish colonization and indigenous responses, transatlantic literary and visual baroque, race and religion in construction of early modern nation, transatlantic fictions, early modern identities and theatrical representations, literature and historiography, transatlantic poetics and poetry. May be repeated for credit with topic change. P/NP or letter grading.

140. Topics in Modern Studies. (4) Lecture, four hours. Requisite: course 25. Exploration of major literary movements and writers of 18th and 19th centuries in Spain and Spanish America. Possible topics include Enlightenment, Romanticism, nation-building literature, realism and naturalism, and works by Cadalso, Concolorcorvo, Lizardi, Larra, Sarmiento,

Bécquer, Isaacs, Mera, Villaverde, and Galdós. May be repeated for credit with topic change. P/NP or letter grading.

M145A. Introduction to Chicano Literature: Literature to 1960. (4) (Same as Chicana and Chicano Studies M145A.) Lecture, three hours. Requisite: course 25 or 27. Introduction to texts representative of Chicano literary heritage. Sampling of genres, as well as historical and geographical settings and points of view characteristic of work written by Chicanos during 20th century. Most required reading in Spanish. Bilingual and English works included and discussed. Reading and analysis of number of important scholarly and critical statements pertaining to characteristics and development of Chicano literary corpus. Letter grading.

150. Topics in Contemporary Studies. (4) Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 25. Exploration of main trends that characterize contemporary Latin American and Spanish literatures and cultures and main concepts used to address them. Possible topics include transculturation and heterogeneity, race and ethnicity, vanguard movements, lettered and popular cultures, literary modernization in Latin American boom, literature and revolution, autobiography, women's writing, border literature, and postmodernist fiction. May be repeated for credit with topic change. P/NP or letter grading.

M155A. Chicano Narrative. (4) (Formerly numbered M146.) (Same as Chicana and Chicano Studies M146.) Lecture, three hours. Enforced requisite: course 25 or 27. Introduction to major Chicano narrative genres—novel, romance, satire, autobiography, *cronícon/semblanza*, Chicana detective novel, and Chicana solidarity fiction. Texts examined within their own geographic, cultural, and historical contexts, as well as within history of narrative forms. P/NP or letter grading.

M155B. Literature of Chicana/Chicano Movement. (4) (Formerly numbered M145B.) (Same as Chicana and Chicano Studies M145B.) Lecture, three hours. Enforced requisite: course 25 or 27. Examination of literature of Chicana/Chicano movement covering period from first manifestations of Chicano artistic production in 1965 with *el Teatro Campesino* through rise of women's writing, including work by Cherrie Moraga (1983), Helena María Viramontes (1985), and Sandra Cisneros (1991). P/NP or letter grading.

155C. Topics in U.S. Latino Studies. (4) (Formerly numbered 155.) Lecture, four hours. Enforced requisite: course 25 or 27. Exploration of spread of Spanish-American literature and culture throughout North America, including literatures that are outgrowth of civil rights movements of 1960s, recent demographic changes, new transnational identities, and mixed citizenships of U.S. Latinas and Latinos. Chicano, Puerto Rican, Cuban American, Central American American, South American American, and Jewish Latino literatures may be included. May be repeated for credit with topic change. P/NP or letter grading.

160. Topics in Spanish Linguistics. (4) Lecture, four hours. Requisite: course 25. Exploration of origin of language, how Spanish is acquired, evolution of Spanish from Latin to early modern period, how Spanish varies in world, how to teach Spanish, Spanish in contact with other languages. Possible topics include Spanish in Los Angeles, history of Spanish language, first- and second-language acquisition, language and cognition. May be repeated for credit with topic change. P/NP or letter grading.

M165SL. Taking It to Street: Spanish in Community. (5) (Same as Chicana and Chicano Studies M167SL.) Seminar, three hours; fieldwork, 10 hours. Enforced requisite: course 25 or 27. Service learning course to give students opportunity to use cultural and linguistic knowledge acquired in Spanish classes in real-world settings. Students required to spend minimum of eight to 10 hours per week at agreed on site in Latino community. P/NP or letter grading.

170. Topics in Media, Interdisciplinary, and Trans-historical Studies. (4) Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 25. Interrelation between print, visual, and live arts, and way they exist in mass media, new technologies, and different platforms. Possible topics include visual cultures in Latin America, Latin American and Spanish cinema, musical cultures and literature, live arts and performance in popular culture, three-dimensional modeling of material culture, and architecture of medieval Iberia. May be repeated for credit with topic change. P/NP or letter grading.

M172SL. Latinos, Linguistics, and Literacy. (5) (Same as Chicana and Chicano Studies M170SL.) Seminar, four hours; field project, four to six hours. Recommended requisite: course 100A. In-depth study of various topics related to literacy, including different definitions of literacy, programs for adult pre-literates, literacy and gender, approaches to literacy (whole language, phonics, Freire's liberation pedagogy), history of writing systems, phoneme as basis for alphabetic writing, and national literacy campaigns. Required field project involving Spanish-speaking adults in adult literacy programs. P/NP or letter grading.

175. Topics in Creative Writing and Translation. (4) Seminar, three hours. Requisite: course 25. Exploration of art of translation or creative writing. Guest speakers or instructors include professional literary translators, poets, novelists, playwrights, and filmmakers who discuss theory, methodology, and practice of their art. May be repeated for credit with topic change. P/NP or letter grading.

187A-187B. Advanced Tutorial in Community and Culture I, II. (1-2) Tutorial, one hour. Requisite: course 25 or 27. Designed as adjunct to upper division course in Hispanic literature, language, and culture. Exploration of topics in greater depth through supplemental readings, papers, community service, or other activities. Course 187A may be repeated once for credit. P/NP or letter grading.

191A. Variable Topics in Spanish: Studies in Hispanic Literature and Linguistics. (4) Seminar, three hours. Limited to 15 junior/senior Spanish majors. Variable topics course with readings, discussions, and development of culminating paper. Consult Schedule of Classes or department counselor for topic to be offered in specific term. P/NP or letter grading.

191B. Variable Topics in Spanish: Studies in Hispanic Culture and Civilization. (4) Seminar, three hours. Advanced variable topics course that studies diverse aspects of Hispanic culture, civilization, and history. Classroom discussions, development of culminating paper, and examinations in Spanish. P/NP or letter grading.

191C. Senior Capstone Seminar. (4) Seminar, three hours. Enforced requisites: courses 119, 120, and at least three upper division elective courses required for majors. Limited to senior Spanish majors. Knowledge from previous coursework used to address current trends in discipline; students work with one faculty member on one focused research topic. Culminating paper required. Letter grading.

195. Community Internships in Spanish. (4) Tutorial, one hour; fieldwork, 10 hours. Requisite: course 25 or 27. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide journal of their experience. Final research paper required. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

197. Individual Studies in Spanish. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. Eight units of courses 197 and/or 199 may be applied toward major requirements. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

198A-198B. Senior Honors Research in Spanish I, II. (4-2) (Formerly numbered 198.) Tutorial, to be arranged. Preparation: completion of minimum of six upper division major core courses with 3.7 grade-point average. Course 198A is enforced requisite to 198B. Limited to juniors/seniors. Development and completion of honors thesis under direct supervision of faculty member. May not be applied toward major requirements. Individual contract required. Letter grading.

199. Directed Research in Spanish. (2 to 4) Tutorial, to be arranged. Requisite: course 25. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. Eight units of courses 197 and/or 199 may be applied toward major requirements. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M200. Research Resources. (4) (Same as Portuguese M200.) Lecture, three hours. Identification and use of research resources for graduate students.

M201A-M201B. Literary Theory and Criticism. (4-4) (Same as Portuguese M201A-M201B.) Lecture, three hours. Definition, discussion, and application of main currents of contemporary literary theory and criticism. Letter grading.

202A. Phonology. (4) Lecture, three hours. Study of the sound structure of Spanish and main phonological processes that map underlying representations into surface representations. Bearing of phonological theory on study of meter.

202B. Morphology. (4) Lecture, three hours. Study of derivational and inflectional word formation processes and their interaction with syntactic structure.

204A-204B. Generative Syntax and Semantics. (4-4) Lecture, three hours. Study of syntactic structure of Spanish and relation between underlying representations and logical form within a principles-and-parameters framework. Bearing of syntactic and semantic structure on study of literature.

M205A-M205B. Development of Portuguese and Spanish Languages. (4-4) (Same as Portuguese M205A-M205B.) Lecture, three hours. Intensive study of historical development of Portuguese and Spanish languages from their origin to spoken Latin.

209. Dialectology. (4) Lecture, three hours. Major dialect areas of peninsular and American Spanish, with distinguishing features of each. Influence and contribution of cultural and historical features, including indigenous languages, to their formation.

221. Medieval Lyric Poetry. (4) Lecture, three hours. Readings of and lectures on Spanish lyric poetry from the beginning to 1500.

222. Medieval Epic and Narrative Poetry. (4) Lecture, three hours. Readings of and lectures on Spanish epic and narrative poetry from the beginning to 1500.

223. Medieval Prose. (4) Lecture, three hours. Readings of and lectures on Spanish prose from the beginning to 1500.

224. Poetry of the Golden Age. (4) Lecture, three hours. Readings of and lectures on Spanish poetry from 1500 to 1700.

225. Drama of the Golden Age. (4) Lecture, three hours. Readings of and lectures on the *comedia*.

226. Prose of the Golden Age. (4) Lecture, three hours. Readings of and lectures on fictional, didactic, religious, and historical writings.

227. Cervantes. (4) Lecture, three hours. Readings of and lectures on works of Cervantes.

228. The Enlightenment. (4) Lecture, three hours. Readings of and lectures on representative works of the period.

229. Romanticism. (4) Lecture, three hours. Readings of and lectures on representative works of the period.

230. Realism and Naturalism. (4) Lecture, three hours. Readings of and lectures on literary works, principally novels, from 1850 to 1898.

231. Major Currents in Modern Spanish Literature. (4) Lecture, three hours. Introduction to major literary currents, including symbolism, Parnassianism, and the Generation of 1898.

232. Spanish Prose Literature from 1898 to the Civil War. (4) Lecture, three hours. Readings of and lectures on representative essays, novels, and short stories of the period.

233. Spanish Prose Literature after the Civil War. (4) Lecture, three hours. Readings of and lectures on representative essays, novels, and short stories of the period.

234. Spanish Drama and Poetry from 1898 to the Civil War. (4) Lecture, three hours. Readings of and lectures on representative plays and poems.

235. Spanish Drama and Poetry after the Civil War. (4) Lecture, three hours. Readings of and lectures on representative plays and poems of the period.

237. Literature of the Spanish Conquest. (4) Lecture, three hours. Readings of and lectures on chronicles, poems, and indigenous accounts of the Spanish Conquest.

238. Baroque, Enlightenment, and Neoclassicism in Colonial Literature. (4) Lecture, three hours. Readings of and lectures on representative texts.

239. Romanticism and Realism in Spanish-American Literature. (4) Lecture, three hours. Intensive study of Romanticism and realism in Spanish-American literature.

240. Major Currents in Modern Spanish-American Literature. (4) Lecture, three hours. Study of principal trends in modern Spanish-American literature, particularly *naturalismo* and *modernismo*.

241A-241B. Contemporary Spanish-American Short Story. (4-4) Lecture, three hours. Study of important short story writers from modernism to the present.

243A-243B. Contemporary Spanish-American Poetry. (4-4) Lecture, three hours. Intensive study of important poets of Spanish America from modernism to the present.

244A-244B. Contemporary Spanish-American Novel. (4-4) Lecture, three hours. Study of important novelists from modernism to the present.

245. Contemporary Spanish-American Essay. (4) Lecture, three hours. Study of important Spanish-American essayists of the 20th century.

246. Contemporary Spanish-American Drama. (4) Lecture, three hours. Study of principal Spanish-American dramatists and theater movements in the 20th century.

247. Chicano Literature. (4) (Formerly numbered 247.) (Same as Chicana and Chicano Studies M247.) Lecture, three hours. Study of major movements and authors of Mexican American literature. S/U or letter grading.

249. Folk Literature of Spanish and Portuguese Worlds. (4) (Same as Portuguese M249.) Lecture, three hours. Intensive study of folk literature of Spanish and Portuguese cultures as represented in (1) ballad and poetry, (2) narrative and drama, (3) speech. S/U or letter grading.

251A-M251B. Studies in Galegan-Portuguese and Old Spanish. (4-4) (Same as Portuguese M251A-M251B.) Lecture, two hours. Study of problems related to historical development of Galegan-Portuguese and Old Spanish. Each course may be repeated once with topic change and consent of appropriate guidance committee.

256A-256B. Studies in Spanish Linguistics. (4-4) Lecture, two hours. Study of problems in analysis and description of the contemporary Spanish language. Each course may be repeated once with topic change and consent of appropriate guidance committee.

257. Studies in Dialectology. (4) Discussion, two hours. May be repeated once with topic change and consent of appropriate guidance committee.

262A-262B. Studies in Medieval Spanish Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

264A-264B. Studies in Golden Age Spanish Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

265. Cervantes. (4) Discussion, two hours. May be repeated once with topic change and consent of appropriate guidance committee.

270A-270B. Studies in 18th-Century Spanish Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

271A-271B. Studies in 19th-Century Spanish Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

272A-272B. Studies in 20th-Century Spanish Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

277A-277B. Studies in Colonial Spanish-American Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

278A-278B. Studies in 19th-Century Spanish-American Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

280A-280B. Studies in Contemporary Spanish-American Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

281. Studies in Chicano Literature. (4) Discussion, two hours. May be repeated once with topic change and consent of appropriate guidance committee.

286A-286B. Studies in Hispanic Folk Literature. (4-4) Lecture, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee. S/U or letter grading.

290. Special Topics. (4) Lecture, two hours. Variable topics; consult Schedule of Classes or department counselor for topics to be offered in a specific term. May be repeated once with topic change and consent of appropriate guidance committee.

291A-291B. Colonial Studies Research Group. (2-2) Research group meeting, two hours. Limited to graduate students. Discussion and analysis of colonial manuscripts. Specific topics vary from year to year. Production of student papers for publication and/or presentation at conferences or symposia. **291A.** S/U grading; **291B.** Prerequisite: course 291A. May be repeated for credit. S/U or letter grading.

296. Graduate Research Group. (2) Research group meeting, two hours. Limited to graduate students. Designed to bring together graduate students in seminar setting with one or more faculty members to discuss and critique individual research projects, especially dissertation research. S/U grading.

310. Teaching Spanish in Elementary School. (4) Lecture, three hours.

370. Teaching Spanish in Secondary School. (4) Lecture, three hours. S/U or letter grading.

373. Teaching Composition. (2) Designed for graduate students. Seminar on teaching writing in Spanish language courses. Introduction to composition theory. Instruction and practice in integrating writing into curriculum, setting goals and standards, designing and sequencing course materials, evaluating and commenting on papers. May not be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

490. Using Technology in Foreign Language Classroom. (4) Discussion, two hours. Designed for graduate students. Theory and practice of using technology in foreign language classroom. Computer applications that facilitate instruction of grammar, discourse, culture, and composition, as well as evaluation and communication between students and instructor. S/U grading.

495. Teaching Spanish at College Level. (4) Seminar, to be arranged. Designed for graduate Spanish and Portuguese students. Basic concepts of modern theories of language and language acquisition which underlie modern methods of second language teaching. S/U grading.

596. Directed Individual Study or Research. (4 or 8) Tutorial, to be arranged. Study or research in areas or subjects not offered as regular courses. No more than 4 units may be applied toward MA course requirements. S/U or letter grading.

597. Preparation for Graduate Examinations. (4 to 12) Tutorial, to be arranged. Preparation: official acceptance of candidacy by department. Individual preparation for MA comprehensive examination or PhD qualifying examinations. May be taken only once for each degree examination and only in term that comprehensive or qualifying examinations are to be taken. S/U grading.

598. Research for MA Thesis. (4 to 12) Tutorial, to be arranged. Research in preparation of MA thesis. S/U grading.

599. Research for PhD Dissertation. (4 to 12) Tutorial, to be arranged. Limited to students who have passed PhD qualifying examinations. Research for and preparation of PhD dissertation. S/U grading.

James B. MacQueen, PhD
Robert D. Mare, PhD
William M. Mason, PhD
Bengt Muthén, PhD
Judea Pearl, PhD
Sidney C. Port, PhD
N. Donald Ylvisaker, PhD

Associate Professors

Hongjing Lu, PhD
Damla Şentürk, PhD, *in Residence*
Catherine A. Sugar, PhD, *in Residence*
Qing Zhou, PhD

Assistant Professors

Arash A. Amini, PhD
Alyson K. Fletcher, PhD
Erin Harman, PhD
Chad J. Hazlett, PhD
Jingyi Jessica Li, PhD

Lecturer S.O.E.

Robert L. Gould, PhD

Senior Lecturers

Nicolas Christou, PhD
Maryam M. Esfandiari, PhD
Vivian Lew, PhD
Juana Sanchez, PhD

Lecturers

Akram M. Almohalwas, PhD
Miles S. Chen, PhD

Adjunct Associate Professor

Ivaylo D. Dinov, PhD

Adjunct Assistant Professor

Katherine M. Mullen, PhD

Scope and Objectives

With the advent of fast computing and the subsequent flood of data detailing almost every aspect of our daily lives comes an urgent need for scientists trained in modern statistical methodologies.

Both the undergraduate and graduate programs in the Department of Statistics are structured around three core course sequences that introduce students to the science of data: theoretical statistics, data analysis, and statistical computing. This balance reflects the scale and complexity of problems that statisticians are now routinely called to address. Additional course offerings reflect the work of faculty members in bioinformatics, sensor networks, environmental studies, finance, and computer vision.

Courses and workshops for secondary school teachers of statistics are also offered in order to promote sound statistics pedagogy throughout the curriculum.

Reflecting diverse research interests, the department is organized around several centers that collectively provide undergraduate and graduate students rich opportunities for specialized study. These include the Center for Environmental Statistics, Center for Image and Vision Sciences, Center for Statistical Computing, Center for Statistical Research in Computational Biology, and Center for the Teaching of Statistics.

Undergraduate Study

The Statistics major is a designated capstone major. Undergraduate students work in small groups to solve problems posed by real com-

SPEECH

See Communication Studies

STATISTICS

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Mark S. Handcock, PhD, Chair

Professors

Peter M. Bentler, PhD
Susan D. Cochran, PhD
Dorota M. Dabrowska, PhD
Rebecca J. Emigh, PhD
Mark S. Handcock, PhD
Edward E. Leamer, PhD (*Chauncey J. Medberry Professor of Management*)

Ker-Chau Li, PhD

Kevin F. McCardle, PhD

Frederic R. Paik Schoenberg, PhD

Theodore M. Porter, PhD

Janice L. Reiff, PhD (*Waldo W. Neikirk Term Professor*)

David L. Rigby, PhD

Yingnian Wu, PhD

Hongquan Xu, PhD

Alan L. Yuille, PhD

Song-Chun Zhu, PhD

Professors Emeriti

Richard A. Berk, PhD
William A. V. Clark, PhD
Jan de Leeuw, PhD
Thomas S. Ferguson, PhD
Robert I. Jennrich, PhD

munity-based or campus-based clients. The capstone gives students an opportunity to put into practice concepts and ideas that otherwise might remain theoretical and/or abstract and to synthesize the many topics they have studied. Students should demonstrate ability to restate investigative questions in terms of statistical models or algorithms, find appropriate research literature to support their work, relate theoretical concepts to real-world problems, and clearly communicate their results to nontechnical audiences.

Undergraduate Courses

Students planning to pursue advanced degrees in statistics should enroll in the Statistics 100 sequence. Most courses are offered once or twice each year; students interested in either the major or minor in Statistics should meet with the student affairs officer early in their careers.

Statistics BS

Capstone Major

The Statistics major is designed to provide a general introduction to the practice of statistics for students who intend to pursue study at the graduate level or seek employment in industry or government. Courses are selected to provide sufficient theoretical background for future graduate-level research work, exposure to modern techniques and practices, and experience in fields of application.

It is strongly recommended that students, in conjunction with the BS degree, pursue a minor in a substantive discipline that applies statistics. Students must consult with the undergraduate faculty adviser to ensure that the minor selected is one in which statistics is applied.

Statistics Premajor

Incoming freshman and transfer students may be admitted as Statistics premajors on acceptance to UCLA. Premajor students must apply for the major after completing Mathematics 33A, Statistics 20, and one course from Statistics 10 through 13, with grades of C or better, and a grade-point average of 2.5. Any student who meets the premajor requirements may declare the major with the undergraduate adviser in 8117A Math Sciences, 310-206-3742.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, Statistics 20, and one course from Statistics 10 through 13. Each course must be completed with a grade of C or better. Students who repeat any preparation course more than once are automatically denied admission to the major.

Transfer Students

Transfer applicants to the Statistics major with 90 or more units must complete as many of the following introductory courses as possible prior to admission: two years of calculus, one linear algebra course, and one statistics course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admission.ucla.edu/prospect/Adm_tr/tradms.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Statistics 100A, 100B, 100C, 101A, 101B, 101C, 102A, 102B, 102C, two capstone statistical consulting courses (140SL, 141SL), and two upper division elective courses selected from 130, C151 through 199, Mathematics 131A, 131B, 151A, 151B, 170B, 171, 172B, 175. Elective courses from outside the department are selected in consultation with the undergraduate faculty adviser.

The capstone consists of two courses (Statistics 140SL and 141SL) that must be completed sequentially in the final year. Students must first take courses 100B, 101B, and 130 before they can begin the capstone.

Only 4 units of course 199 may be applied toward the major. Courses 189 and 189HC may not be applied toward any of the major requirements.

Students planning to continue their study of statistics at the graduate level are strongly advised to include in their schedule as many of the following courses as possible: Mathematics 131A, 131B, 151A, 151B, 170B, 171.

Each major course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Statistics Minor

The Statistics minor is designed to provide a solid background in statistics for students majoring in other disciplines.

To enter the minor, students (1) must be in good academic standing (2.0 grade-point average or better) and have taken Mathematics 31B, Statistics 20, and one course from Statistics 10 through 13 for letter grades and (2) file a petition with the undergraduate adviser in 8117A Math Sciences, 310-206-3742.

Required Upper Division Courses (28 units): Seven upper division courses selected from one of the following options: (1) any two sequences from Statistics 100A, 100B, 100C, and 101A, 101B, 101C, and 102A, 102B, 102C, and one elective course or (2) two courses from each of the above sequences and one elective course. Electives may be selected from any upper division statistics course. Statistics 199 may be applied as one of the electives for both options. Courses 105 and 189 may not be applied toward the minor.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be out-

lined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Statistics offers Master of Science (MS), Candidate in Philosophy (CPhil), and Doctor of Philosophy (PhD) degrees in Statistics and a self-supporting Master of Applied Statistics (MAS) degree.

Statistics

Lower Division Courses

10. Introduction to Statistical Reasoning. (5) Lecture, three hours; discussion, one hour; computer laboratory, two hours. Preparation: three years of high school mathematics. Not open for credit to students with credit for course 11, 12, 13, 14, or former course 10H. Introduction to statistical thinking and understanding, including strengths and limitations of basic experimental designs, graphical and numerical summaries of data, inference, regression as descriptive tool. P/NP or letter grading.

12. Introduction to Statistical Methods for Geography and Environmental Studies. (5) Lecture, four hours; discussion, one hour; laboratory, one hour. Not open for credit to students with credit for course 10, 11, or 13. Introduction to statistical thinking and understanding, with emphasis on techniques used in geography and environmental science. Underlying logic behind statistical procedures, role of variation in statistical thinking, strengths and limitations of statistical summaries, and fundamental inferential tools. Emphasis on applications in geography and environmental science in laboratory work using professional statistical analysis package, including spatial statistics. P/NP or letter grading.

13. Introduction to Statistical Methods for Life and Health Sciences. (5) Lecture, three hours; discussion, one hour; laboratory, one hour. Not open for credit to students with credit for course 10, 10H, 11, 12, or 14. Presentation and interpretation of data, descriptive statistics, introduction to correlation and regression and to basic statistical inference (estimation, testing of means and proportions, ANOVA) using both bootstrap methods and parametric models. P/NP or letter grading.

20. Introduction to Statistical Programming with R. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 10, 12, or 13. Designed to prepare students for upper division work in statistics. Introduction to use of R, including data management, simple programming, and statistical graphics in R. P/NP or letter grading.

35. Introduction to Probability with Applications to Poker. (4) Lecture, three hours; discussion, one hour. Exploration of some main topics in introductory probability theory, especially discrete probability problems, that are useful in wide variety of scientific applications. Topics include conditional probability and conditional expectation, combinatorics, laws of large numbers, central limit theorem, Bayes theorem, univariate distributions, Markov processes, and Brownian motion. Examination of computer simulation in depth and discussion of computational approximations of solutions to complex problems using R, with examples of situations and concepts that arise naturally when playing Texas Hold'em and other games. P/NP or letter grading.

88. Sophomore Seminars: Statistics. (2) Seminar, two hours. Requisite: one course from 10, 11, 12, 13, or 14. Limited to 20 lower division students. Readings and discussions designed to introduce students to current statistical consulting research and fieldwork disciplines. Culminating project may be required. P/NP or letter grading.

Upper Division Courses

100A. Introduction to Probability. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 32B, 33A. Not open to students with credit for Electrical Engineering 131A or Mathematics 170A; open to graduate students. Students may receive credit for only two of following: course 100A, former course 110A, Biostatistics 100A. Probability distributions, random variables, vectors, and expectation. P/NP or letter grading.

100B. Introduction to Mathematical Statistics. (4) Lecture, three hours; discussion, one hour. Requisite: course 100A or Mathematics 170A. Survey sampling, estimation, testing, data summary, one- and two-sample problems. P/NP or letter grading.

100C. Linear Models. (4) Lecture, three hours; discussion, one hour. Requisite: course 100B. Theory of linear models, with emphasis on matrix approach to linear regression. Topics include model fitting, extra sums of squares principle, testing general linear hypothesis in regression, inference procedures, Gauss/Markov theorem, examination of residuals, principle component regression, stepwise procedures. P/NP or letter grading.

101A. Introduction to Data Analysis and Regression. (4) (Formerly numbered 101B.) Lecture, three hours; discussion, one hour. Enforced requisite: course 10 or 12 or 13. Recommended: course 102A. Applied regression analysis, with emphasis on general linear model (e.g., multiple regression) and generalized linear model (e.g., logistic regression). Special attention to modern extensions of regression, including regression diagnostics, graphical procedures, and bootstrapping for statistical influence. P/NP or letter grading.

101B. Introduction to Design and Analysis of Experiment. (4) (Formerly numbered 101A.) Lecture, three hours; discussion, one hour. Enforced requisite: course 101A. Fundamentals of collecting data, including components of experiments, randomization and blocking, completely randomized design and ANOVA, multiple comparisons, power and sample size, and block designs. P/NP or letter grading.

101C. Introduction to Statistical Models and Data Mining. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 101B. Designed for juniors/seniors. Applied regression analysis, with emphasis on general linear model (e.g., multiple regression) and generalized linear model (e.g., logistic regression). Special attention to modern extensions of regression, including regression diagnostics, graphical procedures, and bootstrapping for statistical influence. P/NP or letter grading.

102A. Introduction to Computational Statistics with R. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 10, 20, Mathematics 33A. Introduction to programming and data analysis in R. P/NP or letter grading.

102B. Introduction to Computation and Optimization for Statistics. (4) Lecture, three hours; discussion, one hour. Requisites: course 100B, Mathematics 33A. Introduction to computational methods and optimization useful for statisticians. Use of computer programming to solve statistical problems. Topics include vector/matrix computation, multivariate normal distribution, principal component analysis, clustering analysis, gradient-based optimization, EM algorithm for missing data, and dynamic programming. P/NP or letter grading.

102C. Introduction to Monte Carlo Methods. (4) Lecture, three hours; discussion, one hour. Requisite: course 100B. Introduction to Markov chain Monte Carlo (MCMC) algorithms for scientific computing. Generation of random numbers from specific distribution. Rejection and importance sampling and its role in MCMC. Markov chain theory and convergence properties. Metropolis and Gibbs sampling algorithms. Extensions as simulated tempering. Theoretical understanding of methods and their implementation in concrete computational problems. P/NP or letter grading.

105. Statistics for Engineers. (4) Lecture, three hours; discussion, one hour. Requisite: course 100A or Electrical Engineering 131A or Mathematics 170A. Foundation of basic concepts and techniques of statistics. Topics include sampling distributions, statistical estimation (including maximum likelihood estimation), statistical intervals, and hypothesis testing, with emphasis on application of these concepts. Discussion of methods for checking whether assumptions required for mathematical foundations are appropriate for given set of data. P/NP or letter grading.

112. Window to Understanding Diversity. (5) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 10. Limited to juniors/seniors. Statistical methods in social sciences, including regression, multivariate techniques, logistic regression, and data-handling and analysis. Applications to social sciences, using professional statistical analysis software package for data analysis. Letter grading.

C116. Social Statistics. (4) Lecture, three hours. Preparation: some knowledge of basic calculus and linear algebra. Requisites: courses 100A and 100B, or 101B and 101C, or one course from 10, 11, 12, 13 and one upper division statistics course using regression. Designed for social sciences graduate students and advanced undergraduate students seeking training in data issues and methods employed in social sciences. Concurrently scheduled with course C216. P/NP or letter grading.

130. Getting Up to Speed with SPSS, Stata, SAS, and R. (4) Lecture, three hours; discussion, one hour. Preparation: basic statistics, basic computer literacy. Study of four commonly employed solutions—SPSS (Statistical Package for Social Sciences), Stata, SAS (Statistical Analysis System), and R—for data analytic and statistical issues in health sciences, engineering, economics, and government. Emphasis on applied problem solving, measurement issues in data analysis, use of computer for analysis of large-scale data. P/NP or letter grading.

140SL. Practice of Statistical Consulting. (4) Lecture, one hour; discussion, two hours. Enforced requisites: courses 100B, 101B, 130. Limited to seniors. Opportunity to solve real data analysis problems for real community-based or campus-based clients. Students work in small groups with faculty member and client to frame client's question in statistical terms, create statistical model, analyze data, and report results. Weekly meetings in classroom setting to study basic consulting skills, share experiences, exchange ideas, and make reports. On-site visits as necessary. Courses 140SL and 141SL must be taken in consecutive terms. In Progress grading (credit to be given only on completion of course 141SL).

141SL. Practice of Statistical Consulting. (4) Seminar, one hour; research group meeting, two hours. Enforced requisite: course 140SL. Limited to seniors. Opportunity to solve real data analysis problems for real community-based or campus-based clients. Students work in small groups with faculty member and client to frame client's question in statistical terms, create statistical model, analyze data, and report results. Weekly meetings in classroom setting to study basic consulting skills, share experiences, exchange ideas, and make reports. On-site visits as necessary. Courses 140SL and 141SL must be taken in consecutive terms. Letter grading.

C145. History and Theory of Statistics. (4) Lecture, three hours. Enforced requisite: course 100B. History of statistical methodology and its role within scientific community. Philosophical tenets of statistics; use of concept of probability as transparent and relatively objective means of evaluating empirical observations. Theory of statistical hypothesis generation and hypothesis testing. Designed to provide understanding and perspectives on role of statistics in modern science, theory of statistics, and its strengths and weaknesses. Concurrently scheduled with course C245. P/NP or letter grading.

C151. Experimental Design. (4) Lecture, three hours. Requisites: courses 100C, 101A. Basic principles, analysis of variance, randomized block designs, Latin squares, balanced incomplete block designs, factorial

designs, fractional factorial designs, minimum aberration designs, robust parameter designs. Concurrently scheduled with course C225. P/NP or letter grading.

M154. Measurement and Its Applications. (4) (Same as Psychology M144.) Lecture, three hours. Requisite: one course from 10, 11, 12, 13, 14, or Psychology 100A. Selected theories for quantification of psychological, educational, social, and behavioral science data. Classical test, factor analysis, generalizability, item response, optimal scaling, ordinal measurement, computer-adaptive, and related theories. Construction of tests and measures and their reliability, validity, and bias. P/NP or letter grading.

C155. Applied Sampling. (4) Lecture, three hours; discussion, one hour. Designed for upper division and graduate students in social or life sciences and those who plan to major in Statistics. Topics include methods of sampling from finite populations, sources of sampling and estimation bias, and methods of generating efficient and precise estimates of population characteristics. Practical applications of sampling methods via lectures and hands-on laboratory exercises. Concurrently scheduled with course CM248. P/NP or letter grading.

157. Probability and Statistics Data Modeling and Analysis using Statistics Online Computational Resource. (4) Lecture, three hours; discussion, one hour. Preparation: one engineering, mathematics, physics, or statistics course. Recommended requisite: Program in Computing 20A. Probability and statistics topics in data-driven and interactive manner using open Internet resources. Varieties of data, study-designs, and applications arising from biomedical, research, and simulated data to prepare students for innovative multidisciplinary research. Use of Statistics Online Computational Resource (SOCR). P/NP or letter grading.

C161. Introduction to Pattern Recognition and Machine Learning. (4) Lecture, three hours. Requisites: course 100B, Mathematics 33A. Introduction to pattern analysis and machine intelligence designed for advanced undergraduate and graduate students. Concurrently scheduled with course C261. P/NP or letter grading.

170. Introduction to Time-Series Analysis. (4) Lecture, three hours; discussion, one hour. Requisite: course 100C or 101B. Exploration of standard methods in temporal and frequency analysis used in analysis of numerical time-series data. Examples provided throughout, and students implement techniques discussed. P/NP or letter grading.

M171 Introduction to Spatial Statistics. (4) (Same as Geography M171.) Lecture, three hours; laboratory, one hour. Requisite: one course from 10, 11, 12, 13, or 14. Introduction to methods of measurement and interpretation of geographic distributions and associations. P/NP or letter grading.

C173. Applied Geostatistics. (4) Lecture, three hours; discussion, one hour. Requisite: course 100C (may be taken concurrently) or 101B. Geostatistics can be applied to many problems in other disciplines such as hydrology, traffic, air and water pollution, epidemiology, economics, geography, waste management, forestry, oceanography, meteorology, and agriculture and, in general, to every problem where data are observed at geographic locations. Acquisition of knowledge from different areas that can be used to analyze real spatial data problems and to connect geostatistics with geographic information systems (GIS). Concurrently scheduled with course C273. P/NP or letter grading.

C180. Introduction to Bayesian Statistics. (4) Lecture, three hours; discussion, one hour. Enforced requisites: course 100B, Mathematics 32B. Designed for juniors/seniors. Introduction to statistical inference based on use of Bayes theorem, covering foundational aspects, current applications, and computational issues. Topics include Stein paradox, nonparametric Bayes, and statistical learning. Examples of applications vary according to interests of students. Concurrently scheduled with course C236. P/NP or letter grading.

182. Fundamentals of Scientific Writing. (2) Seminar, one hour. Development and perfection of student written communication skills through variety of scientific writing and reading assignments. Objectives and techniques of scientific writing and practice with different forms of professional writing. Analysis of quality of writing, including control, clarity, grammar, and mechanics. P/NP or letter grading.

C183. Statistical Models in Finance. (4) Lecture, three hours. Requisite: course 100B. Designed for juniors/seniors and graduate students. Statistical techniques in investment theory using real market data. Portfolio management, risk diversification, efficient frontier, single index model, capital asset pricing model (CAPM), beta of a stock, European and American options (Black-Scholes model, binomial model). Concurrently scheduled with course C283. P/NP or letter grading.

186. Careers in Statistics. (1) Seminar, one hour. Discussion of applications of statistics by weekly guest speakers. How statistics is applied to legal questions, economic decisions, arts, environment, and other fields, with some emphasis on career paths in statistics. P/NP grading.

195. Community or Corporate Internships in Statistics. (4) Tutorial, four hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

199. Directed Research in Statistics. (1 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Applied Probability. (4) Lecture, three hours. Requisite: course 100A or Mathematics 170A. Limited to graduate statistics students. Simulation, renewal theory, martingale, and selected topics from queuing, reliability, speech recognition, computational biology, mathematical finance, epidemiology. S/U or letter grading.

200B. Theoretical Statistics. (4) Lecture, three hours. Sufficiency, exponential families, least squares, maximum likelihood estimation, Bayesian estimation, Fisher information, Cramér/Rao inequality, Stein's estimate, empirical Bayes, shrinkage and penalty, confidence intervals. Likelihood ratio test, p-value, false discovery, nonparametrics, semi-parametrics, model selection, dimension reduction. S/U or letter grading.

200C. Large Sample Theory, Including Resampling. (4) Lecture, three hours. Enforced requisite: course 200B. Asymptotic properties of tests and estimates, consistency and efficiency, likelihood ratio tests, chi-squared tests. S/U or letter grading.

201A. Research Design, Sampling, and Analysis. (4) Lecture, three hours. Designed for graduate students. Basic principles, ANOVA block designs, factorial designs, unequal probability sampling, regression estimation, stratified sampling, and cluster sampling. S/U or letter grading.

201B. Statistical Modeling and Learning. (4) Lecture, three hours. Requisites: courses 200A, 201A. Methods of model fitting and parameter estimation, with emphasis on regression and classification techniques, including those from machine learning. Interest in either obtaining suitable conditional expectation function or estimating meaningful parameters of underlying probabilistic model to make inferences or predictions from data. Focus on what is to be done when linear models are not appropriate and may produce misleading estimates. Coverage of classical must know model fitting and parameter estimation techniques such as maximum likelihood fitting of generalized linear models. Exploration of broader regression/classification techniques that have been ubiqui-

tous in machine learning literature, with special attention to regularization and kernelized methods. S/U or letter grading.

201C. Advanced Modeling and Inference. (4) Lecture, three hours. Strongly recommended requisites: courses 200B, 201B. Designed for graduate students. Introduction to advanced topics in statistical modeling and inference, including Bayesian hierarchical models, missing data problems, mixture modeling, additive modeling, hidden Markov models, and Bayesian networks. Coverage of computational methods used and developed for these models and problems, such as EM algorithm, data augmentation, dynamic programming, and belief propagation. S/U or letter grading.

202A. Statistics Programming. (4) Lecture, three hours. Topics include programming environments/languages such as UNIX, UNIX shell, Python, R, and Processing and data technologies/formats such as relational databases/SQL and XML, with emphasis on complex data types, including large collections of textual data, GPS traces, network logs, and various online sources. S/U or letter grading.

202B. Matrix Algebra and Optimization. (4) Lecture, three hours. Recommended requisite: course 202A. Survey of computational methods that are especially useful for statistical analysis, with implementations in statistical package R. Topics include matrix analysis, multivariate regression, principal component analysis, multivariate analysis, and deterministic optimization methods. S/U or letter grading.

202C. Monte Carlo Methods for Optimization. (4) Lecture, three hours. Requisite: course 202B. Monte Carlo methods and numerical integration. Importance and rejection sampling. Sequential importance sampling. Markov chain Monte Carlo (MCMC) sampling techniques, with emphasis on Gibbs samplers and Metropolis/Hastings. Simulated annealing. Exact sampling with coupling from past. Permutation testing and bootstrap confidence intervals. S/U or letter grading.

204. Nonparametric Function Estimation and Modeling. (4) Lecture, three hours. Requisite: course 200A. Introduction to many useful nonparametric techniques such as nonparametric density estimation, nonparametric regression, and high-dimensional statistical modeling. Some semiparametric techniques and functional data analysis. Letter grading.

C216. Social Statistics. (4) Lecture, three hours. Preparation: some knowledge of basic calculus and linear algebra. Requisites: courses 100A and 100B, or 101B and 101C, or one course from 10, 11, 12, 13 and one upper division statistics course using regression. Designed for social sciences graduate students and advanced undergraduate students seeking training in data issues and methods employed in social sciences. Concurrently scheduled with course C116. S/U or letter grading.

218. Statistical Analysis of Networks. (4) Lecture, three hours. Limited to graduate students. Introduction to analysis of social structure, conceived in terms of social relationships. Major concepts of social network theory and mathematical representation of social concepts such as role and position. Use of graphical representations of network information. S/U or letter grading.

M222. Spatial Statistics. (4) (Same as Geography M272 and Urban Planning M215.) Lecture, three hours. Designed for graduate students. Survey of modern methods used in analysis of spatial data. Implementation of various techniques using real data sets from diverse fields, including neuroimaging, geography, seismology, demography, and environmental sciences. S/U or letter grading.

C225. Experimental Design. (4) Lecture, three hours. Basic principles, analysis of variance, randomized block designs, Latin squares, balanced incomplete block designs, factorial designs, fractional factorial designs, minimum aberration designs, robust parameter designs. Concurrently scheduled with course C151. S/U or letter grading.

M230. Statistical Computing. (4) (Same as Biomathematics M280 and Biostatistics M280.) Lecture, three hours. Requisites: course 100C, Mathematics 115A. Introduction to theory and design of statistical programs: computing methods for linear and nonlinear regression, dealing with constraints, robust estimation, and general maximum likelihood methods. Letter grading.

M231. Pattern Recognition and Machine Learning. (4) (Same as Computer Science M276A.) Lecture, three hours. Designed for graduate students. Fundamental concepts, theories, and algorithms for pattern recognition and machine learning that are used in computer vision, image processing, speech recognition, data mining, statistics, and computational biology. Topics include Bayesian decision theory, parametric and nonparametric learning, clustering, complexity (VC-dimension, MDL, AIC), PCA/ICA/TCA, MDS, SVM, boosting. S/U or letter grading.

M232A. Statistical Modeling and Learning in Vision and Science. (4) (Same as Computer Science M266A.) Lecture, three hours. Preparation: basic statistics, linear algebra (matrix analysis), computer vision. Computer vision and pattern recognition. Study of four types of statistical models for modeling visual patterns: descriptive, causal Markov, generative (hidden Markov), and discriminative. Comparison of principles and algorithms for these models; presentation of unifying picture. Introduction of minimax entropy and EM-type and stochastic algorithms for learning. S/U or letter grading.

M232B. Statistical Computing and Inference in Vision and Image Science. (4) (Same as Computer Science M266B.) Lecture, three hours. Preparation: basic statistics, linear algebra (matrix analysis), computer vision. Introduction to broad range of algorithms for statistical inference and learning that could be used in vision, pattern recognition, speech, bioinformatics, data mining. Topics include Markov chain Monte Carlo computing, sequential Monte Carlo methods, belief propagation, partial differential equations. S/U or letter grading.

C236. Introduction to Bayesian Statistics. (4) Lecture, three hours; discussion, one hour. Recommended requisite: course 200A or 200B. Designed for graduate students. Introduction to statistical inference based on use of Bayes theorem, covering foundational aspects, current applications, and computational issues. Topics include Stein paradox, nonparametric Bayes, and statistical learning. Examples of applications vary according to interests of students. Concurrently scheduled with course C180. S/U or letter grading.

238. Vision as Bayesian Inference. (4) Lecture, three hours. Requisite: course 100A or 200A. Formulation of vision as Bayesian inference using models developed for designing artificial vision systems. Applied to statistics, they define ideal observer models that can be used to model human performance and serve as a benchmark. S/U or letter grading.

240. Multivariate Analysis. (4) Lecture, three hours. Requisite: course 200B. Distributions in several dimensions, partial and multiple correlation. Normal distribution theory, Wishart distribution, Hotelling T^2 . Principal components, canonical correlation, discriminant analysis. Introduction to linear structural relations and factor analysis. Letter grading.

M241. Current Topics in Causal Modeling, Inference, and Reasoning. (4) (Same as Computer Science M262C.) Lecture, four hours. Requisite: one graduate probability or statistics course such as course 200B, 202B, or Computer Science 262A. Review of Bayesian networks, causal Bayesian networks, and structural equations. Learning causal structures from data. Identifying causal effects. Covariate selection and instrumental variables in linear and nonparametric models. Simpson paradox and confounding control. Logic and algorithmization of counterfactuals. Probabilities of counterfactuals. Direct and indirect effects. Probabilities of causation. Identifying causes of events. Letter grading.

M242. Multivariate Analysis with Latent Variables.

(4) (Same as Political Science M208D and Psychology M257.) Lecture, three hours. Introduction to models and methods for analysis of data hypothesized to be generated by unmeasured latent variables, including latent variable analogues of traditional methods in multivariate analysis. Causal modeling: theory testing via analysis of moment structures. Measurement models such as confirmatory, higher-order, and structured-means factory analytic models. Structural equation models, including path and simultaneous equation models. Parameter estimation, hypothesis testing, and other statistical issues. Computer implementation. Applications. S/U or letter grading.

M243. Logic, Causation, and Probability. (4) (Same as Epidemiology M204.) Lecture, four hours. Preparation: two terms of statistics or probability and statistics. Recommended requisite: Epidemiology 200C. Principles of deductive logic and causal logic using counterfactuals. Principles of probability logic and probabilistic induction. Causal probability logic using directed acyclic graphs. S/U or letter grading.

M244. Statistical Analysis with Latent Variables. (4) (Same as Education M231E.) Lecture, three hours. Requisites: Education 231A, M231B. Extends path analysis (causal modeling) by considering models with measurement errors and multiple indicators of latent variables. Confirmatory factor analysis, covariance structure modeling, and multiple-group analysis. Identification, estimation, testing, and model building considerations. Letter grading.

C245. History and Theory of Statistics. (4) Lecture, three hours. History of statistical methodology and its role within scientific community. Philosophical tenets of statistics; use of concept of probability as transparent and relatively objective means of evaluating empirical observations. Theory of statistical hypothesis generation and hypothesis testing. Designed to provide understanding and perspectives on role of statistics in modern science, theory of statistics, and its strengths and weaknesses. Concurrently scheduled with course C145. S/U or letter grading.

246. Statistical Model Selection. (4) Lecture, three hours. Preparation: basic knowledge of calculus, linear algebra, and computer programming. Modern methods for constructing and evaluating statistical models, including non-Bayesian and Bayesian statistical modeling approaches. Discussion of theoretical parts and data analysis. Letter grading.

CM248. Applied Sampling. (4) (Same as Epidemiology M216.) Lecture, three hours; discussion, one hour. Designed for upper division and graduate students in social or life sciences and those who plan to major in Statistics. Topics include methods of sampling from finite populations, sources of sampling and estimation bias, and methods of generating efficient and precise estimates of population characteristics. Practical applications of sampling methods via lectures and hands-on laboratory exercises. Concurrently scheduled with course C155. S/U or letter grading.

M250. Statistical Methods for Epidemiology. (4) (Same as Biostatistics M211 and Epidemiology M211.) Lecture, four hours. Preparation: two terms of statistics (such as Biostatistics 100A, 100B). Requisites: Epidemiology 200B, 200C. Concepts and methods tailored for analysis of epidemiologic data, with emphasis on tabular and graphical techniques. Expansion of topics introduced in Epidemiology 200B and 200C and introduction of new topics, including principles of epidemiologic analysis, trend analysis, smoothing and sensitivity analysis. S/U or letter grading.

M254. Statistical Methods in Computational Biology. (4) (Same as Bioinformatics M271 and Biomathematics M271.) Lecture, three hours; discussion, one hour. Preparation: elementary probability concepts. Requisite: course 100A or 200A or Bioinformatics M260A. Introduction to statistical methods developed and widely applied in several branches of computational biology, such as gene expression, sequence alignment, motif discovery, comparative genomics,

and biological networks, with emphasis on understanding of basic statistical concepts and use of statistical inference to solve biological problems. Letter grading.

C261. Introduction to Pattern Recognition and Machine Learning. (4) Lecture, three hours. Requisites: course 100B, Mathematics 33A. Introduction to pattern analysis and machine intelligence designed for advanced undergraduate and graduate students. Concurrently scheduled with course C161. S/U or letter grading.

271. Probabilistic Models of Visual Cortex. (4) Seminar, three hours. Requisite: course 100B or Mathematics 33A. Recommended: Computer Science 180. Introduction to state-of-art computational models of mammalian visual cortex, with topics in low-, mid-, and high-level vision. Discussion of relevant evidence from anatomy, electrophysiology, imaging (e.g., fMRI), and psychophysics. Concentration on mathematical modeling of these phenomena, taking into account recent progress in probabilistic models of computer vision and developments in machine learning. S/U or letter grading.

C273. Applied Geostatistics. (4) Lecture, three hours; discussion, one hour. Geostatistics can be applied to many problems in other disciplines such as hydrology, traffic, air and water pollution, epidemiology, economics, geography, waste management, forestry, oceanography, meteorology, and agriculture and, in general, to every problem where data are observed at geographic locations. Acquisition of knowledge from different areas that can be used to analyze real spatial data problems and to connect geostatistics with geographic information systems (GIS). Concurrently scheduled with course C173. S/U or letter grading.

C283. Statistical Models in Finance. (4) Lecture, three hours. Recommended requisite: course 100B. Designed for graduate students. Statistical techniques in investment theory using real market data. Portfolio management, risk diversification, efficient frontier, single index model, capital asset pricing model (CAPM), beta of a stock, European and American options (Black-Scholes model, binomial model). Concurrently scheduled with course C183. S/U or letter grading.

285. Seminar: Computing for Statistics. (2 to 4) Seminar, one to three hours. Topics in various statistical areas by means of lectures and informal conferences with staff members. S/U grading.

M286. Seminar: Statistical Problem Solving for Population Biology. (2) (Same as Ecology and Evolutionary Biology M286.) Seminar, two hours. Designed for graduate students. Statistical solutions to complex data analysis and/or experimental design problems encountered by biology graduate students in their own research. S/U or letter grading.

287. Seminar: Gene Expression and Systems Biology. (2) Seminar, two hours. Designed for graduate students (open to undergraduate students with consent of instructor). With high-throughput technologies such as genomic sequencing, microarray gene expressions, Chromatin-ImmunoPrecipitation DNA chip (ChIP-chip), and mass spectrometry (MS/MS) proteomics, scientists are collecting genetic, genomic, and pathway data at rates far beyond imagination one decade ago. Such gigantic volumes of data produced cannot be analyzed and understood without highly sophisticated computational methods guided by mathematical and statistical principles. Cutting-edge genomics research from statistical data analytic point of view. S/U or letter grading.

290. Current Literature in Statistics. (2) Seminar, one hour. Topics in various statistical areas by means of lectures and informal conferences with staff members. S/U grading.

291SL. Service Learning for Graduate Statistical Consulting. (4) Research group meeting, two hours; fieldwork, two hours. Exposure to realistic statistical and scientific problems that appear in typical interactions between statisticians and researchers, with lectures centered on case studies presented by faculty members and invited speakers from business and academic fields. Applied regression analysis and design

of experiments, together with basic statistical programs. Presentations and written reports required. S/U or letter grading.

292. Graduate Student Statistical Packages Seminar. (1 to 2) Seminar, two hours. Introduction to various statistical packages. How to handle data in different packages (input, output, data management, treatment of missing data), general syntax of different programming languages, and good practice for writing own statistical functions. S/U grading.

294. Scientific Writing. (2) Seminar, two hours. Development of oral and written presentations of statistical data. Objectives and techniques of scientific writing and practice with different forms of professional writing. Participation in oral presentations of student work. S/U or letter grading.

296. Participating Seminar: Statistics. (1 to 2) Seminar and discussion by staff and students. S/U grading.

297SL. Service Learning and Community Learning for Statistics. (2 to 4) Seminar, three hours; fieldwork, 10 hours. To further knowledge by applying what students have learned in class to an actual service work setting under guidance of faculty mentor. Interaction with nonprofit organizations can be either on location or over the Internet. May be used for MS thesis; research paper/project required. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

485. Statistics Programming and Analysis with R. (1 to 4) Seminar, one hour. Teaching of researchers and data analysts in use of R, software environment for statistical computing and graphics, in applied settings and taught in three tracks—data to graphics in R, basic statistical analysis in R, and advanced topics in R. S/U or letter grading.

495A. Teaching College Statistics. (2) Seminar, two hours; intensive training at beginning of fall quarter. Required of all potential departmental teaching assistants and new PhD students. Practical and theoretical issues in teaching of statistics. S/U grading.

495B. Teaching College Statistics. (2) Seminar, two hours. Weekly discussion and intensive training for all first-year teaching assistants that addresses practical and theoretical issues in using technology to teach statistics, including use of statistical software as education tool. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Supervised individual reading and study on project approved by a faculty member. May be repeated for credit. Letter grading.

598. MS Thesis Research. (2 to 12) Tutorial, to be arranged. Designed for second-year statistics MS students. Study and research for MS thesis. May be repeated for credit. S/U grading.

599. PhD Dissertation Research. (2 to 12) Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Study and research for PhD dissertation. May be repeated for credit. S/U grading.

STUDY OF RELIGION

See Religion, Study of

SURGERY

David Geffen School of Medicine

UCLA

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Chairs

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Richard J. Shemin, MD (*Robert and Kelly Day Professor of Cardiothoracic Surgery*), *Vice Chair, Clinical Affairs*

Areti Tillou, MD, *Vice Chair, Surgical Education*

Peter F. Lawrence, MD (*Wiley F. Barker Endowed Professor of Vascular Surgery*), *Vice Chair, Clinical Practice and Strategic Planning*

Jerzy W. Kupiec-Weglinski, MD, PhD (*Joan S. and Ralph N. Goldwyn Professor of Immunobiology and Transplantation Research*), *Vice Chair, Basic Research*

Clifford Y. Ko, MD, MSHS (*Robert and Kelly Day Professor of Surgical Outcomes*), *Vice Chair, Clinical Research*

Matthias G. Stelzner, MD, *Vice Chair, VA Greater Los Angeles Healthcare System*

Christian M. de Virgilio, MD, *Interim Vice Chair, Harbor-UCLA*

Robert S. Bennion, MD, *Interim Vice Chair, Olive View-UCLA*

Bruce L. Gewertz, MD, *Chief of Surgery, Cedars-Sinai*

Nand S. Datta, MD, *Chief of Surgery, Drew University*

F. Charles Brunicardi, MD, *Vice Chair, Surgical Services, Santa Monica-UCLA*

Scope and Objectives

The Department of Surgery instructs medical students during all four years of medical school. Students are expected to obtain broad knowledge of diseases treated by surgical means and to understand the pathophysiology of these conditions, the therapy that may be applied, and the anticipated results of treatment. They are also encouraged to learn about the effects of surgical illness on the patient and the patient's family and environment.

Third-year students participate in one 12-week core clerkship in clinical surgery and are assigned to rotations at a combination of Reagan UCLA, Cedars-Sinai, Harbor-UCLA, West Los Angeles VA, Olive View-UCLA, Kaiser Permanente, and Santa Monica-UCLA Medical Centers. Each facility has a special orientation depending on the patient population and the individual staff. During the fourth year students may elect to take additional clinical rotations with increasing responsibilities. Additional in-depth elective courses are offered in collaboration with other departments.

For further details on the Department of Surgery and a listing of the courses offered, see <http://surgery.ucla.edu>.

Surgery

Upper Division Course

199. Directed Research in Surgery. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of

faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

THEATER

School of Theater, Film, and Television

UCLA

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Brian E. Kite, MFA, *Chair*

Professors

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Myung Hee A. Cho, MFA

Hanay L. Geiogamah, BFA

Michael J. Hackett, PhD

Neil P. Jampolis, BFA

Chrisi Karvonides-Dushenko, MFA

Brian E. Kite, MFA

Miwon Kwon, PhD

Deborah Nadoolman Landis, PhD (*David C. Copley Professor for Study of Costume Design*)

Rich S. Rose, MFA

Dominic A. Taylor, MFA

José Luis Valenzuela, BA

Edit E. Villarreal, MFA

Professors Emeriti

Alan M. Armstrong, MFA

Sue-Ellen Case, PhD

John R. Cauble, MA

Patricia M. Harter, PhD

Robert H. Hethmon, PhD

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Michael S. McLain, PhD

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William D. Ward, MFA

William T. Wheatley, PhD

Margaret L. Wilbur, MFA

Associate Professors

Lucy M. Burns, PhD

Sean A. Metzger, PhD

Thomas K. O'Connor

Joseph M. Olivieri, MFA

Assistant Professors

Michelle L. Carriger, PhD

Sylvan M. Oswald, MFA

Marike A. Splint, MFA

Senior Lecturer S.O.E.

Thomas J. Orth, *Emeritus*

Lecturers

Cheryl Baxter-Ratliff

Robert A. Beltran

Andrew L. Borba

Scott W. Brick

Elizabeth A. Brohm

Amy E. Chaffee

Sara R. Clement

Andrew S. Dalzell

Perry M. Daniel

Michael F. Donovan

Kitty Doris-Baker

Mary Jo DuPrey

Joshua Epstein

Sharna Fabiano

Anthony Fanning

Adam D. Flemming

Toni Fitzgerald

Gina Flanagan
John A. Garofolo
David M. Gorsheim
Areum Jeong
Michael Laskin
Victoria Lavan
Sheldon Markham
Leanora Martino
Chantal Rodriguez
Pablo Santiago-Brandwein

Angela R. Scott
Robin A. Schneider
Nathan M. Schroeder
Jonathan Snipes
Peter J. Shushtari, MFA
Phil Storrs
Natsuo Tomita
Jonathan Wang
Mark Worthington

Adjunct Professors

F. Nicholas Gunn
Peggy Hickey-Perez
Lainie Kazan
Jean-Louis Rodrigue

Adjunct Associate Professors

Dan T. Belzer, MFA
Marilyn E. Fox
Linda Kerns
Jeremy L. Mann
Ed J. Monaghan, MFA
Judith E. Moreland, MFA
April Shawhan
Paul M. Wagar

Adjunct Assistant Professors

Raquel M. Barreto
Bruce E. Vaughn

Visiting Associate Professors

Cynthia M. Ettinger
Ellen Lauren
Tim Robbins

Visiting Assistant Professors

Silvia Baker
Jessica Kubzansky

Academic Administrator

Daniel A. Ionazzi, Jr., MBA

Scope and Objectives

The UCLA Department of Theater offers comprehensive training for the profession, as well as serious study of theater's long history and rich literature. Drawing on this vibrant heritage, the curriculum promotes an awareness of theater as a global phenomenon embodying the contributions of diverse cultures and explores theater as a forum for reflecting the human experience as revealed through the dynamics of theater production. With this in mind, students engage in the presentation of dramatic work in a community where creativity and critical thought combine in the exploration of the artistic and intellectual challenges inherent in the making of theater.

Manifesting talent and promise as well as representing a wide range of backgrounds and interests, prospective students are selected by the faculty through auditions and interviews in cities throughout the U.S.

At the undergraduate level, students receive education in acting, design and production, directing, musical theater, and playwriting, all within the rigorous liberal arts framework of the BA degree. The department also offers a Theater minor.

At the graduate level, students in the MFA program develop as artists and are given preprofessional training in the skills of theater, while PhD students engage in critical investigations of the art form. In conjunction with their theater studies, students also have the opportunity to pursue elective courses in the area of film and television.

For current or specific information about the programs and faculty members, see <http://www.tft.ucla.edu/programs/theater-department/>.

Undergraduate Study

The Theater major is a designated capstone major. Theater capstone courses represent the highest level of student scholarship/artistic achievement in each of the undergraduate areas. They are the culmination of all the broad educational courses and core foundational courses that have come before. Group participation in the creation and production of student projects is core to the curriculum. Capstone courses vary by area and require individual projects or performances, a major artistic contribution to a theater production, or an individual course of study resulting in a research paper. Through their capstone work, students demonstrate general knowledge and specialized skills, successfully relate their experience in a studio, production, or fieldwork setting, communicate effectively orally and in writing, and engage with a community of artists and scholars presenting theatrical work.

Theater BA

Capstone Major

The Theater BA provides a liberal education by combining critical study of theater with experiential practice in one or more of its component parts. Students explore acting, design, directing, playwriting, and production to build a foundation for future creative work. Specialized and advanced training is available to prepare students for a variety of careers, further training, or graduate study. At the upper division level, students choose from an array of advanced elective courses in acting, design and production, directing, musical theater, playwriting, and the teaching artists program.

Admission

All applicants must meet the admission standards of UCLA and the departmental screening process. Applications are accepted only in November for admission to the following Fall Quarter. There are no mid-year admissions. Students must submit required supplemental materials directly to the Theater Department. All applicants must also sign up for an audition and/or interview at <http://www.tft.ucla.edu/theaterba>. There is a \$70 fee for all interviews/auditions.

Applicants interested in one of the elective sequences in acting, design and production, directing, musical theater, or playwriting may submit materials for consideration in one or more areas.

Preparation for the Major

Required: Theater 11, 12, 13, 14A, 14B, 14C, 50 (must be taken for 4 units total).

The Major

The major consists of Theater 101A, 101B, 101C, one course from 102A through 113, 131C or 163C or 180 (capstone seminar), 150 (4 units), and 34 upper division theater elective units. Up to 8 units of upper division credit in the Department of Film, Television, and Digital Media may be included in the 34-unit theater elective requirement.

Majors wishing to pursue one of the elective sequences in the areas of (1) acting, (2) design and production, (3) directing, (4) musical theater, or (5) playwriting are expected to complete a sequence of elective courses and enroll in the appropriate Summer Undergraduate Theater Laboratory at UCLA.

Students who do not select one of the elective sequences or who wish to pursue an individualized plan are expected to meet with the undergraduate vice chair at the beginning of each year to plan their course of study.

The acting electives include fundamental and advanced courses in all aspects of performance training that prepare students for careers in performance. There is some performance in projects, but emphasis is on class and studio work. Upper division advanced courses explore verse, scene study, comedy, cabaret, movement, and combat. The acting elective sequence consists of six terms of performance courses selected from Theater 24A, 24B, 24C, 25A, 25B, 25C, 115A, 115B, 116A, 116B, 124A through 124F, 125A through 125F, 126A, 126B, 136. Students must also complete Theater 180 (capstone seminar).

The design and production electives introduce design principles and investigate the design of scenery, lighting, costumes, and sound for theater, film, and television in lower division courses. Four design and production areas of study are available at the upper division level—scenic design, costume design, lighting design, and sound design. Students select from an array of design skills courses to develop proficiency in essential areas of rendering, drafting, painting, computer-aided design, and technology. Courses in art, history, and philosophy build an understanding of the social history of visual ideas. A sequence of courses in each area of study examines design principles and practice specific to each field. The design and production elective sequence consists of 14 units from Theater C146A, C146B, C146C, 147A, 147B, C154A, C154B, C154C, C155A through C155G, C156A through C156F, C157A, C157B, C157C, C158A, C158B, C158C, 174A, 174B, and three advanced design courses from one of the following groups: (1) C151A, C151B, C151C, (2) C152A, C152B, C152C, (3) C153A, C153B, C153C, or (4) C154A, C154B, C154C (unless taken above). Students must also complete Theater 180 (capstone seminar).

The directing electives explore the basic theories of play direction, as well as text analysis and craft fundamentals. Advanced courses

emphasize psychological aspects of director-actor communication and development of specific directorial and production styles. The directing elective sequence consists of Theater 160, 163A, 163B, C163D. Students must also complete Theater 163C (capstone seminar).

The Ray Bolger Musical Theater Program electives train selected students in acting, singing, and dance for the musical theater and provide knowledge of musical theater history. Additional courses provide hands-on training with professional artists and a range of performing experiences from workshops to full productions. The musical theater elective sequence consists of six terms of training in performance courses selected from Theater 1A, 1B, 1C, 23, 24A, 24B, 24C, 34A, 34B, 34C, 35A, 35B, 35C, 115A, 115B, 116A, 116B, 124A through 124F, 126A, 126B, 134A through 134F, 135A through 135F, 136. Students must also complete Theater 180 (capstone seminar).

The playwriting electives include specialized and advanced courses that prepare students to write one-act and full-length plays, books and lyrics for music theater, and scripts for the one-person show. The playwriting elective sequence consists of Theater 30, 130A, 131A, 131B. Students must also complete Theater 131C (capstone seminar).

Due to curriculum changes, students in the Theater major are no longer allowed to change their major to Film and Television at the end of their sophomore year.

Theater Minor

The Theater minor is designed for students who wish to augment their major program of study with a series of courses that promote the study of theater as a global phenomenon for reflecting the human experience. The minor consists of a selection of lower division courses that expose students to the fundamentals of theatrical production, as well as acting, writing, and directing. Upper division courses offer more focused study of those areas, as well as theater design, history, education, and theater of non-Western cultures.

To enter the minor students must be in good academic standing (minimum 2.0 grade-point average), have completed at least one theater course with a grade of C or better, and file a petition at the Student Services Office, 103 East Melnitz Building, 310-206-8441. All degree requirements, including the specific requirements for this minor, must be fulfilled within the unit maximum set forth by each student's school or College.

Required Lower Division Courses (6 to 10 units): Theater 10 and one course from 15, 20, 28A, 28B, 28C, 30.

Required Upper Division Courses (22 to 27 units): Theater 150, one course from 102A through 102E, M103A through M103G, 105, 106, 107, 108, M109, 110, 111A, 111B, 111C, or 113, and four courses from 118A, 118B, 118D, 120A, 120B, 120C, 121, 123, 130A, 138, 139, C146A, C146B, C146C, 149, 195.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor, and at least 16 units applied toward the minor must be taken in residence at UCLA. Transfer credit for any of the above is subject to department approval.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Graduate Council of the UCLA Academic Senate voted to suspend admissions to the Theater CPhil and PhD degrees effective fall quarter 2014. Suspension of admissions to the Theater MA degree was granted some time ago.

The Department of Theater offers a Master of Fine Arts (MFA) degree in Theater and Candidate in Philosophy (CPhil) and Doctor of Philosophy (PhD) degrees in Theater and Performance Studies.

Theater

Lower Division Courses

1A-1B-1C. Introduction to Dance for Music Theater. (1-1-1) Studio, four hours. Designed for Theater majors. Introduction to basic music theater dance technique. Each course may be repeated once for credit. Letter grading.

2. Theater in Performance: International Theater Festival. (5) Lecture, three hours; discussion, two hours. Exploration of theater in performance as revealed in productions and guest artists of UCLA International Theater Festival, with emphasis on collaborative role of theater artists and active role of audience. Students view selected productions, go back stage to discover how they are realized, and meet creative team. Letter grading.

4. Israel and Palestine in Literature and Media. (5) Lecture, three hours; discussion, two hours. Readings in English. Exploration of Israel and Palestine through artistic, cultural, and political modes of analysis. Examination of selected works of literature, theater, and film dramatic by Israeli, Palestinian, and Western artists, looking beyond facile cultural clichés to deeper insights. Letter grading.

10. Introduction to Theater. (5) Lecture, three hours; discussion, one hour. Exploration of theater in production, with emphasis on collaborative role of theater artists and active role of audience. Understanding of and access to live theatrical event and enhanced appreciation of value of theater to society; development of critical skills through consideration of representative examples of theatrical production from Europe, America, Asia, and Africa. Letter grading.

11. Approaches to Interpretation of Theater and Performance. (5) Lecture, four hours. Introduction to basic methods of interpretation in theater and performance throughout world. Topics illustrated by faculty

members and guest speakers, visits to off-campus theaters, and reading from contemporary plays. Letter grading.

12. Introduction to Performance. (4) Lecture, two hours; studio, four hours. Investigation of phenomenon of performance and role of performer in theatrical events, including interpretation of drama through performance. Examination of various forms of theatrical performance and styles of expression, and development of acting, voice, and movement skills. Letter grading.

13. Play Reading and Analysis. (5) Lecture, three hours. Provides base for subsequent study in theater. Development of techniques of play reading and habits of scholarship useful to further study in each of theater's subdisciplines, including acting, directing, design, playwriting, and critical study. Letter grading.

14A-14B-14C. Introduction to Design. (5-5-5) Lecture, three hours; studio, six hours. Exploration of visual interpretation of drama. Study of styles and techniques of design, collaborative role of designer, principles of design for scenery, lighting, costumes, and sound. Both technical and aesthetic groundwork for further study. Letter grading.

15. Introduction to Directing. (4) Lecture, two hours; studio, four hours. Investigation of role of director in theatrical production and theories of play direction, with emphasis on analysis and interpretation of dramatic work and its realization in production. Letter grading.

20. Acting Fundamentals. (4) Studio, four hours. Introduction to interpretation of drama through art of actor. Development of individual insights, skills, and disciplines in presentation of dramatic material to audiences. P/NP or letter grading.

21. Acting for Camera. (2 to 4) Lecture, three hours. Development and practice in acting techniques. Preparation and taping of scenes for analysis. May be repeated twice for credit. Letter grading.

23. Musical Literacy for Singing Actors I. (2) Studio, three to four hours. Introduction to reading and understanding musical notation, musical terminology, and basic to complex rhythm-reading and sight-singing in C major. Letter grading.

24A-24B-24C. Voice and Speech I. (1-1-1) Studio, three to four hours. Development of voice and speech techniques for stage. Letter grading.

25A-25B-25C. Movement and Combat I. (1-1-1) Studio, three to four hours. Physical awareness for actors, concentrating on warming up body, relaxation, control, stunts, gymnastics, martial arts, and use of weapons. Letter grading.

26. Alexander Techniques. (2) Studio, three hours. Study and practice in Alexander techniques as method of developing balance, poise, and coordination of body and mind. Exploration of use of rhythm to expand movement potential of actors and relevant use of visual arts and animal studies to character development and to expansion of movement potential. P/NP or letter grading.

27. From Vaudeville to Standup Comedy. (2) Studio, three hours. Exploration of many aspects of comedy using American vaudeville traditions, acts, and performers as historical base to experience importance of rhythm, timing, delivery, speech, and body language in all styles of comedy, to find value of improvisation/imagination as well as innovative writing skills in all comic forms, to discover how comedy draws from so many art forms, including music/songs, dance, storytelling, clowning, magic, design, and tumbling/stunts, and to build overall confidence/ease in comic performance skills. P/NP or letter grading.

28A-28B-28C. Acting, Voice, and Movement Workshops I. (2-2-2) Studio, three to six hours. Study of beginning acting technique, scene study, and development of voice and movement skills. Each course may be repeated for maximum of 12 units. Letter grading.

28D-28E-28F. Acting, Voice, and Movement Workshops I. (2-2-2) Studio, six hours. Study of beginning acting technique, scene study, and development of voice and movement skills. Each course may be repeated for maximum of 12 units. Letter grading.

30. Dramatic Writing. (4) Studio, three hours. Intended for Theater minors and other nonmajors. Exploration and development of creative writing skills for one or more of various forms of entertainment media. May be repeated once. Letter grading.

34A-34B-34C. Dance for Musical Theater I. (1-1-1) Studio, five hours. Development of dance and movement techniques for musical theater. Letter grading.

35A-35B-35C. Singing for Musical Theater I. (1-1-1) Studio, four to five hours. Exploration of musical literacy and development of singing techniques for musical theater. Basic voice training to explore how voice works, learn to maintain appropriate and consistent voice, and learn to preserve voice health. How to build stamina and range. Letter grading.

50. Theater Production. (1 to 2) Laboratory, three to six hours. Laboratory experience in various aspects of theater production, including stage management or member of production crew. May be repeated for maximum of 8 units. Letter grading.

72. Production Practice in Theater, Film, Video, and Digital Media. (1 to 8) Studio, three hours. Exploration and laboratory experience in one or more of various aspects of production and postproduction practice for entertainment media, including theater, film, video, and digital media. May be taken for maximum of 8 units. Letter grading.

Upper Division Courses

101A. Making Tradition. (5) Lecture, four hours; discussion, one hour. Examination of traditional performance traditions in terms of how they were produced, including training techniques, archive practices, and forms of history. Examples may include classical Greek tragedy, Noh and Kyogen, Za ju and Chuanqi, Quem Queritis/English medieval festival plays, Sanskrit drama, Yoruba/Egungun, Yaqui deer dance, depending on faculty and resources available. Letter grading.

101B. Reconstructing Theatrical Past. (5) Lecture, three hours; discussion, one hour. Reconstructing theater is understood in several ways: reconstruction of performance spaces such as New Globe and of specific productions and traditions such as neoclassicism that seek to reinstate classical traditions. Letter grading.

101C. Deconstructing Theater. (5) Lecture, three hours; discussion, one hour. Exploration of deconstructive practices such as fragmentation, abstraction, and absurdism, with focus on theatrical movements, directorial adaptations, cultural translations, and new forms. Letter grading.

102A. Theater of Japan. (5) Lecture, three hours. Exploration of major theater traditions of Japan from emergence of earliest theatrical activity to present, including investigation of Noh, Bunraku, and Kabuki performance traditions. Letter grading.

102B. Theater of Southeast Asia. (5) Lecture, three hours. Examination of representative theatrical genre from various geographical areas in Southeast Asia to illustrate importance and contribution that theater plays in society. Letter grading.

102C. Cross-Cultural Currents in Theater. (5) Lecture, three hours. Exploration of interculturalism in theater, with focus on 20th-century alternatives to naturalism. Analysis of historical materials and dramatic texts to investigate cultural, aesthetic, ethical, and social implications of borrowing from other cultures. Letter grading.

102E. Theater of Non-European World. (5) Lecture, three hours; discussion, one hour. Survey of theater forms of non-European world in which primary attention is concentrated on examination and analysis of traditional dance-drama and puppet theaters of East Asia, Southeast Asia, South Asia, Middle East, and

Africa. Analogous forms from European theater included for comparative purposes. P/NP or letter grading.

M103A. African American Theater History: Slavery to Mid-1800s. (4) (Same as African American Studies M103A.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from slavery to mid-1800s. Letter grading.

M103B. African American Theater History: Minstrel Stage to Rise of American Musical. (4) (Same as African American Studies M103B.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from minstrel stage to rise of American musical. Letter grading.

M103C. Origins and Evolution of Chicano Theater. (5) (Same as Chicana and Chicano Studies M103C.) Lecture, three hours. Designed for juniors/seniors. Exploration of development of Chicano theater from its beginning in legends and rituals of ancient Mexico to work of Luis Valdez (late 1960s). P/NP or letter grading.

M103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement. (5) (Same as Chicana and Chicano Studies M103D.) Lecture, three hours. Analysis and discussion of historical and political events from 1965 to 1980, as well as theatrical traditions that led to emergence of Chicano theater. Letter grading.

M103E. African American Theater History: Depression to Present. (4) (Same as African American Studies M103E.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from Depression to present. Letter grading.

103F. Native American Theater. (5) Lecture, three hours. Study of American Indian theater as evolving art form. P/NP or letter grading.

M103G. Contemporary Chicano Theater: Chicano Theater since 1980. (5) (Same as Chicana and Chicano Studies M103G.) Lecture, three hours. Analysis and discussion of Chicano theater since 1980, including discussion of Chicana playwrights, magic realism, Chicano comedy, and Chicano performance art. Letter grading.

103I. Israel and Palestine: Communities, Conflicts, Cultures, and Arts in Middle East. (4) Lecture, three hours. No background on or prior interest in history or region or arts required. Land variously known by names of Zion, Holy Land, Palestine, and Israel is not just one place. It is a realm of imagination, envisioned and re-envisioned throughout history. It is at once real and surreal, sturdy and fragile, all-enduring and ephemeral. Examination of selected works of literature, performance, visual arts, film, and media by Israeli and Palestinian artists, as well as Western artists with interest in region. Looking beyond headlines and facile cultural clichés for deeper insights arts can offer into cultural conflict and community at large, to emerge with surprising conclusions. Letter grading.

104A-104B-104C. History of American Theater. (5-5-5) Lecture, three hours. Study of history of influence of different cultures, traditions, and technologies on development of theater as social institution in America. Letter grading. **104A.** Revolutionary War to Civil War; **104B.** Civil War to WWI; **104C.** WWI to Present.

104D. New Playwrights, New Playwriting. (5) Seminar, three hours. Required for students in playwriting sequence. How to approach diverse range of new plays currently changing landscape of theater. Contemporary look at plays written in last 15 years and how they reflect society. Reading of plays to build skills of manuscript analysis; development of working vocabulary of dramaturgical concepts; exploration of different styles of acting, directing, and design that playwrights of today draw from. Letter grading.

C104E. History of Design Décor Part I: Architecture and Decor—Antiquity to Early Neoclassical. (4) Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of pre-Renaissance architectural and interior decor as manifestation of cultural, social, economic, and political influences to provide historical framework for design of scenery, costumes, and lighting for theater, film, and television. May be repeated once for credit. Concurrently scheduled with course C404E. Letter grading.

C104F. History of Design Décor Part II: Architecture and Decor—Industrial Revolution to 21st Century. (4) Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of post-Renaissance architectural and interior decor as manifestation of cultural, social, economic, and political influences to provide historical framework for design of scenery, costumes, and lighting for theater, film, and television. May be repeated once for credit. Concurrently scheduled with course C404F. Letter grading.

C104G. History of Design for Performance Production Part I: Historic Costume from Prehistoric to Neoclassical. (4) Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of historic costume as manifestation of cultural, social, economic, and political influences to provide historical framework for design of costumes for theater, film, and television. Survey of history of Western costume and civilian attire. May be repeated once for credit. Concurrently scheduled with course C404G. Letter grading.

C104I. History of Design for Performance Production Part II: Historic Costume from Neoclassical to 21st Century. (4) Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of historic costume as manifestation of cultural, social, economic, and political influences to provide historical framework for design of costumes for theater, film, and television. Survey of history of Western costume and civilian attire with global emphasis. May be repeated once for credit. Concurrently scheduled with course C404I. Letter grading.

C104J. History of Design for Performance Production: Selected Topics of Decor and Costume Design History. (4) Lecture, four hours. Requisites: courses 14A, 14B, 14C. Historic survey and in-depth exploration of selected periods and subcategories of decor and costume. Visual representation, with emphasis on influences of global diverse cultures. May be repeated three times for credit. Concurrently scheduled with course C404J. Letter grading.

105. Main Currents in Theater. (5) Lecture, three hours. Critical examination of leading theories of theater from 1887 to present. Study and discussion of modern styles of production. P/NP or letter grading.

106. History of American Theater and Drama. (5) Lecture, four hours; discussion, one hour (when scheduled). Survey of key works of American dramatic literature and landmarks of American theater history. Letter grading.

107. Drama of Diversity. (5) Lecture, three hours. Investigation of diversity in American society as manifested in dramatic works and theatrical presentations. Letter grading.

108. Undergraduate Seminar: History and Criticism. (5) Seminar, four hours. Limited to 15 students. Selected topics in history and criticism of theater and performance. Study of how experimental theaters originate, how they imagine their form of performance, their audience, and their goals. Concentration on theaters that regarded themselves, in some way, as experimental. Examples primarily from theaters within U.S. from 1960s to present, although examples from other countries, specifically Poland, also considered. Letter grading.

M109. Art and Performance: Interdisciplinary Approach to Collections of Getty Center. (4) (Same as Honors Collegium M120.) Lecture, four hours; discussion, one hour. Drawing from objects in five major collections at Getty Museum, focus on five parallel historical periods in which political, social, and aesthetic philosophy of age is examined in musical and dramatic performance. Letter grading.

110. History of American Musical Theater. (5) Lecture, three hours. Survey of history of American musical: its composers, writers, and performers from musical's emergence in immigrant cultures to Broadway and Off-Broadway. With its roots in British music halls and comic opera, Viennese operetta and African American jazz, American musical theater emerged as vivid and popular art form with its own culture and identity. Letter grading.

111A-111B-111C. Selected Topics in European Theater. (5-5-5) Lecture, three hours. Investigation in depth of selected areas of study in traditions of European performance to be arranged by historical period, nation of tradition, genre, or other categories. Each course may be repeated twice for credit. P/NP or letter grading.

M112. Interpreting Performance: Examination of Social, Historical, and Cultural Models for Performing Arts. (5) (Same as Honors Collegium M154.) Lecture, two hours; discussion, two hours. Examination of nature of performance in theory and practice and of social, historical, and cultural contexts in which performance traditions have evolved. Attendance at approximately five designated performances/events required. P/NP or letter grading.

113. Special Topics in Critical Studies. (5) Lecture, three or four hours. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit. P/NP or letter grading.

M114. Variable Topics in Performance and Disability Studies. (4) (Same as Disability Studies M114.) Seminar, four hours. Analysis and critique of depiction of disability in theater. Topics may include introduction to disability studies; race, gender, and disability; representation of disability in theater; and more. May be repeated for credit with topic or instructor change. P/NP or letter grading.

115A. Physical Systems of Acting: Foundations. (4) Studio, six hours. Introduction to physical approaches of actor training, with emphasis on development of ensemble skills, physical presence, and capacity to respond in moment to physical, special, textual, and subtextual stimuli. Letter grading.

115B. Physical Systems of Acting: Practice. (4) Studio, six hours. Performance of original studies in physical theater and/or material from physical theater repertory. Course activities, materials, and discussions based on contemporary physical theater practices. Letter grading.

116A. Psychological Systems of Acting: Foundations. (4) Studio, six hours. Development of acting skills through sense memory, personalization, action, and objective exercises. Letter grading.

116B. Psychological Systems of Acting: Practice. (4) Studio, six hours. Continuation of course 116A. Examination of characterization exercises and their application to contemporary scenes. Letter grading.

118A. Creative Dramatics. (4) Lecture/laboratory, four hours. Studies of principles and procedures of improvisational approach to drama as done with children from nursery school to junior high. P/NP or letter grading.

118B. Advanced Creative Dramatics. (2 to 4) Lecture, four hours; other, to be arranged. Practical application of creative drama process. Exploration of interrelationships of arts to traditional disciplines of learning. May be repeated once for credit. P/NP or letter grading.

118C. Interactive Theater. (4) Laboratory, four hours. Active, problem-solving process of theater exercises and games designed to examine racial stereotypes, sexual harassment, gender discrimination, and other issues that divide members of campus community, as well as issues that divide campus from Los Angeles community. Selected to increase social and political awareness of problems and ideas fundamental to intellectual development, exercises and games nurture skills and attitudes useful in facilitating discussions between actors and audience participants. Use of

techniques of sensory awareness, movement, pantomime, improvisation, and characterization. Letter grading.

118D. ArtsBridge Teaching Practicum. (4) Lecture, four hours. Requisites: courses 118A, 118B. Development of K-12 teaching materials to integrate theater with specific core curricula. Collaboration with classroom teacher to identify core subject to be taught. Language arts, science, history, mathematics, and social sciences are possible curricular areas. Development of evaluation tools to measure effectiveness of incorporating theater materials into curriculum. Weekly meetings to discuss teaching strategies and prepare written lesson plans that incorporate California Teaching Content Standards, objectives, motivation, detailed implementation of lesson plan, and ideas for assessment. Classroom work culminates in thoroughly documented final project evaluated by ArtsBridge student, classroom teacher, and UCLA faculty members. P/NP or letter grading.

119A. Theater for Child Audience: Theory and Criticism. (4) Lecture/studio, four hours. Principles of production and performance for child audience. P/NP or letter grading.

119B. Theater for Child Audience: Performance. (4) Lecture, two hours; studio, four hours. Preparation: audition prior to first class meeting. Designed to provide opportunity for students to work together as ensemble, creating through improvisation theater presentation for young audience. Emphasis on testing theoretical concepts through ensemble work, rehearsal, pretesting, and evaluation of original production for possible presentation outside classroom. P/NP or letter grading.

120A-120B-120C. Acting and Performance in Film. (5-5) Lecture, six hours. Exploration of acting and performance in film. Through screenings of performance-driven films, class discussion, and acting exercises, examination of methods, styles, and performances of some of world's most highly regarded actors and their work. Letter grading.

121. Acting Workshop. (2) Studio, to be arranged. Requisite: course 20. Courses 160, 163A, 163B, and 163C may be taken concurrently. Workshop that provides students with opportunity to rehearse, perform, and criticize scenes. May be repeated once for credit. P/NP or letter grading.

C122. Character Development through Makeup and Hair Design. (2) (Formerly numbered 122.) Studio, four hours. Examination of importance of makeup and hair design in film. History and overview of hair and makeup in fashion and motion pictures. Collaboration of makeup artists and hairstylists with costume designer, actors, production designer, and director to conceptualize people in script. Exploration of makeup artist and hairstylist roles in current film, television, and theater productions and skills needed to design makeup and hair for film and television productions. Concurrently scheduled with course C222. Letter grading.

123. Intermediate Acting for Stage. (4) Lecture/studio, four hours. Requisite: course 20. Study and practice of art of acting through perfecting of techniques and application of those techniques to acting problems. P/NP or letter grading.

124A-124B-124C. Voice and Speech II. (1-1-1) Studio, three to four hours. Development of voice and speech techniques for stage. Letter grading.

124D-124E-124F. Voice and Speech III. (1-1-1) Studio, three to four hours. Development of voice and speech techniques for stage. Letter grading.

125A-125B-125C. Movement and Combat II. (1-1-1) Studio, three to four hours. Physical awareness for actors, concentrating on warming up body, relaxation, control, stunts, gymnastics, martial arts, and use of weapons. Letter grading.

125D-125E-125F. Movement and Combat III. (1-1-1) Studio, three to four hours. Physical awareness for actors, concentrating on warming up body, relaxation, control, stunts, gymnastics, martial arts, and use of weapons. Letter grading.

126A-126B-126C. Acting III. (4-4-4) Studio, six hours. Study of characterization, including introduction to Shakespeare. Approach to verse, scansion, use of embodies in classic texts. Personalization within heightened reality. Letter grading.

127A-127B-127C. Advanced Acting. (2-2-2) Studio, six hours. Requisites: courses 126A, 126B, 126C. Comedy workshop, stand-up comedy, performance art pieces. Audition and cold reading workshop. Solving individual acting projects. Letter grading.

128A-128B-128C. Acting, Voice, and Movement Workshops II. (2-2-2) Studio, four to six hours. Study of advanced acting technique, scene study, and development of voice and movement skills. Each course may be repeated for maximum of 12 units. Letter grading.

128D-128E-128F. Acting, Voice, and Movement Workshops II. (2-2-2) Studio, six hours. Study of advanced acting technique, scene study, and development of voice and movement skills. Each course may be repeated for maximum of 12 units. Letter grading.

CM129. Contemporary Topics in Theater, Film, and Television. (2) (Same as Film and Television CM129.) Lecture, two hours; screenings, two hours. Limited to junior/senior and graduate theater/film and television students. Examination of creative process in theater, film, and television, with consideration of writing, direction, production, and performance. Overview of individual contributions in collaborative effort; examination of distinctiveness and interrelations among these arts. Individual units include participation of leading members of theater, film, and television professions. May be repeated twice for credit. Concurrently scheduled with course CM229. P/NP or letter grading.

130A. Fundamentals of Playwriting I. (5) Studio, three hours. Designed for departmental majors and minors. Exploration of writing for live performance. Students develop and workshop short plays. May be repeated once for credit. Letter grading.

130B. Fundamentals of Playwriting II. (4) Lecture, three hours plus conference. Requisite: course 130A. Study in original material for theater, its preparation and development. Designed to give further insight into critical and creating aspects of short and full-length plays and guidance in completion of one-act and full-length plays. May be repeated twice for credit. P/NP or letter grading.

130C. Writing for American Musical Theater. (4) Lecture/laboratory, three hours. Study of practice and techniques used in writing libretto for musical theater: opening numbers, romance, subplots, and comedy. May be repeated once for credit. P/NP or letter grading.

131A-131B. Intermediate Playwriting. (5-5) Studio, three hours. Letter grading. **131A.** Full-Length Play Part I. Requisite: course 130A. Introduction to process of conceiving, researching, and developing full-length plays. Students begin drafting full-length plays. May be repeated twice for credit. **131B.** Full-Length Play Part II. Requisite: course 131A. Continuation of writing of full-length plays begun in course 131A. May be repeated twice for credit.

131C. Playwriting: Full-Length Play Capstone. (5) Studio, three hours. Requisite: course 131A. Limited to juniors/seniors. Same as course 131B, but taken for capstone credit. Completion of writing of full-length plays begun in course 131A, with rehearsed readings of student capstone plays. Letter grading.

132. Manuscript Evaluation for Theater. (4) Lecture, three hours. Requisite: course 130A. Principles and practices in evaluation of manuscripts for theater. May be repeated once for credit. P/NP or letter grading.

C133A-C133B-C133C. Script Development Workshops. (4 to 8 each) Lecture, three hours; studio, four to 24 hours. Guided process of script development, with emphasis on communication, artistic growth, and professional process. Each course may be taken for maximum of 8 units. Concurrently scheduled with courses C433A-C433B-C433C. Letter grading.

134A-134B-134C. Dance for Musical Theater II. (1-1-1) Studio, five hours. Designed for Theater majors. Development of dance and movement techniques for musical theater. Letter grading.

134D-134E-134F. Dance for Musical Theater III. (1-1-1) Studio, five hours. Designed for Theater majors. Development of dance and movement techniques for musical theater. Letter grading.

135A-135B-135C. Singing for Musical Theater II. (1-1-1) Studio, five hours. Designed for Theater majors. Exploration of vocal styles and development of singing techniques for musical theater. Letter grading.

135D-135E-135F. Singing for Musical Theater III. (1-1-1) Studio, five hours. Designed for Theater majors. Exploration of vocal styles and development of singing techniques for musical theater. Letter grading.

136. Advanced Acting for Stage. (4) Studio, four hours. Requisite: course 123. Study and practice of art of acting through progression to more advanced acting problems. May be repeated twice for credit. Consecutive enrollment with same instructor not permitted. Total units for courses 136, 137A, 137B, and 137C may not exceed 12 units. Letter grading.

137A-137B-137C. Continuum Study in Acting for Stage. (4-4-4) Studio, six hours. Requisite: course 123. Technique of characterization and performance in advanced and complex acting styles. Each course may be repeated once for credit. P/NP or letter grading.

138. Special Problems in Performance Techniques. (4) Studio, four hours. Study of complex problems in voice, movement, and acting. May be repeated twice for credit. P/NP or letter grading.

139. Play Reading and Analysis. (5) Lecture, three hours. Investigation of dramatic texts, with focus on play structure, plot, character, dialog, ideas, and various other elements essential to effective theatrical interpretation and realization. Letter grading.

C140A. Introduction to Programming for Entertainment Design. (4) Studio, three hours. Study and practice in object-based programming using MAX/MSP programming language. May be repeated once for credit. Concurrently scheduled with course C440A. Letter grading.

C140B. Advanced Programming for Entertainment Design. (4) Studio, three hours. Study and practice in object-based programming using MAX/MSP programming language to control sound and video. May be repeated once for credit. Concurrently scheduled with course C440B. Letter grading.

C140C. Advanced Projects in Programming for Entertainment Design. (4) Studio, three hours. Advanced projects using object-based programming to control sound and video. May be repeated once for credit. Concurrently scheduled with course C440C. Letter grading.

C144A-C144B-C144C. Advanced Sound Design. (4-4-4) Lecture, four hours; laboratory, four hours. Concurrently scheduled with courses C444A-C444B-C444C. Letter grading:

C144A. (4) Lecture, four hours; laboratory, four hours. Study of sound and acoustics as they relate to performance environments, techniques associated with recording, mixing, processing, automation, and reproduction of dialogue, effects, and music tracks for theater sound design. May be repeated once for credit. Letter grading.

C144B. (4) Lecture, four hours; laboratory, four hours. Advanced study and practice in preparation and recording of theater sound designs, with emphasis on analysis of script and score, conceptual development of design, and multitrack recording techniques to realize design. May be repeated once for credit. Letter grading.

C144C. (4) Lecture, four hours; laboratory, four hours. Study and practice in processing and mixing of live and recorded sound; mix-down of multitrack recordings; preparation of sound tracks and sound reinforcement in theater. Study of creation of sound effects, control of MIDI data, and design techniques for music theater. May be repeated once for credit. Letter grading.

145. Costume Design for Theater. (4) Lecture/laboratory, four hours. Design of costumes for theatrical presentations. Study of use of silhouette, fabrics, color, and decoration as related to theatrical characterizations. May be repeated once for credit. P/NP or letter grading.

C146A-C146B-C146C. Art and Process of Entertainment Design. (4-4-4 to 8) Lecture. Conceptualization, design, and prototyping of interactive theatrical events. Concurrently scheduled with courses C446A-C446B-C446C. Letter grading:

C146A. (4) Lecture, three hours. Exploration of original forms of media-rich entertainment experience through lectures, presentations, and seminar participation. Students form collaborative teams to conceive and propose interactive entertainment events. Letter grading.

C146B. (4) Lecture, three hours. Prototype development; two to five proposals to be more completely defined and developed. Students form collaborative teams for further conceptual development of their project proposals. May be repeated once for credit. Letter grading.

C146C. (4 to 8) Lecture, three to six hours. Prototype development; conceptual refinement and technological realization of prototypes, that may entail creation of elaborate proposals containing storyboards, budgets, and models or may involve production of short performances demonstrating entertainment potential of concepts or prototypes. May be repeated once for credit. Letter grading.

147A. Drafting. (4) Studio, four hours. Development of visual communication skills through drafting. Exploration of drafting for scenic and lighting designs. May be repeated once for credit. Letter grading.

147B. Drawing Scenery. (4) Studio, four hours. Introductory course in basic skills necessary for drawing, by hand, scenic design for theater. Letter grading.

148. Special Courses in Design and Technical Theater. (4) Lecture, three hours. Group study of selected subjects in design and technical theater. May be repeated twice for credit. P/NP or letter grading.

149. Introduction to Design. (5) Lecture, three hours. Exploration of interpretation of drama through design, including study of styles and techniques of design, collaborative role of designer, principles of design for scenery, lighting, costumes, and sound. Both technical and aesthetic groundwork for further study. Investigation of techniques for realization of designs in production. Letter grading.

150. Theater Production and Performance. (1 to 2) Laboratory, three to six hours. Laboratory experience in various aspects of theater production, including performance in project or production, stage management, member of crew, or assignment as designer or assistant on production. May be repeated for maximum of 8 units. Letter grading.

C151A. Scenic Design. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated once for credit. Concurrently scheduled with course C451A. Letter grading.

C151B. Scenic Design for Theater. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Study of scenic design for proscenium, thrust, and arena configurations, multiset productions, and music theater. May be repeated once for credit. Concurrently scheduled with course C451B. Letter grading.

C151C. Production Design for Film, Television, and Video. (4) Lecture/studio, four hours. Study of role of art director, scenic design for single-camera and multicamera production, and set decoration. May be repeated once for credit. Concurrently scheduled with course C451C. Letter grading.

C152A. Lighting Design. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Study of lighting, with emphasis on imagination, text analysis, metaphor, and conceptualization. Investigation of

composition and control of light and color in relation to actor. May be repeated once for credit. Concurrently scheduled with course C452A. Letter grading.

C152B. Lighting Design for Theater. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Study of lighting design for proscenium, thrust, and arena configurations, music theater, and concert lighting. May be repeated once for credit. Concurrently scheduled with course C452B. Letter grading.

C152C. Lighting Design for Television. (4) Lecture/studio, four hours. Study of current professional lighting design practices in television for single- and multiple-camera production. Concurrently scheduled with course C452C. Letter grading.

C152D. Lighting Design for Performances and Special Events. (4) Lecture, four hours. Requisites: courses C152A, C152B, C152C. Advanced topics in lighting design, including live performances for concerts, exhibitions, and live events. Concurrently scheduled with course C452D. Letter grading.

C153A. Costume Design. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C; for transfer students: course 149. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated twice for credit. Concurrently scheduled with course C453A. Letter grading.

C153B. Costume Design for Theater. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C; for transfer students: course 149. Study of costume design for proscenium, thrust, and arena configurations, multiset productions, and music theater. May be repeated twice for credit. Concurrently scheduled with course C453B. Letter grading.

C153C. Costume Design for Film and Television. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C; for transfer students: course 149. Study of current professional costume design and wardrobe practices in film and television, including effect of differing media on design choices. May be repeated twice for credit. Concurrently scheduled with course C453C. Letter grading.

C153D. Projects in Costume Design Management. (4) Lecture, three hours. Examination of professional duties of costume designers, set costumers, and supervisors, especially management of production logistics, including but not limited to costume breakdowns, creating budgets, adhering to and overseeing them, as well as set costumer training for film and television, practicing on-set protocol, breakdown of daily responsibilities, and assembling set costumer kits ready for production. Practice with professional resourcefulness to move from abstract to substantive problem solving, maintaining creative and collaborative environment while adhering to logistical obstacles and tasks. Concurrently scheduled with course C453D. Letter grading.

C153E. History of Costume Design in Movies. (5) Lecture, three hours; screenings, three hours. History of costume design within context of 20th-century fashion and film history, including evolution of role of costume designer since early days of film industry. Role of costume designer and contribution of costume design to cinematic storytelling. Concurrently scheduled with course C453E. Letter grading.

C153F. Practice of Costume Design for Film Productions. (4) Lecture, three hours. Introduction to costume design as tool for storytelling, exploring integration of costume design and filmmaking process and what it takes to bring characters to life. Skills needed to effectively costume short narrative films, including script breakdown, collaboration with directors and actors, and how to manage production challenges. Concurrently scheduled with course C453F. Letter grading.

C154A. Sound Design. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Introduction to sound and audio in acoustic, audio, and digital domain. Study and practice of techniques for recording, editing, and creating soundscapes. May be repeated once for credit. Concurrently scheduled with course C454A. Letter grading.

C154B. Sound Design for Theater. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Exploration of sound design for theater and techniques for mixing, reinforcement, and signal processing. Topics include use of delay, equalization, and microphone placement for theater sound reinforcement. Study of creation of sound effects, control of MIDI data, and design techniques for musical theater. May be repeated once for credit. Concurrently scheduled with course C454B. Letter grading.

C154C. Sound for Film and Television. (4) Lecture/studio, four hours. Study of current professional sound recording, rerecording, mixing, and synchronization practices for film and television. Concurrently scheduled with course C454C. Letter grading.

C155A-C155H. Graphic Representation of Design. (2 each) Studio. Concurrently scheduled with courses C455A-C455H. Letter grading:

C155A. Perspective Drawing. (2) Studio, four hours. Requisite: course 147A or 147B. Introduction to use of pencil and pen to communicate scenic designs, including one- and two-point perspective, form light, shade, and textures. Letter grading.

C155B. Multimedia Rendering. (2) Studio, four hours. Study and practice of multimedia rendering techniques as they relate to interpretation of scenic, lighting, and costume renderings, with focus on human form in space. Weekly demonstrations of wide variety of art media, including watercolor, markers, pastel, and collage rendering. May be repeated twice for credit. Letter grading.

C155C. Digital Rendering. (2) Studio, four hours. Study and practice in rendering costumes, lighting, and scenic elements with combination of hand and digital rendering techniques. Coverage of rendering from life, enhancing final rendering with variety of computer-assisted formats to create polished sophisticated presentations for theater, film, and television productions. May be repeated twice for credit. Letter grading.

C155D. Model Making. (2) Studio, four hours. Requisite: course 147A or 147B. Study of model for representation of scenic designs from initial working prototypes to finished color models. Use of wide variety of materials and techniques for execution of model. Letter grading.

C155E. Life Drawing. (2) Studio, four hours. Requisite: course 147A or 147B. Study and practice in drawing of human form. Letter grading.

C155F. Costume Rendering. (2) Studio, four hours. Requisite: course 147A or 147B. Study of techniques for rendering theatrical costumes, with emphasis on figure, clothing, and fabrics. Letter grading.

C155G. Scene Painting Techniques. (2) Studio, four hours. Requisite: course 147A or 147B. Study of scenic painting techniques and materials and their realization of color design and elevations. May be repeated once for credit. Letter grading.

C155H. Selected Topics in Graphic Representation of Design. (2) Studio, six hours. Group study of selected subjects in techniques for interpretation of design for theater. May be repeated once for credit. Letter grading.

C156A. Introduction to Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drawing and editing techniques, drawing floor plan sections, and elevation drawings using AutoCAD. Concurrently scheduled with course C456A. Letter grading.

C156B. Advanced Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drafting techniques for scenic and lighting designs using AutoCAD. Concurrently scheduled with course C456B. Letter grading.

C156C. Computer-Assisted Rendering. (4) Studio, four hours. Investigation of three-dimensional lighting and scenic design previsualization: wire-frame perspective drawing and photo-realistic computer rendering techniques using three-dimensional studio. Concurrently scheduled with course C456C. Letter grading.

C156D. Introduction to Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drawing and editing techniques, drawing floor plan sections, and elevation drawings using Vectorworks. Concurrently scheduled with course C456D. Letter grading.

C156E. Advanced Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drafting techniques for scenic and lighting designs using Vectorworks. Concurrently scheduled with course C456E. Letter grading.

C156F. Introduction to Computer-Assisted Rendering. (4) Studio, four hours. Investigation of three-dimensional lighting and scenic design previsualization: wire-frame perspective drawing and photo-realistic computer rendering techniques using Vectorworks. Concurrently scheduled with course C456F. Letter grading.

C157A-C157B-C157C. Costume Construction Techniques. (2-2-2) Studio, four hours. Study of theory and application of drafting, pattern making, fitting, and construction techniques for period costumes and undergarments to achieve authentic-appearing costume using contemporary methods. Each course may be repeated once for credit. Concurrently scheduled with courses C457A-C457B-C457C. P/NP or letter grading. **C157A.** Requisites: courses 14A, 14B, 14C. Introduction to draping, pattern grading fitting, and slash and spread adaptation. **C157B.** Requisite: course C157A. Introduction to costume drafting, construction of period undergarments. **C157C.** Requisites: courses C157A, C157B. Draping, patterning, and fitting techniques for period garments.

C158A. Scenic Design Technology. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of scenic designs for theater, film, and television. Study of advanced techniques and materials for construction, finishing, and rigging of scenery and properties. Concurrently scheduled with course C458A. Letter grading.

C158B. Lighting Design Technology. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of lighting designs for theater, film, and television. Study of design, operation, and performance of lighting instruments, dimming equipment, and control systems, including automated fixtures, projection equipment, and computer systems for lighting. Concurrently scheduled with course C458B. Letter grading.

C158C. Sound Design Technology. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of sound designs for theater, film, and television. Study of operation and performance of equipment for recording, mixing, and reproduction of theater sound. Concurrently scheduled with course C458C. Letter grading.

159. Design Portfolio Project. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Preparation of complete designs and drawings for production and assembly of design portfolio and résumé. Projects prepared under guidance of faculty adviser. Letter grading.

160. Fundamentals of Play Direction. (5) Lecture, two hours; laboratory, four hours. Course 121 may be taken concurrently. Basic theories of play direction and their application through preparation of scenes under rehearsal conditions. P/NP or letter grading.

163A-163B-163C. Directing for Stage. (4-4-4) Lecture/studio, four hours. Requisite: course 15. Letter grading:

163A. (4) Lecture/studio, four hours. Requisite: course 15. Intensive development of primary directing skills and process, including text analysis and exploration of craft fundamentals as basis for director/actor communication and effective staging. Students direct scenes from plays under laboratory conditions. Letter grading.

163B. (4) Lecture/studio, four hours. Requisite: course 15. Further development of craft elements of directorial method, with additional emphasis on psychological aspects of director/actor communication. Students direct scenes under laboratory conditions in alternative stage configurations. Letter grading.

163C. (4) Lecture/studio, four hours. Requisite: course 15. Culminating development of directorial methods, with particular emphasis on challenges of style in text and production. Students direct scenes under laboratory conditions in alternative stage configurations. Letter grading.

C163D. Directing Project for Stage. (5) Discussion, three hours; laboratory, four to eight hours. Requisites: courses 163A, 163B, 163C. Application of stage directing techniques in production of short play or project. Students direct one-act play or project. May be repeated once for credit. Concurrently scheduled with course C263D. Letter grading.

170. Design and Production Project. (4) Laboratory, eight hours. Requisites: courses 14A, 14B, 14C. Experience as stage manager or designer, including participation in preparation and realization of scenic, lighting, costume, or sound designs, or stage management in production. May be repeated once for credit. Letter grading.

171A. Advanced Theater Laboratory. (1 to 4) Laboratory, to be arranged. Creative participation as actor or stage manager in public presentation of departmental productions. May be taken for maximum of 4 units. P/NP or letter grading.

171B. Advanced Theater Laboratory. (1 to 4) Laboratory, to be arranged. Creative participation in realization of production elements related to public presentation of departmental productions. May be taken for maximum of 4 units. P/NP or letter grading.

172. Production Practice in Theater, Film, Video, and Digital Media. (1 to 8) Studio, three to eight hours. Exploration and laboratory experience in one or more various aspects of production and postproduction practice for entertainment media, including theater, film, video, and digital media. May be repeated for maximum of 24 units. Letter grading.

173A. Design Assignment: Assistant Designer. (2) Studio, six hours. Requisites: courses 14A, 14B, 14C. Laboratory experience as assistant designer, including participation in preparation and realization of scenic, lighting, costume, or sound designs. May be repeated twice. Letter grading.

173B. Production Design Assignment: Designer. (2) Studio, six hours. Requisites: courses 14A, 14B, 14C. Laboratory experience as designer, including preparation and realization of scenic, lighting, costume, or sound designs. May be repeated twice. Letter grading.

174A. Stage Managing Techniques. (2) Studio, six hours. Requisites: courses 14A, 14B, 14C. Professional duties of stage manager. Problems of unions, professional auditions, organization, scheduling, out-of-town openings, Broadway openings, and responsibilities of lengthy run. Letter grading.

174B. Project in Stage Management. (3) Studio, nine hours. Requisite: course 174A. Laboratory experience in professional duties of assistant stage manager, including participation as assistant stage manager in preproduction, rehearsal, and performance phases of productions. May be repeated once for credit. Letter grading.

174C. Project in Stage Management. (4) Studio, 12 hours. Requisite: course 174A. Laboratory experience in professional duties of stage manager, including participation as stage manager in preproduction, rehearsal, and performance phases of productions. Problems of unions, auditions, organization, scheduling, and responsibilities of lengthy run. May be repeated three times for credit. Letter grading.

174D. Advanced Stage Management Techniques. (2) Lecture, two hours; studio, two hours. Requisites: courses 147A, 174A. Professional duties of stage management. Practical training, including paper tech-

niques, dry techniques, cue 2 cue, preshow setup, performance reports, and quick change rehearsals. Letter grading.

175A-175C-175D. Summer Theater Workshops. (4 or 8 each) Laboratory, 12 to 24 hours. Participation in various aspects of theater production and performance. Offered in summer only. Letter grading.

175B. Summer Theater Workshop. (1 to 4) Laboratory, three hours. Participation in various aspects of theater production and performance. Offered in summer only. Letter grading.

177. Computer-Assisted Design Techniques. (4) Studio, six hours. Hands-on exploration of use of computers for design of scenery and lighting in theater, film, and television. May be repeated once for credit. Offered in summer only. Letter grading.

M178. Film and Television Acting Workshop. (2) (Same as Film and Television M177.) Laboratory, four hours. Workshop providing opportunities for students to rehearse, perform, and evaluate scenes. Three different production styles to which performers may need to adjust are (1) preproduction rehearsals with director, (2) single-camera experience, and (3) multiple-camera experience. May be repeated twice for credit. Letter grading.

180. Senior Project. (4) Lecture or studio, three hours. Requisites: courses 101A, 101B, 101C. Preparation of conceptual or creative project to provide culminating experience in production of creative or research work. May be repeated twice for credit. Letter grading.

181. Career Development for Actors. (2) Lecture, three hours; fieldwork, three hours. Limited to seniors. Study of business practices, career entry, and development for actors. P/NP or letter grading.

C185A. Role of Producer in Professional Theater. (2) Lecture, three hours. Study of structure governing economic and artistic decision-making processes in professional theater of America. Concurrently scheduled with course C285A. P/NP or letter grading.

C185B. Role of Management in Educational and Community Theater. (2) Lecture, three hours. Study of artistic, social, and economic criteria in administration of educational and community theater. Concurrently scheduled with course C285B. P/NP or letter grading.

M187. Art Alive: Art and Improvisation in Museums. (4) (Same as Honors Collegium M116.) Seminar, four hours. Offered in collaboration with Los Angeles County Museum of Art (LACMA). Interpretation of art in collection through acting, dialogues, movement, and music. Research into history and art history and production of creative performance piece required. P/NP or letter grading.

195. Community or Corporate Internships in Theater, Film, and Television. (2, 4, or 8) Tutorial, eight, 16, or 24 hours. Limited to juniors/seniors. Internship at various theaters, studios, or entertainment organizations accentuating creative contributions, organization, and work of professionals in their various specialties. Students meet on regular basis with instructor and provide periodic reports of their experience. May be taken for maximum of 8 units. Individual contract with supervising faculty member required. Letter grading.

199. Directed Research or Senior Project in Theater. (2 to 8) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

202A. Seminar: Western Classical Theater. (4) Seminar, three hours. Designed for graduate students. Examination of theatrical production and dramatic form in Greek and Roman periods. May be repeated twice for credit. S/U or letter grading.

202B. Seminar: Medieval Theater. (4) Seminar, three hours. Designed for graduate students. Selected studies of theatrical production and dramatic form in Middle Ages. May be repeated twice for credit. S/U or letter grading.

202C. Seminar: Renaissance and Baroque Theater. (4) Seminar, three hours. Designed for graduate students. Selected studies in theater architecture, theatrical production, and dramatic form in English and Continental theater from 1485 to early 18th century. May be repeated twice for credit. S/U or letter grading.

202D. Seminar: Bourgeois and Romantic Theater. (4) Seminar, three hours. Designed for graduate students. Selected studies in theater architecture, theatrical production, and dramatic form in English and Continental theater from 1700 to 1870. May be repeated twice for credit. S/U or letter grading.

202E. Seminar: Modern Consciousness in Theater. (4) Seminar, three hours. Designed for graduate students. Study of prototypes of modern experience as encountered in work of Ibsen and Strindberg. May be repeated twice for credit. S/U or letter grading.

202F. Seminar: Modern Realism. (4) Seminar, three hours. Designed for graduate students. Selected studies of theater's response to science and technology, politics, and revolution. May be repeated twice for credit. S/U or letter grading.

202G. Seminar: Modern Theatricalism. (4) Seminar, three hours. Designed for graduate students. Selected studies in symbolism and avant-garde theater. Exploration of dream experience and private psyche, religious experience, and revitalization of myth and ritual. May be repeated twice for credit. S/U or letter grading.

202M. Seminar: American Theater. (4) Seminar, three hours. Designed for graduate students. Selected studies in development of theatrical production and dramatic writing in American theater. May be repeated twice for credit. S/U or letter grading.

202P. Seminar: Traditions of African Theater. (4) Seminar, three hours. Designed for graduate students. Selected studies of traditional theater forms such as those indigenous to Ghana, Nigeria, and other African nations and their diaspora (Haiti, Jamaica, and other areas of Caribbean) through examination of character, structure, performance modes, and archetypes. May be repeated twice for credit. S/U or letter grading.

202R. Seminar: East Asian Theater. (4) Seminar, three hours. Designed for graduate students. Selected topics in theater forms of East Asia, including dramatic literature, costume, theater spaces, and critical writings. May be repeated twice for credit. S/U or letter grading.

202S. Seminar: South Asian Theater. (4) Seminar, three hours. Designed for graduate students. Selected topics in theater forms of South Asia, including dramatic literature, costume, theater spaces, and critical writings. May be repeated twice for credit. S/U or letter grading.

202T. Seminar: Southeast Asian Theater. (4) Seminar, three hours. Designed for graduate students. Selected topics in theater forms of Southeast Asia, including dramatic literature, costume, theater spaces, and critical writings. May be repeated twice for credit. S/U or letter grading.

203. Theater Ethics and Issues. (5) Seminar, four hours. Designed for graduate students. Investigation of one selected area of theater and drama study that explores significant issues and ethical considerations of modern world. May be repeated four times for credit. S/U or letter grading.

204. Theater Genres. (5) Seminar, four hours. Designed for graduate students. Investigation of history and literature of theater as manifested in one or more of its major forms or genres. May be repeated four times for credit. S/U or letter grading.

205A-205B-205C. Background of Theatrical Art. (5-5-5) Seminar, three hours. Designed for graduate students. Analysis of major plays, commentaries, and historical materials. S/U or letter grading. **205A.** Clas-

sical and Medieval Periods; **205B.** Renaissance, Baroque, and Rococo Periods; **205C.** Romantic, Naturalistic, and Symbolist Periods.

206. Themes in World Theater and Drama. (5) Seminar, four hours. Designed for graduate students. Selected topics in world theater history, drama, production, and/or architecture organized on thematic basis. May be repeated four times for credit. S/U or letter grading.

207A-207B. Theater Aesthetics. (4-4) Lecture, three hours. Designed for graduate students. Discussion of essential issues in aesthetics of theater and drama based on philosophy of art and theories of theater. S/U or letter grading. **207A.** Classical and Medieval Theories of Art and Theater; **207B.** Renaissance Theories of Art and Theater to Present.

208A-208B. Dramaturgy I, II. (4-4) Lecture, three hours; laboratory, one hour. Designed for graduate students. Letter grading. **208A.** Theoretical and practical aspects of dramaturge's work in contemporary theater. **208B.** Requisite: course 208A. Continuation of study of theory and practice of dramaturgy.

208C. Practicum in Dramaturgy. (2 to 12) Laboratory, to be arranged. Requisites: courses 208A, 208B. Demonstration of competence in practice of dramaturgy through completion of approved dramaturgical assignment. May be taken for maximum of 12 units. Letter grading.

209. Theater Authors. (5) Seminar, three hours. Designed for graduate students. Investigation of work of one theater artist from history of world theater, with special emphasis on relationship to time in which work was generated. May be repeated four times for credit. S/U or letter grading.

210. Topics in World Theater and Drama. (5) Seminar, three hours. Designed for graduate students. Investigation of selected topics in world theater, drama, production, and architecture. May be repeated four times for credit. S/U or letter grading.

216A. Approaches to Representation. (5) Lecture, three hours; laboratory, one hour. Overview of strategies of representation from classical aesthetic theories to postmodern deconstructions of them. May be repeated once for credit. Letter grading.

216B. Approaches to History. (5) Lecture, three hours; laboratory, one hour. Overview of key methodologies, theories, and debates in historiography of theater and performance linked to plays and performances appropriate to approach. Letter grading.

216C. Approaches to Identification. (5) Lecture, three hours; laboratory, one hour. Overview of key theories, methods, debates, and performance texts of identificatory structure between audience member or scholar and theatrical or performance object. Letter grading.

220. Graduate Forum. (1 to 4) Seminar, one to four hours. Limited to graduate theater students. Presentation and discussion of issues informing and affecting contemporary theater. May be repeated four times for credit. S/U grading.

221. Introduction to Performance Studies. (5) Seminar, three hours. Investigation of performance as sustained practice in traditional disciplines such as theater, music, and dance and as lens to focus thinking about human experience in fields such as philosophy, literature, cultural anthropology, linguistics, education, and law. Emphasis on establishing interdisciplinary dialogue across many fields. Letter grading.

C222. Character Development through Makeup and Hair Design. (2) Studio, four hours. Examination of importance of makeup and hair design in film. History and overview of hair and makeup in fashion and motion pictures. Collaboration of makeup artists and hairstylists with costume designer, actors, production designer, and director to conceptualize people in script. Exploration of makeup artist and hairstylist roles in current film, television, and theater productions and skills needed to design makeup and hair for film and television productions. Concurrently scheduled with course C122. Letter grading.

CM229. Contemporary Topics in Theater, Film, and Television. (2) (Same as Film and Television CM229.) Lecture, two hours; screenings, two hours. Limited to junior/senior and graduate theater/film and television students. Examination of creative process in theater, film, and television, with consideration of writing, direction, production, and performance. Overview of individual contributions in collaborative effort; examination of distinctiveness and interrelations among these arts. Individual units include participation of leading members of theater, film, and television professions. May be repeated twice for credit. Concurrently scheduled with course CM129. S/U or letter grading.

230A-230B-230C. Writing for Contemporary Theater. (4 to 8 each) Lecture, three hours; studio, two hours. Designed for graduate students. Letter grading. **230A.** One-Act Play. Analysis of strategy and dramatic structure of selected contemporary short plays leading to guided completion and critique of student-written one-act plays. **230B.** Full-Length Play. Analysis of strategy and dramatic structure of selected contemporary full-length plays leading to guided completion and critique of student-written full-length play. **230C.** Performance and Text. Exploration of structural strategies, political implications, and technical demands of selected contemporary American plays leading to guided completion and critique of student work.

231. Special Topics in Playwriting. (4) Lecture, three hours. Analysis and practice of various aspects of playwriting. Variable content selected from topics such as comedy writing, docudrama, experimental theater, writing for alternative audiences, or children's theater. May be repeated twice for credit. Letter grading.

232. Manuscript Analysis. (4) Lecture, three hours. Designed for graduate students. Critical and constructive study of dramatic techniques as employed by playwrights and screenwriters in selected examples of contemporary work. May be repeated once for credit. S/U or letter grading.

241. Research in Technical Theater. (4) Lecture, four hours. Designed for graduate students. Research in technical processes and equipment in theater. S/U or letter grading.

242. Introduction to Design in Production. (4) Lecture or studio, four hours. Introduction to process of design for entertainment, collaborative role of designer, and realization of designs in production. May be repeated once for credit. Letter grading.

243A-243B-243C. Scenic Design. (4-4-4) Studio, four hours. Advanced study and practice in scenic design for theater. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated once for credit. S/U or letter grading.

244A-244B. Advanced Theater Production. (2 to 8 each) Studio, 12 to 24 hours. Designed for graduate students. Creative participation in preparation and presentation of theatrical production. Each course may be taken for maximum of 8 units. Letter grading.

245A. Production Management. (4) Lecture, three hours. Study in production management for theater. Examination of professional duties of production manager, including preproduction, rehearsal, and performance phases of productions. Problems of resource management, unions, organization, scheduling, and budgeting while maintaining creative and collaborative environment. Letter grading.

245B. Production Management. (4) Lecture, three hours. Requisite: course 245A. Advanced study in production management for theater, with focus on planning process of professional production manager in seasonal and repertory environment. Problems of resource allocation, unions, organizational structure, scheduling, and budgeting to establish creative and collaborative environment. Letter grading.

245C. Projects in Production Management. (4) Lecture/laboratory, three hours. Requisite: course 245B. Laboratory experience in professional duties of production manager, including participation as production manager in preproduction, rehearsal, and

performance phases of productions. Problems of resource management, unions, organization, scheduling, and budgeting. Letter grading.

246A-246B-246C. History of Costume. (4-4-4) Lecture/studio, four hours. Designed for graduate students. Study of history of costume as manifestation of cultural, social, economic, and political influences to provide historical framework for design of costumes for theater, film, and television. Historic survey and in-depth exploration of selected periods, with study of influences of diverse cultures. Letter grading.

246D. History of Costume Design. (4) Lecture, four hours. Study of history of costume as manifestation of cultural, social, economic, and political influences to provide historical framework for design of costumes for theater, film, and television. Historic survey and in-depth exploration of selected periods, with study of influences of diverse cultures. Letter grading.

247. Collaborative Project in Design and Production. (3 to 4) Studio, four hours. Designed for graduate students. Collaborative project in design, including analysis, conceptual development, and preparation of scenic, lighting, costume, or sound designs. May be repeated once for credit. Letter grading.

260. Directing I. (4) Lecture, four hours; studio, 24 hours. Designed for graduate students. Development of directorial skills of analysis, planning, staging, and criticism through medium of written preparations and directing of scenes. Letter grading.

261. Directing Post-Realist Drama. (4) Lecture, four hours; studio, 30 hours. Designed for graduate students. Problems in direction of post-realistic plays through interpretation and laboratory scene work. Letter grading.

263. Production Project in Direction for Stage. (2 to 8) Discussion, one hour; studio, 12 to 30 hours. Designed for graduate students. Direction of dramatic work, with discussion and critique of work in progress. May be repeated for maximum of 20 units. Letter grading.

C263D. Directing Project for Stage. (5) Discussion, three hours; laboratory, four to eight hours. Requisites: courses 163A, 163B, 163C. Application of stage directing techniques in production of short play or project. Students direct one-act play or project. May be repeated once for credit. Concurrently scheduled with course C163D. Letter grading.

264. Directing Classical and Historical Drama. (4) Lecture, four hours; studio, 30 hours. Designed for graduate students. Problems in interpretation and direction of historical or classical drama through medium of laboratory scene work. Letter grading.

265. Modern Theories of Production. (4) Lecture, four hours. Examination of modern theories of production from emergence of director in 19th century to present. Investigation of different responses to problems of creating vital theatrical event in context of ongoing evolution of theater as art form. Examination of contribution of significant directors and movements; relation between theater and other forms of representation. Letter grading.

266. Theatrical Conceptualization. (4) Lecture, four hours. Examination of process of conceptualization in dramatic production; centrality of theatrical conceptualization in interpretation of dramatic text; exploration of range of possibilities inherent in different theatrical spaces and options in design components. Consideration of visual arts and music as sources of stimulus for theatrical conceptualization, with focus on collaborative aspect of theatrical production. Letter grading.

272. Production Practice in Theater, Film, Video, and Digital Media. (1 to 8) Studio, three to eight hours. Exploration and laboratory experience in one or more various aspects of production and postproduction practice for entertainment media, including theater, film, video, and digital media. May be repeated for maximum of 24 units. Letter grading.

C285A. Role of Producer in Professional Theater. (2) Lecture, three hours. Designed for graduate students. Study of structure governing economic and artistic decision-making processes in professional theater of America. Concurrently scheduled with course C185A. S/U or letter grading.

C285B. Role of Management in Educational and Community Theater. (2) Lecture, three hours. Designed for graduate students. Study of artistic, social, and economic criteria in administration of educational and community theater. Concurrently scheduled with course C185B. S/U or letter grading.

298A-298B. Special Studies in Theater Arts. (2 or 4 each) Lecture/discussion, two or four hours. Designed for graduate students. Seminar study of problems in theater arts, organized on topic basis. Each course may be repeated once for credit. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

C404E. History of Design Décor Part I: Architecture and Decor—Antiquity to Early Neoclassical. (4) Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of pre-Renaissance architectural and interior decor as manifestation of cultural, social, economic, and political influences to provide historical framework for design of scenery, costumes, and lighting for theater, film, and television. May be repeated once for credit. Concurrently scheduled with course C104E. Letter grading.

C404F. History of Design Décor Part II: Architecture and Decor—Industrial Revolution to 21st Century. (4) Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of post-Renaissance architectural and interior decor as manifestation of cultural, social, economic, and political influences to provide historical framework for design of scenery, costumes, and lighting for theater, film, and television. May be repeated once for credit. Concurrently scheduled with course C104F. Letter grading.

C404G. History of Design for Performance Production Part I: Historic Costume from Prehistoric to Neoclassical. (4) Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of historic costume as manifestation of cultural, social, economic, and political influences to provide historical framework for design of costumes for theater, film, and television. Survey of history of Western costume and civilian attire. Concurrently scheduled with course C104G. Letter grading.

C404I. History of Design for Performance Production Part II: Historic Costume from Neoclassical to 21st Century. (4) Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of historic costume as manifestation of cultural, social, economic, and political influences to provide historical framework for design of costumes for theater, film, and television. Survey of history of Western costume and civilian attire with global emphasis. Concurrently scheduled with course C104I. Letter grading.

C404J. History of Design for Performance Production: Selected Topics of Decor and Costume Design History. (4) Lecture, four hours. Requisites: courses 14A, 14B, 14C. Historic survey and in-depth exploration of selected periods and subcategories of decor and costume. Visual representation, with emphasis on influences of global diverse cultures. May be repeated three times for credit. Concurrently scheduled with course C104J. Letter grading.

420A-420B-420C. Advanced Acting I. (4 to 8-4-4) Studio, six to 18 hours. Letter grading:

420A. (4 to 8) Studio, six to 18 hours. Development of internal technique, beginning with autobiography that is dramatization of one's personal history. Scene work follows, with emphasis on off-stage preparations, improvisations capturing circumstances, life of character, and intentions of scene. Letter grading.

420B. (4) Studio, six to 18 hours. Scene work, usually from 20 to 30 minutes in length. Continuation of work on off-stage preparation, with further development of how actor goes about doing research and fieldwork on character being played. Letter grading.

420C. (4) Studio, six to 18 hours. Development of external technique through comedy and of skits, improvisation, physical humor, delivery of lines, rhythm, timing, and public cabaret. Fusion of internal; use of action and objective with external. Letter grading.

421A-421B-421C. Advanced Acting II. (4 or 8 each) Studio/laboratory, six to 18 hours. Letter grading.

421A. Extending idea of autobiography and using it as art. Actor as performance artist. Playing characters quite removed from oneself. Using language. Using Shakespeare and oneself to play him. **421B.** Continual character behavior study through language and movement. Further work on actions, objectives, and researching role. **421C.** Comedy workshop. Exploration of craft of comedy and development of cabaret pieces.

422. Advanced Acting for Theater, Film, and Television. (8 to 12) Studio/laboratory, eight to 12 hours. Intensive performance experience. May be repeated for maximum of 24 units. Letter grading.

423. Advanced Acting for Camera. (4) Studio, three hours. Development and practice in performance techniques for film and television. Exploration of language used by actors and directors in film and television production and subtle differences between acting for stage and camera. Working in multicamera studio environment, students prepare and tape scenes for analysis. May be repeated twice for credit. Letter grading.

424A-424B-424C. Advanced Voice and Speech I. (2 or 4 each) Studio/laboratory, three to six hours. Development of voice and speech techniques for stage, including those of relaxation, breathing, resonance, and development of speaking voice. Speech training uses International Phonetic Alphabet to train students in standard American speech. Text work in poetry and prose. Letter grading.

424D-424E-424F. Advanced Voice and Speech II. (2 or 4 each) Studio/laboratory, three to six hours. Advanced voice problems. Extension of first-year work, with increased demands on voice. Range, resonance, and breathing capacity extension. Articulation and phonetic alphabet. Text work in classical verse. Letter grading.

424G-424H-424I. Advanced Voice and Speech III. (2 or 4 each) Studio, three to six hours. Extension of second-year work, with increased demands on voice/speech, range, resonance, and breathing capacity extension. Application of ear training and International Phonetic Alphabet to creation of dialect and accents, as well as systematic approach to creating dialect charts. Letter grading.

425A-425B-425C. Advanced Movement I. (2 or 4 each) Studio/laboratory, three to six hours. Discovery of body's unique language through exercises designed to explore and free total instrument. Development of flexible actor with range, expression, and confidence physically. Awakening of imagination while exploring worlds of ritual, animal, conceptual, and modern dance movements. Letter grading.

425D-425E-425F. Advanced Movement II. (2 or 4 each) Studio/laboratory, three to six hours. Presentation of more complete picture of stage movement and its relationship to theater, music, and dance. Advancement of physical training of individual actors to their maximum potential. Experience in techniques and discovery of origins of variety of acrobatic and dance disciplines, including ballet, ballroom, period dance, and circus techniques. Letter grading.

425G-425H-425I. Advanced Movement III. (2 or 4 each) Studio, three to six hours. Advanced physical training for actors in one or more movement, dance, or combat discipline: capoeira, martial arts, ballet, ballroom, period dance, circus techniques. Letter grading.

426A-426B-426C. Alexander Techniques. (2 or 4 each) Studio, three to six hours. Study and practice in Alexander techniques as method of developing balance, poise, and coordination of body and mind. Exploration of use of rhythm to expand movement potential of actors and relevant use of visual arts and animal studies to character development and to expansion of movement potential. Letter grading.

429. Performance Workshop. (2) Studio, four hours. Limited to graduate students not enrolled in MFA acting program. Exercises in performance techniques, including autodrama and scene study. Development of performance skills through scene study, use of self, and personalization. Examination of characterization exercises and their application to scenes. Letter grading.

430A-430B-430C. Advanced Studies in Playwriting. (4 to 8 each) Lecture, three hours. Limited to MFA playwriting program students. Guided completion of full-length scripts for stage. S/U or letter grading.

431. Special Topics in Playwriting. (4) Discussion, three hours. Designed for MFA playwriting program students. Analysis and practice of varied aspects of playwright's art. Variable content selected from topics such as comedy writing, docudrama, writing for alternative audiences, adaptation from stage to screen, children's theater, or improvisational techniques. May be repeated twice for credit. S/U or letter grading.

432. Theatrical Adaptation. (4) Lecture, three hours. Requisites: courses 230A, 230B, 230C. Survey of contemporary adaptation for stage, with selected readings of playwriting adaptation techniques, and outline and development of adaptation for stage. Letter grading.

C433A-C433B-C433C. Script Development Workshops. (4 to 8 each) Lecture, three hours; studio, four to 24 hours. Designed for graduate students. Guided process of script development, with emphasis on communication, artistic growth, and professional process. Each course may be taken for maximum of 8 units. Concurrently scheduled with courses C133A-C133B-C133C. Letter grading.

435AF-435AW-435AS. Problems in Advanced Writing for Stage. (0-0-2) Lecture, two hours. Limited to MFA candidates. Review discussion and critique of playwriting projects. Each course may be repeated for maximum of 6 units. In Progress (435AF, 435AW) and S/U (435AS) grading.

C440A. Introduction to Programming for Entertainment Design. (4) Studio, three hours. Study and practice in object-based programming using MAX/MSP programming language. May be repeated once for credit. Concurrently scheduled with course C140A. Letter grading.

C440B. Advanced Programming for Entertainment Design. (4) Studio, three hours. Study and practice in object-based programming using MAX/MSP programming language to control sound and video. May be repeated once for credit. Concurrently scheduled with course C140B. Letter grading.

C440C. Advanced Projects in Programming for Entertainment Design. (4) Studio, three hours. Advanced projects using object-based programming to control sound and video. May be repeated once for credit. Concurrently scheduled with course C140C. Letter grading.

441A-441B-441C. Lighting Design. (4-4-4) Lecture/studio, four hours. Letter grading:

441A. (4) Lecture/studio, four hours. Study and practice in lighting actors, emphasizing textual and character analysis from lighting designer's perspective, conceptual development with director, effect of light on dynamics of staging, use of color in light, and relationship of lighting designer to actor. May be repeated once for credit. Letter grading.

441B. (4) Lecture/studio, four hours. Study of use of light and color to define space, effect of light on scenery and costumes, lighting for arena/thrust theaters, multiscenic productions, lighting patterns, and moving scenery. May be repeated once for credit. Letter grading.

441C. (4) Lecture/studio, four hours. Investigation of lighting design in production, musical theater, opera, touring, and repertory situations. Study of analysis of script and score for lighting designer. May be repeated once for credit. Letter grading.

441D. Scenic Projection and Media Techniques. (4) Lecture/laboratory, four hours. Designed for graduate students. Advanced study and practice in scenic projection and media techniques, with emphasis on analysis, design, and execution of theatrical projection and photographic technique for stage. S/U or letter grading.

442A-442B-442C. Costume Design. (4-4-4) Lecture/studio, four hours. Advanced study and practice in costume design for theater. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, period style, and character analysis leading to visual presentation of design. Study of costume design for theatrical productions, ballet, opera, and musical theater. Each course may be repeated once for credit. Letter grading.

443A-443D. Advanced Scenic Design. (4 each) (Formerly numbered 443.) Studio, four hours. Advanced study and practice of scenic design for theater, with emphasis on cultivating imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design, as well as exploration of students' individual cognitive and artistic process and refinement of techniques. Each course may be repeated twice for credit. S/U or letter grading.

C444A-C444B-C444C. Advanced Sound Design. (4-4-4) Lecture, four hours; laboratory, four hours. Concurrently scheduled with courses C144A-C144B-C144C. Letter grading:

C444A. (4) Lecture, four hours; laboratory, four hours. Study of sound and acoustics as they relate to performance environments, techniques associated with recording, mixing, processing, automation, and reproduction of dialogue, effects, and music tracks for theater sound design. May be repeated once for credit. Letter grading.

C444B. (4) Lecture, four hours; laboratory, four hours. Advanced study and practice in preparation and recording of theater sound designs, with emphasis on analysis of script and score, conceptual development of design, and multitrack recording techniques to realize design. May be repeated once for credit. Letter grading.

C444C. (4) Lecture, four hours; laboratory, four hours. Study and practice in processing and mixing of live and recorded sound; mix-down of multitrack recordings; preparation of sound tracks and sound reinforcement in theater. Study of creation of sound effects, control of MIDI data, and design techniques for music theater. May be repeated once for credit. Letter grading.

445A-445B-445C. Production Design for Film, Television, and Entertainment Media. (4-4-4) Lecture/studio, four hours. Study and practice in design of scenic environment for film, video, and entertainment media, including effect of differing media on design choices, role of production designers and art directors, and design for single- and multiple-camera production. Each course may be repeated once for credit. Letter grading.

C446A-C446B-C446C. Art and Process of Entertainment Design. (4-4-4 to 8) Lecture. Conceptualization, design, and prototyping of interactive theatrical events. Concurrently scheduled with courses C146A-C146B-C146C. Letter grading:

C446A. (4) Lecture, three hours. Exploration of original forms of media-rich entertainment experience through lectures, presentations, and seminar participation. Students form collaborative teams to conceive and propose interactive entertainment events. Letter grading.

C446B. (4) Lecture, three hours. Prototype development; two to five proposals to be more completely defined and developed. Students form collaborative

teams for further conceptual development of their project proposals. May be repeated once for credit. Letter grading.

C446C. (4 to 8) Lecture, three to six hours. Prototype development; conceptual refinement and technological realization of prototypes, that may entail creation of elaborate proposals containing storyboards, budgets, and models or may involve production of short performances demonstrating entertainment potential of concepts or prototypes. May be repeated once for credit. Letter grading.

448A-448B-448C. Costume Design for Film, Television, and Entertainment Media. (4-4) Lecture/studio, four hours. Study and practice in design of costumes for live and virtual characters in film, television, and entertainment media, including effect of differing media on design choices. Courses 448A and 448B may be repeated once for credit; course 448C may be repeated twice for credit. Letter grading.

448D. Deconstructing Glamour. (4) Lecture, three hours; screenings, two hours. Exploration of integration of costume design into filmmaking process and illumination of work required to bring characters from written page to life. Letter grading.

449. Design Thesis Project. (4) Lecture/studio, four hours. Series of group design projects that serve as comprehensive examination for MFA degree in entertainment design. Review and evaluation of projects by design faculty members from all areas of curriculum. Letter grading.

C451A. Scenic Design. (4) Lecture/studio, four hours. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated once for credit. Concurrently scheduled with course C151A. Letter grading.

C451B. Scenic Design for Theater. (4) Lecture/studio, four hours. Study of scenic design for proscenium, thrust, and arena configurations, multiset productions, and music theater. May be repeated once for credit. Concurrently scheduled with course C151B. Letter grading.

C451C. Production Design for Film, Television, and Video. (4) Lecture/studio, four hours. Study of role of art director, scenic design for single-camera and multicamera production, and set decoration. May be repeated once for credit. Concurrently scheduled with course C151C. Letter grading.

C452A. Lighting Design. (4) Lecture/studio, four hours. Study of lighting, with emphasis on imagination, text analysis, metaphor, and conceptualization. Investigation of composition and control of light and color in relation to actor. May be repeated once for credit. Concurrently scheduled with course C152A. Letter grading.

C452B. Lighting Design for Theater. (4) Lecture/studio, four hours. Study of lighting design for proscenium, thrust, and arena configurations, music theater, and concert lighting. May be repeated once for credit. Concurrently scheduled with course C152B. Letter grading.

C452C. Lighting Design for Television. (4) Lecture/studio, four hours. Study of current professional lighting design practices in television for single- and multiple-camera production. Concurrently scheduled with course C152C. Letter grading.

C452D. Lighting Design for Performances and Special Events. (4) Lecture, four hours. Requisites: courses C452A, C452B, C452C. Advanced topics in lighting design, including live performances for concerts, exhibitions, and live events. Concurrently scheduled with course C152D. Letter grading.

C453A. Costume Design. (4) Lecture/studio, four hours. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated twice for credit. Concurrently scheduled with course C153A. Letter grading.

C453B. Costume Design for Theater. (4) Lecture/studio, four hours. Study of costume design for proscenium, thrust, and arena configurations, multiset productions, and music theater. May be repeated twice for credit. Concurrently scheduled with course C153B. Letter grading.

C453C. Costume Design for Film and Television. (4) Lecture/studio, four hours. Study of current professional costume design and wardrobe practices in film and television, including effect of differing media on design choices. May be repeated twice for credit. Concurrently scheduled with course C153C. Letter grading.

C453D. Projects in Costume Design Management. (4) Lecture, three hours. Examination of professional duties of costume designers, set costumers, and supervisors, especially management of production logistics, including but not limited to costume breakdowns, creating budgets, adhering to and overseeing them, as well as set costumer training for film and television, practicing on-set protocol, breakdown of daily responsibilities, and assembling set costumer kits ready for production. Practice with professional resourcefulness to move from abstract to substantive problem solving, maintaining creative and collaborative environment while adhering to logistical obstacles and tasks. Concurrently scheduled with course C153D. Letter grading.

C453E. History of Costume Design in Movies. (5) Lecture, three hours; screenings, three hours. History of costume design within context of 20th-century fashion and film history, including evolution of role of costume designer since early days of film industry. Role of costume designer and contribution of costume design to cinematic storytelling. Concurrently scheduled with course C153E. Letter grading.

C453F. Practice of Costume Design for Film Productions. (4) Lecture, three hours. Introduction to costume design as tool for storytelling, exploring integration of costume design and filmmaking process and what it takes to bring characters to life. Skills needed to effectively costume short narrative films, including script breakdown, collaboration with directors and actors, and how to manage production challenges. Concurrently scheduled with course C153F. Letter grading.

C454A. Sound Design. (4) Lecture/studio, four hours. Introduction to sound and audio in acoustic, audio, and digital domain. Study and practice of techniques for recording, editing, and creating soundscapes. May be repeated once for credit. Concurrently scheduled with course C154A. Letter grading.

C454B. Sound Design for Theater. (4) Lecture/studio, four hours. Exploration of sound design for theater and techniques for mixing, reinforcement, and signal processing. Topics include use of delay, equalization, and microphone placement for theater sound reinforcement. Study of creation of sound effects, control of MIDI data, and design techniques for musical theater. May be repeated once for credit. Concurrently scheduled with course C154B. Letter grading.

C454C. Sound for Film and Television. (4) Lecture/studio, four hours. Study of current professional sound recording, rerecording, mixing, and synchronization practices for film and television. Concurrently scheduled with course C154C. Graduate students expected to produce designs demonstrating higher level of proficiency and skill. Letter grading.

C455A-C455H. Graphic Representation of Design. (2 each) Studio. Concurrently scheduled with courses C155A-C155H. Letter grading:

C455A. Perspective Drawing. (2) Studio, four hours. Requisite: course 147A or 147B. Introduction to use of pencil and pen to communicate scenic designs, including one- and two-paint perspective, form light, shade, and textures. Graduate students expected to produce drawings demonstrating higher level of proficiency and skill. Letter grading.

C455B. Multimedia Rendering. (2) Studio, four hours. Study and practice of multimedia rendering techniques as they relate to interpretation of scenic, lighting, and costume renderings, with focus on

human form in space. Weekly demonstrations of wide variety of art media, including watercolor, markers, pastel, and collage rendering. May be repeated twice for credit. Letter grading.

C455C. Digital Rendering. (2) Studio, four hours. Study and practice in rendering costumes, lighting, and scenic elements with combination of hand and digital rendering techniques. Coverage of rendering from life, enhancing final rendering with variety of computer-assisted formats to create polished sophisticated presentations for theater, film, and television productions. May be repeated twice for credit. Letter grading.

C455D. Model Making. (2) Studio, four hours. Requisite: course 147A or 147B. Study of model for representation of scenic designs from initial working prototypes to finished color models. Use of wide variety of materials and techniques for execution of model. Graduate students expected to produce models demonstrating higher level of proficiency and skill. Letter grading.

C455E. Life Drawing. (2) Studio, four hours. Requisite: course 147A or 147B. Study and practice in drawing of human form. Letter grading.

C455F. Costume Rendering. (2) Studio, four hours. Requisite: course 147A or 147B. Study of techniques for rendering theatrical costumes, with emphasis on figure, clothing, and fabrics. Letter grading.

C455G. Scene Painting Techniques. (2) Studio, four hours. Requisite: course 147A or 147B. Study of scenic painting techniques and materials and their realization of color design and elevations. May be repeated once for credit. Letter grading.

C455H. Selected Topics in Graphic Representation of Design. (2) Studio, six hours. Group study of selected subjects in techniques for interpretation of design for theater. May be repeated once for credit. Letter grading.

C456A. Introduction to Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drawing and editing techniques, drawing floor plan sections, and elevation drawings using AutoCAD. Concurrently scheduled with course C156A. Letter grading.

C456B. Advanced Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drafting techniques for scenic and lighting designs using AutoCAD. Concurrently scheduled with course C156B. Letter grading.

C456C. Computer-Assisted Rendering. (4) Studio, four hours. Investigation of three-dimensional lighting and scenic design previsualization: wire-frame perspective drawing and photo-realistic computer rendering techniques using three-dimensional studio. Concurrently scheduled with course C156C. Letter grading.

C456D. Introduction to Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drawing and editing techniques, drawing floor plan sections, and elevation drawings using Vectorworks. Concurrently scheduled with course C156D. Letter grading.

C456E. Advanced Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drafting techniques for scenic and lighting designs using Vectorworks. Concurrently scheduled with course C156E. Letter grading.

C456F. Introduction to Computer-Assisted Rendering. (4) Studio, four hours. Investigation of three-dimensional lighting and scenic design previsualization: wire-frame perspective drawing and photo-realistic computer rendering techniques using Vectorworks. Concurrently scheduled with course C156F. Letter grading.

C457A-C457B-C457C. Costume Construction Techniques. (2-2-2) Studio, four hours. Study of theory and application of drafting, pattern making, fitting, and construction techniques for period costumes and undergarments to achieve authentic-appearing costume using contemporary methods. Each course may be repeated once for credit. Concurrently scheduled with courses C157A-C157B-C157C. S/U

or letter grading. **C457A.** Requisites: courses 14A, 14B, 14C. Introduction to draping, pattern grading fitting, and slash and spread adaptation. **C457B.** Requisite: course C457A. Introduction to costume drafting, construction of period undergarments. **C457C.** Requisites: courses C457A, C457B. Draping, patterning, and fitting techniques for period garments.

C457D. Advanced Historical Costume Interpretation and Construction. (4) Lecture/studio, four hours. Introduction to costume design as tool for interpretation of one renowned artwork and as intrinsic element of art history to gain expertise in period costume and pattern making, while creating half-scale costume inspired by masterwork and to gain familiarity with artist's life and social milieu. Letter grading.

C458A. Scenic Design Technology. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of scenic designs for theater, film, and television. Study of advanced techniques and materials for construction, finishing, and rigging of scenery and properties. Concurrently scheduled with course C158A. Letter grading.

C458B. Lighting Design Technology. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of lighting designs for theater, film, and television. Study of design, operation, and performance of lighting instruments, dimming equipment, and control systems, including automated fixtures, projection equipment, and computer systems for lighting. Concurrently scheduled with course C158B. Letter grading.

C458C. Sound Design Technology. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of sound designs for theater, film, and television. Study of operation and performance of equipment for recording, mixing, and reproduction of theater sound. Concurrently scheduled with course C158C. Letter grading.

459A-459B. Directing for Theater, Film, and Television. (4-4) Lecture, three hours. Limited to graduate theater students. Analysis and exploration, with specific scenes, of differences and many similarities in directorial approach to same literary material in three media. S/U or letter grading.

460AF-460AW-460AS. Contemporary Issues in Direction. (1-1-1) Discussion, three hours. Designed for graduate students. Discussion of role of director in contemporary professional practice. Review discussion and critique of directing projects. Each course may be repeated for maximum of 4 units. Letter grading.

460B-460C. Problems in Advanced Direction for Stage. (4-4) Studio, to be arranged. Limited to MFA candidates. Discussion and critique of work in progress. S/U or letter grading. **460B.** Preparation and presentation of published play under rehearsal conditions. **460C.** Preparation and presentation of full-length original play under rehearsal conditions.

462. Advanced Directing. (8 or 12) Studio, 12 or 30 hours. Designed for graduate students. Advanced problems in directing for theater, film, and television. May be repeated for maximum of 24 units. Letter grading.

463. Production Project in Direction for Stage (8 or 12 units). Studio, 24 hours. Designed for graduate students. Creative participation as director in conceptualization and preparation of dramatic work. Letter grading.

472. Production Practice in Theater, Film, Video, and Digital Media. (1 to 8) Studio, three to eight hours. Exploration and laboratory experience in one or more various aspects of production and postproduction practice for entertainment media, including theater, film, video, and digital media. May be repeated for maximum of 24 units. Letter grading.

474. Advanced Projects in Design and Production. (4) Lecture/studio, four hours. Study and practice in preparation and execution of designs for theater, film, video, and related entertainment forms. As contrib-

uting artistic member of design team, creative responsibilities include designer, technical supervisor, or production manager. May be repeated for maximum of 16 units. Letter grading.

475A. Graduate Design Portfolio Project: Scenic Design. (4) Lecture, four hours; studio, four to eight hours. Preparation: at least six master scenic design courses. Preparation of complete designs and drawings for theatrical, film, operatic, and theoretical productions and assembling of design portfolio and résumé. Information about industry demands and protocol for portfolio presentation and review, with projects prepared under guidance of respective design faculty adviser. Letter grading.

475B. Graduate Design Portfolio Project: Lighting Design. (4) Lecture, four hours; studio, four to eight hours. Preparation: at least six master lighting design courses. Preparation of complete designs and drawings for theatrical, film, operatic, and theoretical productions and assembling of design portfolio and résumé. Information about industry demands and protocol for portfolio presentation and review, with projects prepared under guidance of respective design faculty adviser. Letter grading.

475C. Graduate Design Portfolio Project: Costume Design. (4) Lecture, four hours; studio, four to eight hours. Preparation: at least six master costume design courses. Preparation of complete designs and drawings for theatrical, film, operatic, and theoretical productions and assembling of design portfolio and résumé. Information about industry demands and protocol for portfolio presentation and review, with projects prepared under guidance of respective design faculty adviser. Letter grading.

495A-495B-495C. Practicum and Practice in Teaching Theater. (2-2-2) Seminar, to be arranged; discussion, two hours. Limited to PhD students. Study and practice of teaching theater at university level. Orientation and preparation of graduate (PhD) students who have responsibility to assist in teaching undergraduate courses in department. Discussion of problems common to teaching experience. Letter grading.

498. Professional Internship in Theater, Film, and Television. (4, 8, or 12) Tutorial, to be arranged. Full- or part-time at studio or on professional project. Designed for advanced MFA students. Internship at various film, television, or theater facilities accentuating creative contribution, organization, and work of professionals in their various specialties. Given only when projects can be scheduled. S/U or letter grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U or letter grading.

506A. Directed Individual Studies: Research. (2 to 12) Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

506B. Directed Individual Studies: Writing. (2 to 12) Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

506C. Directed Individual Studies: Directing. (2 to 12) Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

506D. Directed Individual Studies: Design. (2 to 12) Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

506E. Directed Individual Studies: Acting. (2 to 12) Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

506F. Directed Individual Studies: Production. (2 to 12) Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

597. Preparation for PhD Qualifying Examinations in Theater Arts. (2 to 12) Tutorial, to be arranged. Writing of prospectus and three reading lists. May be repeated for credit. S/U grading.

599. PhD Dissertation in Theater Arts. (2 to 12) Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Research for and writing of PhD dissertation. May be repeated for credit. S/U grading.

and departure in high education and both individual and collective strategies for academic success. P/NP grading.

UNIVERSITY STUDIES

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Muriel C. McClendon, PhD, Chair

Faculty Committee

Robert A. Gurval, PhD (*Classics*)
Kathleen L. Komar, PhD (*Comparative Literature, Germanic Languages*)
Frank A. Laski, PhD (*Molecular, Cell, and Developmental Biology*)
Elizabeth A. Marchant, MA (*Comparative Literature, Gender Studies*)
Muriel C. McClendon, PhD (*History*)
William I. Newman, PhD (*Earth, Planetary, and Space Sciences; Mathematics; Physics and Astronomy*)

Scope and Objectives

Available to all undergraduate students, the university studies curriculum seeks to promote academic success and facilitate the transition of new students as they enter UCLA. Courses are tailored to specific undergraduate populations and are designed to introduce students to the research university and academic culture of UCLA. Beyond addressing themes of academic success, the courses also introduce students to the unique opportunities and experiences available at a large research university. For more information, contact David Maldonado at dmaldona@college.ucla.edu.

University Studies

Lower Division Courses

10. How to Succeed at UCLA. (2) Seminar, two hours. Designed primarily for new students to help them understand UCLA, its culture, structure, and academic policies and to facilitate their transition from high school to college. Examination of research on first-year experience of college students, studying at UCLA versus high school, policies and procedures, and campus resources. P/NP grading.

20. How to Succeed at UCLA for International Students. (2) Seminar, two hours. Designed to help first-year international students make successful transition to UCLA and to life as college students in U.S. Examination of research on transition of international students to college in U.S., adjustment to life in U.S., policies and procedures, and campus resources. P/NP grading.

30. How to Succeed at UCLA: Retention. (2) Seminar, two hours. Limited to students in Bruin Readmission Program. Designed to provide students who are working toward readmission critical understanding of how they and others arrive at their dismissal status and steps they can take that lead to academic success in future. Examination of research on retention

URBAN PLANNING

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Evelyn A. Blumenberg, PhD, Chair

Professors

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Dana Cuff, PhD
J.R. DeShazo, MSc, PhD
Susanna B. Hecht, PhD
Richard J. Jackson, MD
Anastasia Loukaitou-Sideris, PhD
Mary D. Nichols, JD, *in Residence*
Paul M. Ong, PhD
Ananya Roy, PhD
Michael A. Stoll, PhD
Michael C. Storper, PhD
Lois M. Takahashi, PhD
Brian D. Taylor, PhD
Christopher C. Tilly, PhD
Abel Valenzuela, Jr., PhD

Professors Emeriti

Leland S. Burns, PhD
John R. Friedmann, PhD
J. Eugene Grigsby III, PhD
Allan D. Heskin, PhD, LLB
Shirley Hune, PhD
Robin S. Liggett, PhD
James E. Lubben, DSW
Barbara J. Nelson, PhD
Gary A. Orfield, PhD
Donald C. Shoup, PhD

Associate Professors

Leobardo F. Estrada, PhD
Paavo Monkkonen, PhD
Vinit Mukhi, PhD

Assistant Professors

Kiah Goh, PhD
Michael C. Lens, PhD
Michael K. Manville, PhD
Deepak Rajagopal, PhD
Rui Wang, PhD

Lecturers

Stephen K. Commins, PhD
Carol E. Goldstein, BA
Goetz Wolff, MPhil

Scope and Objectives

The professional urban planner works on the creation and management of the urban environment, including its physical, economic, and social elements. Housing, transportation, air and water quality, the preservation of historic communities, and the development of community-level economic and employment programs are some of the tasks undertaken by recent graduates of the UCLA Department of Urban Planning. Graduates have taken positions

in local, state, and national governments, and increasingly with nonprofit and private companies whose products and services affect the urban environment. While most UCLA graduates find positions in the U.S., the program offers the opportunity to specialize in development planning abroad, including rural development, and many graduates have found positions in Latin America, Africa, and Asia.

The program offers an undergraduate minor in Urban and Regional Studies, a two-year Master of Urban and Regional Planning (MURP) degree, and a PhD degree. Concurrent degree programs allow students to combine study for a MURP in Urban Planning with work toward an MBA in the Anderson Graduate School of Management, a JD in the School of Law, an MArch I in the Department of Architecture and Urban Design, an MA in Latin American Studies, or an MPH in Community Health Sciences and in Environmental Health Sciences in the Fielding School of Public Health.

The department takes pride in its collegial atmosphere. It features a lively mix of students from diverse academic backgrounds, drawn from many foreign countries and from every avenue of American life. It includes many members of racial and ethnic minority groups, and more than half the students are women. Student organizations provide an interesting program of extracurricular activities.

Undergraduate Study

Urban and Regional Studies Minor

The scale, diversity, balkanized governance, and natural environment of Southern California all contribute to making it an extraordinary natural laboratory for learning about urban and regional issues, whether the focus is on immigration, employment, the built environment, transportation, poverty, natural resources, or a host of other challenges. The Urban and Regional Studies minor offers undergraduate students a means to address some of these issues from an interdisciplinary perspective, giving a balanced mixture of theory, practice, and service learning courses.

To enter the minor, students must be in good academic standing with an overall grade-point average of 2.0 or better, have completed 90 or more units, and complete either Urban Planning 120 or 121 with a grade of C or better. An introductory course in geography, political science, or sociology is recommended. For further information, contact the program director/counselor at paul@luskin.ucla.edu.

Required Courses (28 units): (1) Urban Planning 120 or 121 with a grade of C or better; (2) five elective courses selected as follows: (a) at least three courses from Public Policy 10A, 104, C115, M120, C147, Urban Planning 120 (unless taken under item 1), 121 (unless taken under item 1), 130, C133, 141, M150, M160, M165, M175, C184 and (b) up to two courses from Anthropology 167, Chicana and Chicano Studies 181, Geography 150, History 145A, 145B, Management 175, Sociology 158 (stu-

dents may petition to include a Luskin School of Public Affairs course not listed above to fulfill an elective requirement); (3) capstone project that may be satisfied by one of the following: (a) Urban Planning 185SL—service learning project or (b) Urban Planning 199 or a 199 in the College of Letters and Science with a faculty mentor affiliated with this minor—individual research project.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Urban Planning offers the Master of Urban and Regional Planning (MURP) degree and the Doctor of Philosophy (PhD) degree in Urban Planning. Six concurrent degree programs (Urban Planning MURP/Architecture MArch I, Urban Planning MURP/Community Health Sciences MPH, Urban Planning MURP/Environmental Health Sciences MPH, Urban Planning MURP/Latin American Studies MA, Urban Planning MURP/Law JD, and Urban Planning MURP/Management MBA) are also offered.

Urban Planning

Upper Division Courses

M110. Inequality and Democracy: Analysis and Praxis of Public Problems. (4) (Same as Social Welfare M110.) Lecture, three hours; discussion, one hour. Analysis and praxis of public problems. Taking up case of persistent inequality in liberal democracies, coverage of key frameworks and methodologies for understanding and analyzing poverty and inequality and examination of forms of action, from role of government to social movements, that seek to intervene in such problems. Study of problems, programs, policies, and politics in globally interconnected, transnational world, while avoiding analytical divide between global north and global south. Letter grading.

120. Introduction to Cities and Planning. (4) Lecture, three hours. Survey of urban history and evolution in U.S., urban social theory, current growth trends, system of cities, urban economy and economic restructuring, traditional and alternative location theories, urban transportation, and residential location and segregation. P/NP or letter grading.

121. Urban Policy and Planning. (4) Lecture, three hours. Examination of current urban planning and policy issues and debates, such as normative theories of good urban form, metropolitan organization and governance, economic development and growth management, edge cities, spatial mismatch hypoth-

esis, urban poverty, racial/ethnic inequality, gender and urban structure, sustainability, and future of cities. P/NP or letter grading.

M122. Policy, Planning, and Community. (4) (Same as Asian American Studies M108.) Lecture, three hours; field laboratory. Project-oriented methods course on conducting needs assessment in Asian American communities. Geographic information systems to be used to define problems and needs. Letter grading.

129. Special Topics in Urban Policy and Research.

(4) Lecture, three hours. Examination of particular planning/policy subfield (e.g., economic development, environmental planning, housing and community development, international planning and development, land use, or urban design) in some depth. Specific topic area rotates depending on instructor. May be repeated for credit with topic change. P/NP or letter grading.

130. Fundamentals of Urban and Regional Economics. (4) Lecture, three hours. Preparation: one introduction to microeconomics course. Most U.S. population lives and works in urbanized areas, and world's population is becoming more urbanized with each passing decade. National, state, and local governments are engaged in managing, planning, policymaking, and governance in urban context. Ultimate efficacy of those public activities can be enhanced by understanding of economic forces acting on urban areas. Basic concepts related to location choice, agglomeration effects, economies of scale, and specialization by cities and transportation. P/NP or letter grading.

C133. Political Economy of Urbanization. (4) Lecture, three hours. Introduction to new approaches to urban studies, basic concepts and analytical approaches of urban political economy, with major emphasis on American urban problems and restructuring of modern metropolis. Topics include historical geography of urbanization, development and transformation of urban spatial structure, suburbanization and metropolitan political fragmentation, urban fiscal crisis, and role of urban social movements. Concurrently scheduled with course C233. P/NP or letter grading.

CM137. Southern California Regional Economy. (4) (Same as Labor and Workplace Studies M180.) Lecture, three hours. Introduction to regional economy, with emphasis on Los Angeles. Key economic sectors, labor market composition, and review of conflicting portrayals depicting dynamics of region. Two all-day bus tours of key economic regions and guest lectures by regional experts included. Concurrently scheduled with course C237C. Letter grading.

M140. Issues in Latina/Latino Poverty. (4) (Same as Chicana and Chicano Studies M121 and Labor and Workplace Studies M121.) Lecture, four hours. Examination of nature and extent of urban and rural poverty confronting Latina/Latino population in U.S. Special emphasis on antipoverty policies of government and nonprofit organizations and social planning and economic development strategies. Attention also to literature on underclass. Letter grading.

141. Planning with Minority Communities. (4) Lecture, three hours. Overview of planning history, theory, and contemporary issues that affect low-income communities, communities of color, and underserved neighborhoods, particularly in Los Angeles area. Field of planning offers distinct perspectives and opportunities for improving vulnerable communities. Topics range from discussion of intersection between race and income, critical race theory, community development, residential segregation, spatial mismatch, and environmental justice to social justice. P/NP or letter grading.

M150. Transportation Geography. (4) (Same as Geography M149.) Lecture, three hours. Designed for juniors/seniors. Study of geographical aspects of transportation, with focus on characteristics and functions of various modes and on complexities of intra-urban transport. P/NP or letter grading.

M151. Urban Transportation Economics. (4) Lecture, three hours. Big cities offer many attractions, but high density also produces traffic congestion and air pollution. Can we have dense urban areas without congested traffic and polluted air? Analysis of economic explanations for transportation problems and examination of possible solutions. Because university campuses resemble small cities, they are used as examples to explore various policies (such as BruinGO at UCLA) that universities have adopted to improve transportation. Letter grading.

M160. Environmental Politics and Governance. (4) (Same as Environment M164.) Lecture, three hours. Environmental planning is more than simply finding problems and fixing them. Each policy must be negotiated and implemented within multiple, complex systems of governance. Institutions and politics matter deeply. Overview of how environmental governance works in practice and how it might be improved. Letter grading.

M163. California Sustainable Development: Economic Perspective. (4) (Same as Environment M135 and Public Policy M149.) Lecture, three hours. Examination of specific environmental challenges that California faces. Microeconomic perspective used, with special emphasis on incentives of polluters to reduce their pollution and incentives of local, federal, and state government to address these issues. Focus on measurement and empirical hypothesis testing. P/NP or letter grading.

M164A. Documentary Production for Social Change: Mobility in Los Angeles. (5) (Same as Disability Studies M164A.) Seminar, three hours; fieldwork, two hours. Exploration of documentary filmmaking as catalyst for social change, using daily commute in Los Angeles as case study. Introduction to issues of race, ethnicity, gender, disability, and class on experiences of commuting, access to public transportation, and car-based versus alternative (bike and pedestrian) forms of commuting. Exposure to observational, interview-based, and participatory documentary shooting and editing techniques, as well as social marketing strategies that are vital to documentary production and distribution. Letter grading.

M165. Environmentalism: Past, Present, and Future. (4) (Same as Environment M132 and Geography M115.) Lecture, three hours; discussion, one hour. Exploration of history and origin of major environmental ideas, movements or countermovements they spawned, and new and changing nature of modern environmentalism. Introduction to early ideas of environment, how rise of modern sciences reshaped environmental thought, and how this was later transformed by 19th-century ideas and rise of American conservation movements. Review of politics of American environmental thought and contemporary environmental questions as they relate to broader set of questions about nature of development, sustainability, and equity in environmental debate. Exploration of issues in broad context, including global climate change, rise of pandemics, deforestation, and environmental justice impacts of war. Letter grading.

CM166. Global Environment and Development: Problems and Issues. (4) (Same as Geography M128.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Questions of population, resource use, Third World poverty, and environment. Analysis of global economic restructuring and its connections to changing organization of production and resulting environmental impacts. Case studies from Africa, Latin America, Asia, and U.S. Concurrently scheduled with course C266. P/NP or letter grading.

M167. Environmental Justice through Multiple Lenses. (4) (Same as Environment M167.) Lecture, three hours. Examination of intersection between race, economic class, and environment in U.S., with focus on issues related to social justice. Because environmental inequality is highly complex phenomenon, multidisciplinary and multipopulation approach taken, using alternative ways of understanding, interpreting, and taking action. P/NP or letter grading.

M171. Planning Issues in Latina/Latino Communities. (4) (Same as Chicana and Chicano Studies M122 and Labor and Workplace Studies M122.) Lecture, four hours. Exploration of socioeconomic, demographic, and political forces that shape low-income communities and analyses of planning intervention strategies. Emphasis on community and economic development and environmental equity. Letter grading.

M175. Women and Cities. (4) (Same as Gender Studies M175.) Lecture, three hours. Limited to juniors/seniors. Examination of relationship between women and cities: (1) how cities have affected women's opportunities for economic and social equality, (2) women's contributions to development of U.S. cities, and (3) contemporary strategies and efforts to create urban environments that reflect women's needs and interests. P/NP or letter grading.

C184. Looking at Los Angeles. (4) Lecture, three hours. Introduction to history and physical form of Los Angeles, with emphasis on understanding social, economic, and political issues in development of Los Angeles. Concurrently scheduled with course C284. Letter grading.

185SL. Community-Based Research in Planning. (4) Seminar, one hour; fieldwork, three hours. Preparation: at least four Urban and Regional Studies minor courses, of which at least one should be related to subject area of service learning setting. Limited to junior/senior minor students. Designed to serve as complement to service learning requirement and may be used to fulfill capstone requirement for minor. Students are matched to public, private, or nonprofit agency through Center for Community Learning and must complete minimum of 30 hours of work. Duties and responsibilities to be set by students and sponsoring organizations. Readings to be determined in consultation with instructor. P/NP grading.

M187. Latino Metropolis: Architecture and Urbanism in Americas. (4) (Same as Chicana and Chicano Studies M187 and History M151E.) Lecture, four hours. Introduction to history of architecture and urbanism in Americas, from fabled cities of Aztec empire to barrios of 21st-century Los Angeles and Miami. Emphasis on role of cities in Latina/Latino experience and uses of architecture and city planning to forge new social identities rooted in historical experiences of conquest, immigration, nationalization, and revolution. P/NP or letter grading.

195. Community Internships in Urban Planning. (4) Tutorial, 12 hours. Limited to junior/senior Urban and Regional Studies minors. Internship in supervised setting in community agency or urban planning setting. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP grading.

199. Directed Research in Urban Planning. (2 to 8) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M201. Theories of Architecture. (4) (Same as Architecture and Urban Design M201.) Lecture, three hours. Exploration of conceptual and historical structures that shape current issues in architectural theory. Readings in primary texts serve as framework for understanding nature of speculative inquiry in architectural context. Letter grading.

202A-202B. Land Use. (202A: 3 or 4/202B: 1 or 2) (Formerly numbered M202A.) Lecture, three hours. Course 202A is enforced requisite to 202B. Exploration of 21st-century land-use public controls, private practice, and litigation in California from basic planning, zoning, subdivision controls, and official mapping to regional growth management, sustainability, and environmentally sensitive land protection. Concurrently scheduled with Law 286. In Progress (202A) and S/U or letter (202B) grading.

M203. Housing Segregation, Housing Discrimination, and Evolution of Public Policy. (1 to 8) (Same as Law M526.) Seminar, three hours; two field trips. Consideration of selected aspects of housing law and policy, including current federal and state housing subsidies; remedies of housing consumers; impacts of market discrimination against children, racial minorities, and women; and local governmental laws influencing cost and supply, such as antispeculation and rent control legislation. Catalytic role of economic and community development in expansion of housing supply also considered. Letter grading.

M203A-203B. Seminar: Housing Segregation, Housing Discrimination, and Evolution of Public Policy. (1 to 8 each) (Same as Law M526.) Seminar, three hours; two field trips. Course M203A is enforced requisite to 203B. Consideration of selected aspects of housing law and policy, including current federal and state housing subsidies; remedies of housing consumers; impacts of market discrimination against children, racial minorities, and women; and local governmental laws influencing cost and supply, such as antispeculation and rent control legislation. Catalytic role of economic and community development in expansion of housing supply also considered. In Progress (M203A) and letter (203B) grading.

M204. Research Design and Methods for Social Policy. (4) (Same as Public Policy M218.) Lecture, three hours; outside study, nine hours. Limited to graduate students. How to become more sophisticated consumers and producers of qualitative and quantitative policy research. In first half of course, formal principles of research design; in second half, various data collection methods, including ethnography, interviewing, and survey design. Letter grading.

205A-205B. MURP Comprehensive Examination: Applied Planning Research Project I, II. (4-4) Required of all second-year students completing applied planning research project MURP comprehensive examination capstone option. S/U grading. **205A.** Seminar, three hours. Guides students through identifying topics, selecting clients, developing scope of work and memorandum of understanding with clients, completing research design and literature review portions of applied planning research project, and collecting data. **205B.** Seminar, three hours; laboratory, one hour. Guides students through completion of data collection, analysis, findings, conclusions, and recommendations portions of applied planning research project. Preparation of executive summary and poster synthesizing their work.

M206A. Introduction to Geographic Information Systems. (4) (Same as Public Policy M224A.) Lecture, three hours; laboratory, one hour. Preparation: one graduate-level statistics course, familiarity with one packaged statistics program. Principles of Geographic Information Systems (GIS) and applied techniques of using spatial data for mapping and analysis. Topics include data quality, data manipulation, spatial analysis, and information systems. Use of mapping and spatial analysis to address planning problem. Letter grading.

M206B. Advanced Geographic Information Systems. (4) (Same as Public Policy M224B.) Studio, three hours. Requisite: course M206A or Public Policy M224A. Advanced topics in geographic information systems (GIS) utilizing geoprocessing tools in ArcMap, map design, and spatial analysis. Letter grading.

207. Applied Microeconomics for Urban Planning. (4) Lecture, three hours. Preparation: passing score on microeconomics examination given first day of class. Practical use of economics in analyzing public resource allocation problems. Topics include review of marginal analysis, difference between equity and efficiency, public goods and free rider problem, environmental pricing, public service pricing, and conflicts between individual and collective rationality. Letter grading.

208A. Colloquium in Planning Research. (4) Lecture, one hour; discussion, two hours. Required of first-year PhD students. Introduction to design and execution of planning research; exploration of sub-

fields of planning scholarship and approaches to research on contemporary planning topics. Preparation and filing of PhD program of study. Letter grading.

208B. Introduction to Research Design. (4) Seminar, three hours. Required in first or second year of PhD program. Identification of planning problems, formulation of research questions, review of literature and identification of gaps, development of researchable hypotheses, understanding of strengths and weaknesses of qualitative and quantitative methodologies, understanding of threats to validity, review of critiques of traditional methods and of alternative approaches to scholarship. Letter grading.

208C. Advanced Research Design. (4) Seminar, three hours. Required of all PhD students who have passed their field examinations but have not yet advanced to candidacy, and all MURP students completing their thesis capstone option. Advanced research design course that guides students in selecting problem/question to study, reviewing previous research on problem/question, framing specific research questions/hypotheses, and selecting methodology and plan for testing hypotheses. Students complete and orally defend their dissertation/thesis proposal. May be repeated for credit. S/U or letter grading.

209. Special Topics in Planning Theory. (4) Lecture, three hours. Topics in planning theory selected by faculty members. May be repeated for credit. S/U or letter grading.

211. Law and Quality of Urban Life. (4) Lecture, three hours. Introduction to law as urban system, directed primarily toward those interested in intersection of law and policy: broad array of urban issues examined, as is law's role as partial cause and cure of urban problems. Examination of law as changing process rather than collection of principles, so that students develop facility to interact with law and lawyers in positive and forceful manner. S/U or letter grading.

212. International/Comparative Planning Workshop. (2 or 4) Seminar, three hours; field trips, five to 10 days. Topics of planning and policy in various international or domestic sites. Topics may include urban design, urban development, urban governance, land use, environmental issues, transportation, infrastructure planning, housing development, community development, and/or physical planning. May be repeated for credit. S/U or letter grading.

214. Neighborhood Analysis. (4) Lecture, two hours; laboratory, two hours. Experience with GIS and statistical software useful but not necessary. Methods-oriented studio course, with focus on developing data and analytical skills required to profile and analyze neighborhoods. Working in teams students develop quantitative neighborhood profiles that can be used in community planning and at other geographical levels (e.g., cities, counties, and regions). Students gain professional experience and produce product that benefits larger community. Data management and analysis, including accessing, cleaning, and presenting data. Letter grading.

M215. Spatial Statistics. (4) (Same as Geography M272 and Statistics M222.) Lecture, three hours. Designed for graduate students. Survey of modern methods used in analysis of spatial data. Implementation of various techniques using real data sets from diverse fields, including neuroimaging, geography, seismology, demography, and environmental sciences. S/U or letter grading.

216. Food Studies Graduate Certificate Colloquium. (4) Seminar, three hours. Limited to Food Studies Graduate Certificate Program students. Food is complex subject given that production, procurement, preparation, consumption, and exchange of edible matter is biologically vital to human growth, development, and function and critical to many aspects of society and culture. Food studies is growing cross-disciplinary field of research, teaching, and advocacy that encompasses and draws from cultural anthropology and geography, food law and policy, urban planning, sociology, literature, history, public health, nutrition, environmental science, molecular and cell biology, science and technology studies (STS), agronomy, and

other disciplines. Survey of some of these wide-ranging topics and disciplines that define food studies. Letter grading.

217A-217B. Comprehensive Planning Project. (4-4) Seminar, three hours. Designed for second-year students. Comprehensive project brings together students of varying backgrounds and interests in joint solution of urban planning problem. Each project spans two terms. Successful completion of project meets requirements of Comprehensive Examination Plan A of MA program. S/U grading.

218. Graphics and Urban Information. (4) Lecture, two hours; studio, one hour. Presentation of basic graphic methods and tools for conceptualization, analysis, and documentation of built environment. Development of fundamental skills of graphic ideation and communication. Letter grading.

219. Special Topics in Built Environment. (4) Lecture, three hours. Topics in built environment selected by faculty members. May be repeated for credit. S/U or letter grading.

220A. Quantitative Analysis in Urban Planning I. (4) Lecture, three hours; laboratory, 90 minutes. Preparation: passing score on basic mathematics proficiency examination given first day of class. Introduction to mathematical and statistical concepts and methods with applications in urban planning. Review of basic mathematical concepts fundamental to planning methods; linear and nonlinear functions focusing on growth curves and mathematics of finance; data measurement and display; descriptive statistics and probability. Introduction to use of computer as tool in analysis of planning-related data. Letter grading.

220B. Quantitative Analysis in Urban Planning II. (4) Lecture, three hours; laboratory, 90 minutes. Requisite: course 220A or equivalent as demonstrated by passing score on mathematics proficiency examination given first day of course 220A. Introduction to concepts of statistical inference and modeling, with emphasis on urban planning applications. Topics include sampling, hypothesis testing, analysis of variance, correlation, and simple and multiple regression. Use of computer as tool in statistical analysis and modeling. Letter grading.

222A. Introduction to Planning History and Theory. (4) Lecture, three hours. Required of first-year MA students, typically in Fall Quarter; required of first-year PhD students who have not completed comparable graduate course in planning history and theory. Exploration of planning thought and practice over time, leading authors and key issues in field of planning, traditional and insurgent histories of planning, and alternative approaches to planning for multiple and pluralistic publics. Letter grading.

222B-222C. Advanced Planning Theory and History I, II. (4-4) Lecture, three hours. Required of first-year PhD students. Major ideas and theories of planning that have influenced its development from early-19th century to present. Letter grading.

228. Visual Communication Skills. (2) Five-week course. Lecture, two hours; laboratory, one hour. Greater emphasis on graphic presentation and visual communication to educate stakeholders, advocate for change, and encourage participation in planning process in recent years, in both public and private sector. Visual communication requires analytic skills and strategic thinking, strong foundation in design theory, and technical skills in computer programs. Introduction to Adobe InDesign and Illustrator and foundation in design theory and communication. How to use graphic design and presentation programs (i.e., Adobe InDesign, Adobe Illustrator, GIS, PowerPoint) to create attractive and powerful planning materials and reports, design principles to communicate ideas in clear, succinct, and engaging manner, and when and how to use graphic materials to support verbal presentations or written reports. Letter grading.

229. Special Topics in Planning Methods. (4) Lecture, three hours. Topics in planning methodology selected by faculty members. May be repeated for credit. S/U or letter grading.

M230. Introduction to Regional Planning. (4) (Same as Public Policy M241.) Lecture, three hours. Critical and historical survey of evolution of regional planning theory and practice, with particular emphasis on relations between regional planning and developments within Western social and political philosophy. Major concepts include regions and regionalism, territorial community, and social production of space. Letter grading.

232. Disaster Management and Response. (4) Lecture, three hours. Through readings and presentations, examination of disaster management and response in both U.S. and developing countries. Exploration of how disaster impacts and risk reduction both relate to economic, vulnerability, and political factors, in addition to acts of nature. Structured to allow students to focus on distinct disaster contexts and themes as set out in reading and weekly sessions. Letter grading.

C233. Political Economy of Urbanization. (4) Lecture, three hours. Introduction to new approaches to urban studies, basic concepts and analytical approaches of urban political economy, with major emphasis on American urban problems and restructuring of modern metropolis. Topics include historical geography of urbanization, development and transformation of urban spatial structure, suburbanization and metropolitan political fragmentation, urban fiscal crisis, and role of urban social movements. Concurrently scheduled with course C133. S/U or letter grading.

M234A. Development Theory. (4) (Same as Geography M229A.) Lecture, three hours. Review of basic literature and schools of thought on development theory through analysis of impact of mercantilism, colonialism, capitalism, and socialism on various urban and rural social and economic structures in Third World. Presentation, through evaluation of theoretical writings and case studies, of complexity and diversity of developing countries. Emphasis on linkages between policy and rural and urban impacts. Gives students important background for courses M234B, M234C, and many other planning courses addressing Third World issues. Letter grading.

M234B. Ecological Issues in Planning. (4) (Same as Geography M229B.) Lecture, three hours. Recommended preparation: course M265. Science and politics of modern environmentalism and planning in light of transformations inherent in global change, including how to address these questions in ways that go beyond green consumerism and bifurcation of wild, ecological, and human environments. American environmentalism has become dominant model for many conservation practices. Informed by Muirist model of idea of untrammeled nature with people-less set-asides for spiritual and scientific contemplation of nature; this approach used in environmental policy and as key idea in conservation and fragment biology. At opposite end is environmental planning devoted to infrastructure in hyper-human habitats (cities). Exploration of these competing models and many reasons to be skeptical of both in 21st century. Letter grading.

M234C. Resource-Based Development. (4) (Same as Geography M229C.) Lecture, three hours. Recommended preparation: course M234A. Some major issues associated with development of specific natural resources. Topics include nature of particular resource (or region associated with it), its previous management, involvement of state, corporations, and local groups, and environmental and social impact of its development. Letter grading.

235A. Urbanization in Developing World. (4) Lecture, three hours. Course 235A is not requisite to 235B. Questions of urbanization and planning in low- and middle-income countries. Case studies from Latin America, Africa, and Asia. Lectures, student presentations, and policy debates. Letter grading.

235B. Civil Society, Nongovernmental Organizations, and Social Movements in Developing World. (4) Lecture, three hours. Questions of civil society, nongovernmental organizations (NGOs), and social movements in low- and middle-income countries.

Case studies from Latin America, Africa, and Asia. Lectures, student presentations, and policy debates. Letter grading.

M236A. Theories of Regional Economic Development I. (4) (Same as Geography M236A and Public Policy M240.) Lecture, three hours; discussion, one hour. Introduction to theories of location of economic activity, trade, and other forms of contact between regions, process of regional growth and decline, reasons for different levels of economic development, relations between more and less developed regions. Letter grading.

M236B. Globalization and Regional Development. (4) (Same as Geography M236B.) Lecture, three hours. Requisite: course M236A. Application of theories of regional economic development, location, and trade learned in course M236A to contemporary process known as globalization. Examination of nature and effects of globalization on development, employment, and social structure, along with implications for policy. Letter grading.

236C. Advanced Workshop on Regions in World Economy. (4) Lecture, three hours. Requisite: course M236B. Advanced workshop on regional development examining changes in organization of production systems, their geographies, and processes that affect regional performance in globalized environment. Letter grading.

237A. Sectoral Analysis. (4) Lecture, three hours; laboratory, one hour. Introduction to methods and procedures of sectoral investigation as applied to regions, industries, companies, and their labor forces. Current theories and conceptions of industrial structure and industrial change. Investigation of characteristics and trends of industry subsectors in Los Angeles resulting in industry profile that can serve as aid to planning and shaping economic development. Letter grading.

237B. Urban and Regional Economic Development Applications. (4) Lecture, three hours. Survey and analysis of economic development strategies in U.S. Because economic development strategies seek to modify or shape existing conditions, focus on how policies attempt to harness dynamics associated with new forms of industrialization, intensified global competition, and interrelationships among capital, labor, and state. Letter grading.

C237C. Southern California Regional Economy. (4) Lecture, three hours. Introduction to regional economy, with emphasis on Los Angeles. Key economic sectors, labor market composition, and review of conflicting portrayals depicting dynamics of region. Two all-day bus tours of key economic regions and guest lectures by regional experts included. Concurrently scheduled with course CM137. Letter grading.

238. Global Labor Markets. (4) Lecture, three hours. Consideration of labor-related programs, policy, and strategy in international and comparative context. Review of major approaches to improving quality, quantity, and access to jobs, including training, regulation, migration policy, organizing strategies, and social safety net. Global in scope, with particular reference to countries of global south. Letter grading.

239. Special Topics in Regional and International Development. (4) Seminar, three hours. Topics in urban and regional development selected by faculty members. May be repeated for credit. S/U or letter grading.

M240. Local Government. (2 to 6) (Same as Law M285.) Lecture, three hours. Analysis of structure and function of local, regional, and state government in historical and institutional context: organization, finance, intergovernmental relations, role of judiciary, public services, lawmaking, citizen participation through initiatives and referenda, and government tort liability. Letter grading.

M241. Foundations of Social Welfare Policy. (4) (Same as Public Policy M260 and Social Welfare M221A.) Lecture, two hours; discussion, one hour. Nature, roles, and history of welfare institutions in different societies; applicable social system theory of

different components of welfare system; theory and research about welfare policies and organizational forms. S/U or letter grading.

242. Poverty and Inequality. (4) Lecture, three hours. Examination of relationship between urbanization and spatial inequality in U.S.—spatial dynamics of urban growth, levels and causes of spatial inequality, and implications of spatial inequality for low-income communities. Topics include concentrated poverty, residential segregation, immigrant neighborhoods, spatial disparities in access to opportunities, housing mobility, neighborhood health and safety, urban infrastructure, and political cohesion and participation. Analysis of role of policies in promoting and/or reducing spatial inequities. Letter grading.

M243. Privatization, Regulation, and Public Finance. (4) (Same as Public Policy M293.) Lecture, three hours; outside study, nine hours. Requisite: Public Policy 201. Evaluation of economic and political determinants of trend toward privatizing public services, and equity and efficiency outcomes of this trend as expressed through new pricing, financing, and service-level policies. Exploration of new regulatory role this trend implies for state and local governments. Letter grading.

244. Urban Poverty and Planning. (4) Lecture, three hours. Examination of determinants of urban poverty, with emphasis on poverty in U.S. and on geographical dimensions of poverty and planning interventions that contribute to poverty reduction. Topics include relationship between poverty and human and social capital, demographic change, low-wage labor market, spatial concentration of poor, residential segregation, and social policy. Letter grading.

245. Urban Public Finance. (4) Lecture, three hours. Requisites: courses 207, 220A. Theory and practice of urban public finance, with emphasis on methods used to fund public infrastructure. Topics include fiscal impact analysis of real estate development, effects of taxes on land-use decisions, benefit assessments to finance neighborhood public investment, private and intergovernmental contracting as method of supplying urban public services, tax increment finance for urban redevelopment, and municipal bond market. S/U or letter grading.

M246. Poverty, Poor, and Welfare Reform. (4) (Same as Public Policy M214 and Social Welfare M290L.) Lecture, three hours. Major policy and research issues concerning poverty and social welfare policy directed toward poor in U.S. S/U or letter grading.

247. Planning for Multiple Publics. (4) Lecture, three hours. Exploration of planning needs of various social groups in urban settings, using existing literature and research studies to determine appropriate mechanisms of planning for multiple publics. Analysis of communities in Los Angeles metropolitan area to gain insights into practical, theoretical, and methodological problems of planning for multiple publics. Generally taken in first year. S/U or letter grading.

M248. Law and Poor. (4) (Same as Public Policy M295 and Social Welfare M290R.) Lecture, three hours. Designed for graduate students. Study of major income-maintenance programs in U.S., with emphasis on interaction of moral attitudes toward poor and structure and implementation of law, policy, and administration. Current reform consensus and major reforms. Letter grading.

249. Special Topics in Transportation Policy and Planning. (4) Lecture, three hours. Topics in transportation policy and planning selected by faculty members. May be repeated for credit. S/U or letter grading.

M250. Transportation, Land Use, and Urban Form. (4) (Same as Public Policy M220.) Lecture, three hours. Historical evolution of urban form and transportation systems, intrametropolitan location theory, recent trends in urban form, spatial mismatch hypothesis, jobs/housing balance, transportation in strong central city and polycentric city, neotraditional town planning debate, rail transit and urban form. Letter grading.

251. Transportation and Land Use: Parking. (4) Lecture, three hours. Parking is key link between transportation and land use, but that link has been widely misunderstood. Transportation engineers typically assume that free parking simply is there at end of most trips, while urban planners treat parking as transportation issues that engineers must study. No profession is intellectually responsible for parking, and everyone seems to assume that someone else is doing hard thinking. Mistakes in planning for parking help to explain why planning for transportation and land use has in many ways gone slowly, subtly, incrementally wrong. Study of theory and practice of planning for parking and examination of how planning for parking in U.S. has become planning for free parking. Exploration of new ways to improve planning for parking, transportation, and land use. Letter grading.

252. Transportation and Land Use: Transportation and Urban Design Studio. (4) Studio, three hours. Students of different backgrounds and interests collaboratively and individually analyze and propose solutions for actual transportation planning and urban design problem. Course simulates real-world professional planning project of type that students might be assigned if working for consulting firms or public agencies. Students acquire ability to collect and synthesize evidence typically marshaled by transportation planning and urban design professionals, urban and site analysis capabilities, design and physical planning skills, and data analysis and design presentation and re-presentation abilities. Letter grading.

M253. Travel Behavior Analysis. (4) (Same as Public Policy M221.) Lecture, three hours. Requisites: courses 207 and 220B, or Public Policy 201 and 203. Descriptions of travel patterns in metropolitan areas, recent trends and projections into future, overview of travel forecasting methods, trip generation, trip distribution, mode split traffic assignment, critique of traditional travel forecasting methods and new approaches to travel behavior analysis. Letter grading.

254. Bicycle and Pedestrian Planning. (4) Lecture, three hours. Walking and bicycling are essential components of sustainable transportation systems. In response to growing concerns about access, safety, public health, equity, climate change, and community sustainability issues, many government agencies and private developers are planning to improve pedestrian and bicycle transportation. Exploration of field's relationship to land use and transportation planning, public health, and environment. Detailed knowledge provided of various bicycle and pedestrian facilities and their appropriate contexts. Examination of bicycle and pedestrian planning in context of overall street design. Essential components of bicycle and pedestrian planning, including policies, programs, funding, and advocacy. In-class exercises and out-of-class planning projects. Letter grading.

M255. Transportation Policy and Planning. (4) (Same as Public Policy M244.) Lecture, three hours. Introduction to analysis, management, and operation of transportation systems. Topics include evaluating transportation system performance, causes and management of traffic congestion, transportation systems and demand management, complete streets, goods movement, shipping, aviation, and high-speed rail policy and planning, public transportation planning, transportation services for elderly and disabled, and intelligent transportation systems. Letter grading.

M256. Transportation Economics, Finance, and Policy. (4) (Same as Public Policy M222.) Lecture, three hours. Overview of transportation finance and economics; concepts of efficiency and equity in transportation finance; historical evolution of highway and transit finance; current issues in highway finance; private participation in road finance, toll roads, road costs and cost allocation, truck charges, congestion pricing; current issues in transit finance; transit fare and subsidy policies, contracting and privatization of transit services. Letter grading.

257. Transportation and Economic Outcomes. (4) Lecture, three hours. Examination of equity issues related to urban transportation, with focus on complex relationships among urban spatial structure, transportation (travel patterns and transportation invest-

ments), and economic outcomes. Role of transportation in improving economic outcomes for low-income and minority households and communities. Letter grading.

M258. Transportation and Environmental Issues. (4) (Same as Public Policy M223.) Lecture, three hours. Regulatory structure linking transportation, air quality, and energy issues, chemistry of air pollution, overview of transportation-related approaches to air quality enhancement; new car tailpipe standards; vehicle inspection and maintenance issues; transportation demand management and transportation control measures; alternative fuels and electric vehicles; corporate average fuel economy and global warming issues; growth of automobile worldwide fleet; automobile in sustainability debate. Letter grading.

260. Environmental Politics and Governance. (4) Lecture, three hours. Environmental planning is more than simply finding problems and fixing them. Each policy must be negotiated and implemented within multiple, complex systems of governance. Institutions and politics matter deeply. Overview of how environmental governance works in practice and how it might be improved. Letter grading.

261. Land-Use Planning: Processes, Critiques, and Innovations. (4) Lecture, three hours. Understanding of techniques, processes, strategies, and dilemmas of land-use planning. Despite strong criticisms and demonstrated shortcomings, land-use control remains integral part of planning practice. How does land-use control work? How has it evolved? What are problems with traditional land-use control mechanisms? How well do innovations in land-use planning address criticisms? What is role of land-use planning in good society? S/U or letter grading.

262. Urban Environmental Problems: Water Resources. (4) Lecture, three hours. Water access affects quality of life and livelihoods both in California and across low and middle income countries. Examination of similarities and distinctions between relevant water access issues in both contexts. To date, water resources planning has been devoted almost exclusively to engineering and technical capacity of service delivery systems. Focus here on social, political, and economic drivers of access, inequality of access, and related conflicts. Water resource governance issues primarily considered at subnational, city, and household scales. S/U or letter grading.

M263. Introduction to Environmental Policy. (4) (Same as Public Policy M252.) Lecture, three hours. Introduction to basic concepts and methods of environmental analysis covering variety of topics with cross-disciplinary perspectives. Development of ability to analyze major environmental and resource issues as well as to read, discuss, and write critically about environmental policy. Letter grading.

264. Environmental Law. (4 or 6) Lecture, three or four hours. Examination of field of environmental law through analysis of various legal issues and public policy: legal consequences of public decision-making strategies and allocation of primary responsibility for various environmental decisions. Focus on air pollution and Clean Air Act as means of illustrating policy issues underlying field. Concurrently scheduled with Law 290. S/U or letter grading.

264A-264B. Environmental Law. (264A: 3 or 4/264B: 1 or 2) (Formerly numbered M264A.) Lecture, three hours. Course 264A is enforced requisite to 264B. Examination of field of environmental law through analysis of various legal issues and public policy: legal consequences of public decision-making strategies and allocation of primary responsibility for various environmental decisions. Focus on air pollution and Clean Air Act as means of illustrating policy issues underlying field. Concurrently scheduled with Law 290. In Progress (264A) and S/U or letter (264B) grading.

M265. Environmentalisms. (4) (Same as Geography M265.) Lecture, three hours; discussion, one hour. Review of environmental theories and their practices in dynamic U.S. and international contexts. Issues of climate change, scenario planning, and matrix ecology and its implications in both urban and rural

settings. Exploration of problematics of increasing internationalization (or international implications) of environmental practices as part of both green and black economies. What does integrated environmental planning look like in this century? Letter grading.

C266. Global Environment and Development: Problems and Issues. (4) Lecture, three hours; discussion, one hour. Questions of population, resource use, Third World poverty, and environment. Analysis of global economic restructuring and its connections to changing organization of production and resulting environmental impacts. Case studies from Africa, Latin America, Asia, and U.S. Concurrently scheduled with course CM166. S/U or letter grading.

M267. Environmental and Resource Economics and Policy. (4) (Same as Public Policy CM250.) Lecture, three hours. Requisites: courses 207 and 220B, or Public Policy 204 and 208. Survey of ways economics is used to define, analyze, and resolve problems of environmental management. Overview of analytical questions addressed by environmental economists that bear on public policies. Letter grading.

M268. Policy Analysis of Emerging Environmental Technologies. (4) (Same as Public Policy M286.) Lecture, three hours. Acquisition and utilization of economic, finance, planning, and policy analytic tools needed to evaluate factors that drive market adoption from early to middle market phases. Rooftop solar, electric vehicle, and energy efficiency as focal examples, with emphasis on role of policy and planning incentives intended to spur adoption. Letter grading.

269. Special Topics in Environmental Analysis and Policy. (4) Lecture, three hours. Topics in environmental analysis and policy selected by faculty members. May be repeated for credit. S/U or letter grading.

M270. Homelessness: Housing and Social Service Issues. (4) (Same as Social Welfare M206A.) Lecture, 90 minutes; discussion, 90 minutes; one field trip. Review of current status of homelessness: who homeless are, what social services and housing are available, existing and proposed programs—appropriate architecture, management, and sources of funding. Outside speakers include providers of services to homeless. Letter grading.

271. Community Economic Development. (4) Lecture, three hours. Introduction to fundamentals of community economic development and neighborhood development strategies. Overview of basic approaches, important concepts, resources and language of field, and major strategies for revitalization of low-income neighborhoods. Letter grading.

M272. Real Estate Development and Finance. (4) (Same as Architecture and Urban Design M272.) Lecture, two hours; workshop, two hours; outside study, eight hours. Requisites: courses 220A, 220B. Recommended for first-year students in community development and built environment area of concentration. Introduction to real estate development process specifically geared to students in planning, architecture, and urban design. Financial decision model, market studies, designs, loan packages, development plan, and feasibility studies. Lectures and projects integrate development process with proposed design solutions that are interactively modified to meet economic feasibility tests. S/U or letter grading.

273. Site Planning. (4) Lecture, 90 minutes; laboratory, 90 minutes. Requisite: course 274. Introduction to principles of site planning for urban areas. S/U or letter grading.

274. Introduction to Physical Planning. (4) Lecture/workshop, 90 minutes; discussion, 90 minutes. Designed for students with no prior physical planning background and for first-year MA students in community development and built environment, design and development, and transportation policy and planning concentrations. Introductory overview of physical planning, land use, site analysis, and surveys; regulatory structures and social/community impacts. Letter grading.

M275. Community Development and Housing Policies: Roles of State, Civil Society, and Nonprofits. (4) (Same as Public Policy M243 and Social Welfare M290U.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Examination of role of U.S. housing policy and role of government agencies and community organizations. Is problem housing or economic development? Should interventions be directed toward inner city housing markets or through neighborhood strategies? What lessons can be learned from experiences of other countries? Letter grading.

M276A-276B. Urban Housing. (1 to 8 each) (Same as Law M287.) Lecture, three hours. Course M276A is enforced requisite to 276B. Examination of past 40 years of federal and state programs to stem urban decline and improve housing in U.S.; comparison and contrast of legal and policy initiatives in areas of public housing, housing segregation, mortgage subsidies, landlord/tenant law, urban renewal, and community organizing. Research paper required. In Progress (M276A) and S/U or letter (276B) grading.

277. Historic Preservation: Principles and Practices. (4) Lecture, 90 minutes; discussion, 90 minutes. Overview of preservation field, including history and theory, current legislation, tax incentives, preservation planning, landmark and district surveys and designations, adaptive reuse, citizen involvement, and social issues. S/U or letter grading.

278. More Jobs, Better Jobs: Work and Policy. (4) Lecture, three hours. Central issues in urban economic development is jobs—how to create them, how to help disadvantaged populations get access to them, and how to ensure that they are of adequate quality in terms of wages, advancement, and skill development. Examination of how urban labor markets work and what can be done to help them work better, with focus on U.S. Particular emphasis on low-wage, low-skill workers and marginalized groups, such as inner-city people of color and immigrants. Analyses of how urban labor markets work with discussions of policy options for making them work better and range of solutions, including job creation, workforce training, job ladder creation, union and community organizing, and immigration reform. Examination of power and economic inequality and how to make changes. Letter grading.

279. Seminar: Public Space. (4) Seminar, three hours. Investigation of changes in production, consumption, design, and meaning of public space and analysis of socioeconomic, political, and cultural factors that lie behind them. Letter grading.

280. Affordable Housing Development. (4) Lecture, three hours. Requisites: courses 220A, 220B. Overview of basic concepts and skills utilized in nonprofit development initiatives, especially by community-based organizations. Focus on nonprofit provision of subsidized housing, emphasizing way professionals broker debt and equity funding from private, governmental, and philanthropic sources. Use of client projects and negotiation exercises. S/U or letter grading.

281. Introduction to History of Built Environment in U.S. (4) Lecture, two hours; discussion, one hour. Open to advanced undergraduates with consent of instructor. Introduction to history of physical forms of urbanization in America; survey of economic, political, social, and aesthetic forces behind creation of built environments. S/U or letter grading.

282. Urban Design: Theories, Paradigms, Applications. (4) Lecture, three hours. Discussion and evaluation of philosophical bases, ideologies, and paradigms of urban design in last century; examination of how these are reflected on built environment of cities. Letter grading.

283. Community Research and Organizing. (4) Lecture, three hours. Examination of theory and practice of organizing, analysis of role of community organizing as empowerment strategy in disadvantaged and marginalized communities, and relationship of community and worker organizing to broader movements for social change. Analysis of different research methods and strategies in terms of best supporting organizing and movement building, with focus on

community-based participatory research (CBPR). Understanding of theories, principles, and strategies of CBPR, appreciation of advantages and limitations of this approach, and skills necessary for participating effectively in CBPR projects. Analysis in depth of one organizing model and participation in ongoing research project that supports one local community or worker organization, exploring links between research and organizing campaign to which it is connected. Particular attention to race, gender, and class dimensions of CBPR and issues of power and decolonizing research. Letter grading.

C284. Looking at Los Angeles. (4) Lecture, three hours. Introduction to history and physical form of Los Angeles, with emphasis on understanding social, economic, and political issues in development of Los Angeles. Concurrently scheduled with course C184. Letter grading.

285. Women and Community Development: Great Gender Debates. (4) Lecture, 90 minutes; discussion, 90 minutes. Relationship between planning, community development, and women, with attention to interaction of gender, race, and class/ethnicity. Examples from domestic and international developments. Alternative theories and methods to close gaps between household needs and urban policies. Preparation of written and oral critical reviews of literature and research paper. Letter grading.

M286. Management Challenges and Tools for Non-profit Sector. (4) (Same as Public Policy M226 and Social Welfare M290V.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Fundamental building blocks for successful management in nonprofit sector. Students develop management skills in strategic thinking/problem solving, project management, team building, and negotiation. Use of case studies to troubleshoot critical challenges, from finance to crisis management to marketing, that nonprofit managers typically face. Letter grading.

M287. Politics, Power, and Philanthropy. (4) (Same as Public Policy M227 and Social Welfare M290S.) Lecture, three hours; outside study, nine hours. Use of political economy perspective to analyze forces that have shaped rise and characteristics of nonprofit sector and its constituent elements. Examination of social history of nonprofit sector in U.S. Exploration of legal and policy environments and distinct organizational forms. Comparative perspective between U.S. and other countries. S/U or letter grading.

M288. Leadership, Development, and Governance of Nonprofit Organizations. (4) (Same as Public Policy M228 and Social Welfare M241E.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Various patterns of community action for attaining social welfare objectives; research and field experience directed toward study of social problems within context of community planning; emerging patterns of physical, economic, and social planning within framework of social change theory. Letter grading.

289. Sprawl and Smart Growth. (4) Lecture, three hours. Suburbs are not new, but metropolitan areas in U.S. and elsewhere continue to grow rapidly at their edges in ways that many consider poorly planned. Discussion of causes and impacts of sprawl as it relates to smart growth. Letter grading.

M290. Strategic Planning for Public and Nonprofit Organizations. (4) (Same as Public Policy M247 and Social Welfare M241F.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Technical processes of problem solving regarding substantive social welfare problems at community level. This form of community practice fills niche between professional and knowledge and skill set possessed by agency and program administrators on one hand and by policy analysts and policymakers on other. Letter grading.

M291. Introduction to Sustainable Architecture and Community Planning. (4) (Same as Architecture and Urban Design CM247A.) Lecture, three hours. Relationship of built environment to natural environment through whole systems approach, with

focus on sustainable design of buildings and planning of communities. Emphasis on energy efficiency, renewable energy, and appropriate use of resources, including materials, water, and land. Letter grading.

M292. Elements of Urban Design. (4) (Same as Architecture and Urban Design M271.) Lecture, three hours. Introduction of basic knowledge of elements and methods of urban design. Multidisciplinary approach leading to understanding of political, socioeconomic, and technological framework of urban systems and its dynamic interrelations. S/U or letter grading.

M293. Politics, Ideology, and Design. (4) (Same as Architecture and Urban Design M293.) Lecture, three hours. Exploration of cultural and political context of architecture and planning work. Examination of theory and practice from variety of perspectives applied to set of varied physical environments and to set of current spatialized concepts. Consideration of theoretical propositions that are shaping present urban and architectural debate and concrete case studies where politics and ideology shape design process. Letter grading.

294. Housing in Developing Countries: Policy Objectives and Options. (4) Lecture, three hours. Examination of relevance of public policies and their intended and unintended effects on housing demand and supply in developing countries. How definition of housing problems, and scope of solutions, has changed over time. Critical assessment of some key solutions that have been tried in past, their advantages, shortcomings, and resultant trade-offs, and likely directions for future housing policy. Letter grading.

M295. Introduction to Urban Humanities. (4) (Same as Architecture and Urban Design M295.) Seminar, six hours; studio, six hours. Core introduction to urban humanities. Analytical and descriptive methods of humanities paired with speculative and projective methods of architectural and urban design to better understand contemporary state of human environment. Focus on Los Angeles, with concepts seminar, methods laboratory, projects studio, and site visit components. Offered in summer only. S/U or letter grading.

297. Current Issues in Urban Planning. (2 to 4) Seminar, three hours. Current issues in urban planning selected by students in conjunction with faculty members. May be repeated for credit. S/U grading.

298. Special Topics in Emerging Planning Issues. (2 or 4) Seminar, three hours. Topics in newly emerging planning issues such as role of cutting-edge technology, innovative policies, and experimental programs. May be repeated for credit. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

M404. Joint Planning/Architecture Studio. (4) (Same as Architecture and Urban Design M404.) Lecture, one hour; discussion, one hour; studio, four hours. Opportunity to work on joint planning/architecture project for client. Outside speakers; field trips. Examples of past projects include Third Street Housing, Santa Monica; New American House for nontraditional households; Pico-Aliso Housing, Boyle Heights; working with resident leaders at Los Angeles City public housing developments. S/U or letter grading.

M470. Improving Worker Health: Social Movements, Policy Debates, and Public Health. (4) (Same as Community Health Sciences CM470 and Environmental Health Sciences M471.) Lecture, three hours; fieldwork, two hours. Examination of intersection between work, health, and environment, analysis of social causes of health disparities, investigation of historical trends and social movements, interpretation of current policy debates, and development of innovative interventions. S/U or letter grading.

496. Field Projects. (4) Tutorial, four hours. May not be repeated for credit. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. MA Research in Planning. (4) Tutorial, three hours. May be repeated once for credit. S/U grading.

597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations. (4 to 12) Tutorial, four hours. May be repeated for credit by PhD students. S/U grading.

598. Preparation for MA Thesis in Urban Planning. (4) Tutorial, four hours. May be repeated but may be applied toward degree only once. S/U grading.

599. PhD Dissertation Research in Planning. (2 to 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

UROLOGY

David Geffen School of Medicine

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Chair

Mark S. Litwin, MD, MPH, FACS (Fran and Ray Stark Foundation Professor of Urology), Chair

Scope and Objectives

The fundamental goal of the Department of Urology is to teach medical students the general principles of diagnosis and management in diseases of the genitourinary tract. Urology encompasses a wide scope of human illness, including conditions that are congenital and acquired, pediatric and adult, male and female, malignant and benign. The department functions to acquaint students with the skills necessary to manage these conditions in the initial stages and over the long term.

Instruction spans all four years of the undergraduate medical school curriculum but is concentrated during the clinical rotations. Students spend two weeks on the urology service during the third year and may return for an additional three-week elective rotation during the fourth year. The clinical experience includes time spent in the faculty and resident clinics, on ward rounds, and in didactic conferences that cover general urology, urological subspecialties, uropathology, and uroradiology. Urology teaching settings include the Reagan UCLA, Harbor-UCLA, Olive View-UCLA, Santa Monica-UCLA, and West Los Angeles VA Medical Centers.

For further details on the Department of Urology and a listing of the courses offered, see <http://urology.ucla.edu>.

Urology

Upper Division Course

199. Directed Research in Urology. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

VISUAL AND PERFORMING ARTS EDUCATION

Interdisciplinary Minor

School of the Arts and Architecture

UCLA
2101 Broad Art Center
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Angelia S.-Y. Leung, MA, CMA, Chair

Faculty Committee

Judith F. Baca, MA (*Chicana and Chicano Studies, World Arts and Cultures/Dance*)
Lily Chen-Haftek, PhD (*Music*)
David H. Gere, PhD (*World Arts and Cultures/Dance*)
Angelia S.-Y. Leung, MA, CMA (*World Arts and Cultures/Dance*)
Victoria E. Marks, BA (*World Arts and Cultures/Dance*)
Rebeca Mendez, MFA (*Design/Media Arts*)
Hirsch Perlman, BA (*Art*)
Karen H. Quartz, PhD (*Education*)

Scope and Objectives

The Visual and Performing Arts Education minor is an interdisciplinary and interdepartmental series of courses designed to (1) introduce students to the field of arts education for multiple publics in general and specifically in relationship to the K-12 public school system, (2) introduce students to the profession of the teaching artist and to a broad range of careers in the arts, including K-12 teaching, community arts education, museum education, creative arts therapies, and arts advocacy and to a variety of arts-related programs and cultural agencies, including community arts centers, museums, after-school programs, and non-profit arts institutions, (3) expand the ongoing dialogue and interaction between the University, extended Los Angeles community, K-12 public school system, and students in the arts, and (4) extend the School of the Arts and Architecture's commitment to University and community partnerships by linking teaching and research with undergraduate education, civic engagement, and support for institutional priorities to improve the quality of life for Los Angeles residents.

Undergraduate Study

Visual and Performing Arts Education Minor

The Visual and Performing Arts Education minor is intended to supplement the education of undergraduate students enrolled in the Architectural Studies, Art, Art History, Dance, Design | Media Arts, Ethnomusicology, Music, Theater, and World Arts and Cultures majors.

To apply to the minor, students must have completed at least 50 percent of the lower division requirements of their specific majors and Arts Education M102 with a grade of B or better, be in good academic standing with an overall grade-point average of at least 2.7, and submit a minor application and a statement of interest, including any previous teaching and/or outreach experience.

Required Upper Division Courses (29 to 32 units): (1) Arts Education M102, (2) two courses selected from Art M186A/M186AL, Arts Education 101, 103, 105, Dance C145 (with consent of adviser), 166, 167, Disability Studies 101W, Ethnomusicology 196, Music 100A, Theater 118A, 118D, World Arts and Cultures 103, 120 (with consent of adviser), C155, a 4-unit 195 course (with consent of adviser) from Arts Education, the Department of Art, Design | Media Arts, Ethnomusicology, Music, World Arts and Cultures/Dance, or the Center for Community Learning, (3) two courses selected from Education M108, 118, 120, 121, 122, 123, C125, C126, 127, 128, 129, 130, 131, 132, 133, 138, M186 (courses 120, 121, 127, and 130 are recommended), and (4) a two-course capstone sequence (Arts Education M192, M192SL) that includes a guided teaching experience.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements or another minor.

Each minor course must be taken for a letter grade. Successful completion of the minor is indicated on the transcript and diploma.

Arts Education

Lower Division Course

20. Introduction to Community Engagement through Arts. (5) Lecture, three hours; discussion, one hour; outside study, 11 hours. Introduction to fields of community engagement and arts education informed by philosophies of progressive education and social justice movements. By looking at community engagement as issue of equity and social justice, examination of basic theories of creativity, artistic development, and community partnership, and history, philosophies, politics, and sociocultural trends of community engagement in American society. Attendance at UCLA arts presentations and introduction to creative process. Readings and discussions to understand community engagement and arts education as crucial elements of comprehensive education, with emphasis on writing process, including regular writing assignments that require students to read, analyze, critique, and evaluate community arts practices and arts education scholarship. P/NP or letter grading.

Upper Division Courses

101. Selected Topics in Arts Education. (4) (Formerly numbered Arts and Architecture 101.) Lecture, three hours; outside study, nine hours. Selected topics in arts education explored through variety of approaches that may include community projects, guided teaching experiences, studio and/or fieldwork, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for maximum of 8 units. P/NP or letter grading.

M102. Introduction to Arts Education for Multiple Publics: Theory and Practice. (4) (Formerly numbered Arts and Architecture M102.) (Same as Education M104.) Seminar, three hours; outside study, nine hours. Introductory course with focus on arts education for multiple publics in inner-city settings. Study of core issues in arts education, creativity, and social justice as students develop, implement, and assess original syllabi, lesson plans, and community learning projects for multiple publics in inner-city schools and arts organizations. Collaboration with partner schools in planning, teaching, and evaluation of arts education programs in dance, music, theater, and visual arts. P/NP or letter grading.

103. Socially Engaged Pedagogy in Arts. (4) Lecture, three hours; outside study, nine hours. Students are in contact and conversation with active community-based artists and youth workers regularly utilizing socially engaged goals, principles, and practices. Based on readings and investigations, students research and write one case study on one particular arts site that is currently utilizing socially engaged pedagogies and art-making strategies. Theoretical and experiential components provided for students from all arts disciplines to explore tactics and strategy of socially engaged pedagogy and arts practice through variety of approaches that may include readings, visual and audio documentation, discussion, research papers, oral presentations, and relevant guest speakers. P/NP or letter grading.

105. Arts Programs in Correctional Institutions: History, Theory, and Practice. (4) Lecture, three hours; outside study, nine hours. Examination of attitudes of prison arts programming with correctional staff, artists working in prisons, political figures, and community while critically engaging with consequences of correctional environment without outside influence of arts as role model for inspiration and discipline. Selected topics and themes in arts education in correctional institutions explored through variety of approaches that may include readings, visual and audio documentation, discussion, research papers, oral presentations, and relevant guest speakers. P/NP or letter grading.

M192. Arts Education Undergraduate Practicum: Preparation, Observation, and Practice. (4) (Formerly numbered Arts and Architecture M192.) (Same as Education M190.) Seminar, three hours. Enforced requisite: course M102. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students participating in Visual and Performing Arts Education minor. Students implement and evaluate original arts education programs under guidance of faculty members in small course settings. P/NP or letter grading.

M192SL. Arts Education Undergraduate Practicum and Capstone Project. (4) (Formerly numbered Arts and Architecture M192SL.) (Same as Education M190SL.) Seminar, three hours; practicum, three hours; outside study, six hours. Enforced requisites: courses M102, M192. Limited to juniors/seniors. Continuation of arts education training and supervised practicum for advanced undergraduate students participating in Visual and Performing Arts Education minor. Students continue to implement and evaluate original arts education programs under guidance of faculty members and designated guiding teachers in K-12 public school settings. May be repeated for credit with consent of instructor. P/NP or letter grading.

195. Community Internships in Arts Education. (2 to 4) (Formerly numbered Arts and Architecture 195.) Tutorial, one hour; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in supervised setting in K-12 schools or community arts organizations. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

197. Individual Studies in Arts Education. (2 to 4) (Formerly numbered Arts and Architecture 197.) Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors in Visual and Performing Arts Education minor and/or arts education teaching sequence. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. Letter grading.

WOMEN'S STUDIES

See Gender Studies

WORLD ARTS AND CULTURES/DANCE

School of the Arts and Architecture

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Lionel A. Popkin, MFA, *Chair*
David Delgado Shorter, PhD, *Graduate Vice Chair*
Victoria E. Marks, BA, *Undergraduate Vice Chair*

Professors

Judith F. Baca, MA
Susan L. Foster, PhD
Daniel Z. Froot, MFA
David H. Gere, PhD
Victoria E. Marks, BA
Peter Nabokov, PhD
Janet M. O'Shea, PhD
Lionel A. Popkin, MFA
Allen F. Roberts, PhD
Mary Nooter Roberts, PhD
David J. Roussève, BA
Peter M. Sellars, BA
David Delgado Shorter, PhD
Patricia A. Turner, PhD
Christopher A. Waterman, PhD
Cheng-Chieh Yu, MFA

Professors Emeriti

Judith B. Alter, EdD
Donald J. Cosentino, PhD
Irma Dosamantes-Beaudry, PhD
Elsie A. Dunin, MA
Pia S. Gilbert
Michael O. Jones, PhD
Judy M. Mitoma, MA
Colin H. Quigley, PhD
Marta E. Savigliano, PhD
Carol J. Scothorn, MA
Doris Siegel
Allegra Fuller Snyder, MA
Emma Lewis Thomas, PhD

Associate Professor

Angelia S.-Y. Leung, MA, CMA

Assistant Professors

Anurima Banerji, PhD
Aparna Sharma, PhD

Lecturers

Gracelyn W. Coad, MA
Robert W. Een, BA
Leigh R. Foaad
Meryl L. Friedman
Lakhayia F. Hicks
Ginger Holguin, BFA
Michel P. Kouakou
Jackie G. Lopez, BA
Patrick Polk, PhD
Wilfried G. Souly
Jason C. Tsou, MS
Natsuo Tomita
Shel Wagner-Rasch

Adjunct Professor

Lynn Dally, MFA

Adjunct Assistant Professors

Rennie Harris
Roslyn K. Warby

Scope and Objectives

Defined by a dynamic blend of theory and practice, the Department of World Arts and Cultures/Dance (WACD) is led by a renowned faculty of scholars, activists, curators, filmmakers, and choreographers dedicated to critical cross-cultural analysis and art-making. The department is the place to make dances, explore digital media, curate exhibitions, become an arts activist, and develop scholarly expertise in culture and the arts. Multiple disciplines and artistic approaches are used to encourage students to position their work within broad social contexts.

In the World Arts and Cultures BA arts activism, visual cultures, and critical ethnographies are emphasized. The Dance BA integrates composition, training, and improvisation, while challenging students to locate dance politically, culturally, and historically. The MFA in Dance promotes adventurous choreographic inquiry and engages with global discourses around the body and performance. The MA/PhD programs address theories of corporeality, performance, visuality, and culture, and offer interdisciplinary training that fosters independent research. The Art and Global Health Center enables undergraduate and graduate students to explore art as a life-saving activity.

The path-breaking programs of the department are committed to academic excellence, diversity, freedom of expression, activism, and social transformation through the arts.

The undergraduate program offers majors in Dance and in World Arts and Cultures.

The BA in Dance thoroughly integrates learning to dance, learning to make dances, and critical interrogation of dance as a cultural practice. Students study a variety of dance techniques from around the world throughout their studies. They enroll in a four-term sequence in dance composition, with additional opportunities to participate in the creation of their own dances, as well as working as dancers in the creation of new works by faculty members and

visiting artists. Further, they engage in a core of four courses in the study of scholarly discourse around the body and dance, launching a critical inquiry into their own study of bodily practices, internalization of the embodied experience, and how bodily ideas and embodied experiences are interpreted and communicated outwardly and interpersonally, both locally and globally.

The BA in World Arts and Cultures highlights culture and representation as key perspectives for understanding creativity in local and global arenas. Three areas of cross-cultural and interdisciplinary study are available: arts activism, critical ethnographies, and visual cultures. These areas define the department commitment to a range of practices, including ethnography, activism, visual and related expressive arts, documentary and short films, museum and curatorial studies, performance, and other creative perspectives and methods. Courses combine theory and practice and are grounded in culturally diverse artistic expressions.

All students are encouraged to complement the required set of core and elective departmental courses with others offered across campus, such as courses from ethnic and area studies programs, and may organize their course of study in relation to particular interests or professional goals (e.g., international comparative studies, intercultural studies, education, area specializations such as Africa, Asia, or Latin America, minority discourse, gender studies).

The graduate program offers Master of Arts and PhD degrees in Culture and Performance and a Master of Fine Arts in Dance, with an emphasis on choreography. Culture and performance students research communities, cultures, and transnational movements through heritage and globalization studies, multivocal ethnographies, dance and theories of corporeality and embodiment, visual and material culture, critical museum and curatorial studies, documentary practice and Internet interventions, as well as arts activism and interdisciplinary art-making. The MFA in Dance offers opportunities to engage multiple movement practices as students work on pioneering research in the form of new choreography. Students may focus on media, dance studies theory, and theories of the body as supplements to their work as choreographers. The Art and Global Health Center within the department presents further opportunity for learning and practice.

While operating with considerable independence, the two graduate degree areas are unified by the department's common concern for aesthetic production, corporeality and performance, the dynamics of tradition, and culture-building in contemporary societies. Connections are forged between critical theory and artistic practices, and attention is given to the changing social roles and responsibilities of artists, practitioners, and scholars of the arts in the U.S. and worldwide.

Undergraduates and graduates have excelled in fields including technology and the arts, videography, documentary work, public service,

education, theatrical/events production, performing arts, urban planning, law, environmental activism, public health, and medicine. They have made careers in community nonprofits and activist groups, government arts agencies, museums, and arts foundations. Potential careers for MA, PhD, and MFA graduates also include positions in research universities and colleges, and MFA graduates are active as choreographers/performers in their own companies or with other professional organizations.

Undergraduate Study

Dance BA

All students take a set of courses as preparation for the Dance major that focus on the integration of dance and critical analysis. For students who transfer into the major, depending on the year of entry and prior coursework, lower division preparatory coursework may be waived or substituted. When students enter the major, they continue their studies of dance technique, composition, and analysis, and they also enroll in a primary and secondary research area.

The three research areas are (1) creative inquiry as research, (2) critical dance studies, and (3) dance and civic engagement. The *creative inquiry as research* area is grounded in contemporary choreography with a focus on dance-making and performing in a wide range of genres from throughout the world. Opportunities are provided for students to present their own choreography, to participate in performances by others, and to study performance production and videography. The *critical dance studies* area focuses on study of scholarship examining the body and dance, in their cultural and historical contexts. Courses in dance history, dance and culture, and dance as an identificatory practice are offered that enable students to analyze the rhetorical and ideological significance of dance. The *dance and civic engagement* area is grounded in the investigation and activist-oriented work of artists and the role of dance in the public sphere, and offers a wide range of courses in the nature of activism as well as opportunities for fieldwork, education internships, and other forms of community involvement.

Students select one area as their primary area and another as their secondary area. Elective options provide further deepening of student knowledge and skills in any or all of the areas. Students may also consider courses from programs outside the department and may organize their course of study in relation to their particular interests.

Students who wish to confer with the departmental student affairs officer regarding program planning and major requirements should contact the undergraduate counselor at 310-825-8537.

Admission

New students are admitted to the Dance major for fall quarter only. All applicants are reviewed individually, based on submission of a written research paper, transcripts, two letters of recommendation, and one personal essay. These

supplementary materials are requested from students in mid-December, after the general UC application is received and processed, and are due back in the department in January. For freshman applicants, college placement test scores are also considered. Students must participate in a late January/early February audition. Specifics about the audition are included in the e-mail requesting the above-mentioned supplementary materials.

Change of major applications are considered once a year. Current UCLA students who petition to change their major are required to meet with the student affairs officer prior to application, but no later than the eighth week of fall quarter in order to participate in the departmental supplemental application process during fall/winter quarters for admission into the program the following spring or fall quarter. They are required to take selected departmental courses before and during the term in which they apply to the program (consult the student affairs officer for a list of selected courses). They must have a minimum 2.0 overall grade-point average, a minimum 2.0 GPA in all departmental courses taken, and no more than 90 quarter units at the time of application. All students are required to audition in early winter quarter and may be interviewed as part of the application process.

Preparation for the Major

Required: Dance 1, 16, 44, 45, 67A, 67B, World Arts and Cultures 70.

The Major

The Dance major consists of 76 units of coursework.

Required: (1) Dance 101, 117A, 117B and (2) 10 units in the primary area and 5 units in the secondary area selected from the following: (a) *creative inquiry as research*—Dance 116, 117C, 118, 119, C122, 169, C171, World Arts and Cultures 170, 174A, 174B, C180, or other upper division courses with faculty approval, (b) *critical dance studies*—Dance C145, C152, M157, 158, 159, 160, 161, C171, 182, World Arts and Cultures C168, 199, or other upper division courses with faculty approval, (c) *dance and civic engagement*—Dance 165, 166, 167, C184, World Arts and Cultures 100A, 100B, 103, 114, 144, 160, 177SL, 195, or other upper division courses with faculty approval (no more than 8 units of courses 114 and/or 160 may be applied toward this area). Students also have the option to propose a senior honors project through World Arts and Cultures 186A and 186B.

Movement Arts/Dance Practices—Required: A total of 48 units of practice courses. A minimum of 8 units of the 48 must be at the upper division advanced level. A minimum of two technique courses per term until completion is strongly recommended. Twenty-four units must be selected from Dance 6, 13, 15, 56, 63, 65, C106A, C113A, C115, 116; 24 units may be selected from Dance 7, 8, 9, 10, 11, 12, 16, 57, 58, 59, 60, 61, 62, C109A, 110B, 111B, 112B, 116, 159, 160, World Arts and Cultures 5, 55, 78, 80, 114, 178. No more than 8 units of World Arts

and Cultures 78 or 178 may be applied toward this requirement.

Senior Honors Project

Students may participate in a senior honors project consisting of 10 additional units. The project provides students with opportunity to demonstrate mastery and integration of knowledge and learned abilities from the major. The project may take various forms—from choreographic performance projects or an academic research paper to field/internship work in an identified area of research focus. With faculty advising, students must declare their intent to participate by spring quarter of their junior year. They identify a faculty mentor and work closely with that person on the development of the project, submitting a senior project proposal for faculty approval by the beginning of the senior year. In their senior year they enroll in a two-term course sequence (World Arts and Cultures 186A, 186B) to coordinate and present their research findings.

World Arts and Cultures BA

Three areas of cross-cultural and interdisciplinary study are available in the World Arts and Cultures major: arts activism, critical ethnographies, and visual cultures. Students are introduced to all three areas through introductory courses the first year and then by a pyramidal progression, they develop intermediate knowledge in two areas followed by advanced knowledge in the area selected as the individual specialty. Four lower division and three upper division core courses are required to establish interdisciplinary relationships between theory and discourse, methods, and experience. Representation is studied within societies—as people understand their own lives and the world around them—and then from the outside looking in through humanistic scholarship.

The major emphasizes hands-on activities such as internships to build skills necessary to participate in the required senior projects. In consultation with faculty advisers students select elective courses within and outside the department to increase knowledge of particular area studies, histories, literatures, theories, and methods.

Students who wish to confer with the departmental student affairs officer regarding program planning and major requirements should contact the undergraduate counselor at 310-825-8537.

Admission

New students are admitted to the major for fall quarter only. All applicants are reviewed individually, based on submission of a written research paper, transcripts, two letters of recommendation, and one personal essay. These supplementary materials are requested from students in mid-December, after the general UC application is received and processed, and are due back in the department in January. For freshman applicants, college placement test scores are also considered.

Change of major applications are considered once a year. Current UCLA students who peti-

tion to change their major are required to meet with the student affairs officer prior to application, but no later than the eighth week of fall quarter in order to participate in the departmental supplemental application process during fall/winter quarters for admission into the program the following spring or fall quarter. They are required to take selected departmental courses before and during the term in which they apply to the program (consult the student affairs officer for a list of selected courses). They must have a minimum 2.0 overall grade-point average, a minimum 2.0 GPA in all departmental courses taken, and no more than 90 quarter units at the time of application. Students may be interviewed as part of the application process.

Preparation for the Major

Required: World Arts and Cultures 1, 20, 24, 33, and one 5-unit elective selected from course 2, 22, M23, or 51W.

The Major

The World Arts and Cultures major consists of 45 units of coursework.

Required: (1) World Arts and Cultures 100A or 100B, 104, 124; (2) a minimum of 12 units from at least two different areas: area 1 (*arts activism*)—World Arts and Cultures 103, 114, 120 (with faculty approval), 144, C158, C159, 160, 174A, 174B, 177SL, 195, 199, or other upper division courses with faculty approval (no more than 8 units of courses 114 and/or 160 may be applied toward this area), area 2 (*critical ethnographies*)—courses 120 (with faculty approval), 121, C142, C150, C151, 174A, 174B, 195, 199, or other upper division courses with faculty approval, area 3 (*visual cultures*)—courses 120 (with faculty approval), M125A, M125B, M125C, M126, M130, 133, C138, 143B, C145, C152, 174A, 174B, C180, C182, C184, M187, 195, 199, or other upper division courses with faculty approval; (3) 8 additional units of upper division elective courses from inside or outside the department by petition; and (4) courses 186A and 186B (senior honors project) or equivalent coursework with faculty approval.

Senior Honors Project

All students must also complete World Arts and Cultures 186A and 186B (or 10 units of equivalent coursework with faculty approval), the required senior honors project which must be selected from each student's area of inquiry. Students begin to identify a project in spring quarter of their junior year and submit a senior project proposal for faculty approval by the beginning of the senior year. They begin to work with a designated faculty adviser in fall quarter of the senior year. Projects may include written theses, visual ethnographies, documentaries, installations, short films, internships, community service, field-based research, and curatorial projects, as well as other formats. Projects are crafted in close consultation with a faculty adviser so as to provide capstone experiences that draw together ideas and abilities from four years of study, while positioning students for postgraduate opportunities for further study or for entrance to job markets.

Graduate Study

Official, specific degree requirements are detailed in Program Requirements for UCLA Graduate Degrees, available at the Graduate Division website, <http://grad.ucla.edu>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of World Arts and Cultures offers Master of Arts (MA) and Doctor of Philosophy (PhD) degrees in Culture and Performance and a Master of Fine Arts (MFA) degree in Dance.

Dance

Lower Division Courses

1. Global Perspectives on Dance. (5) Lecture, three hours; discussion, one hour. Examination of practices of choreography, improvisation, and technique in different cultural settings and historical eras. Introduction to field of dance studies through analysis of broad spectrum of philosophies and practices within global context, with focus on creative act of dance-making, thinking and understanding act of improvising, and diverse ways of training one's body. By framing process of analysis within array of historical periods and cultural settings, development of capacity to engage with dance as lived social and artistic practice while refining critical seeing, thinking, and writing skills. P/NP or letter grading.

6. Beginning World Arts Practices in Sub-Saharan Africa and Diaspora. (2) Studio, three hours. Beginning-level study of world arts practices originating from sub-Saharan Africa and extending to cultures of African diaspora, including Brazil and Afro-Caribbean. Variable topics, such as dance of Guinea, Mali, and Senegal or Afro-Caribbean masking traditions, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

7. Beginning World Arts Practices in Middle East/North Africa and Diaspora. (2) Studio, three hours. Beginning-level study of world arts practices originating from Middle East and North Africa. Variable topics, such as belly dancing or Israeli folk dance, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

8. Beginning World Arts Practices in Latin America and Diaspora. (2) Studio, three hours. Beginning-level study of world arts practices originating from Latin America, including cultures of South and Central America. Variable topics, such as Argentine tango and Mexican folkloric dances, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

9. Beginning World Arts Practices in North America and Diaspora. (2) Studio, three hours. Beginning-level study of world arts practices originating from North America, including U.S., Canada, and Native America. Variable topics, such as Native American dance, jazz, and jazz-tap, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

10. Beginning World Arts Practices in East Asia and Diaspora. (2) Studio, three hours. Beginning-level study of world arts practices originating from East Asia, including China, Korea, and Japan. Variable topics, such as movement and music techniques of Beijing Opera, Korean shamanic movement practices, and Kabuki theater, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

11. Beginning World Arts Practices in South Asia and Diaspora. (2) Studio, three hours. Beginning-level study of world arts practices originating from South Asia and extending to cultures of South Asian diasporas, including communities in England and West Africa. Variable topics, such as Bharata Natyam (classical dance of India), bhangra (diasporic social dance), and hatha yoga, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

12. Beginning World Arts Practices in Southeast Asia and Diaspora. (2) Studio, three hours. Beginning-level study of world arts practices originating from Southeast Asia. Variable topics, such as Cambodian court dance, Indonesian kechak, or Balinese legong, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

13. Beginning World Arts Practices in Europe and Diaspora. (2) Studio, three hours. Beginning-level study of world arts practices originating from Europe and extending to cultures of European diaspora, including U.S. Variable topics, such as flamenco, Balkan folk dances, and classical ballet, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

15. Beginning Modern/Postmodern Dance. (2) Laboratory, four hours. Study of dance technique. Critical viewing, reading, and discussion of modern/postmodern dance artists' works. May be repeated for credit without limitation. P/NP or letter grading.

16. Beginning Improvisation in Dance. (2) Lecture, one hour; laboratory, three hours. Introduction to creative exploration in movement through improvisational and compositional exercises that access and develop imagination, find relationship between imagination and dance making, and enrich movement vocabulary. May be repeated for credit without limitation. P/NP or letter grading.

44. World Dance Histories. (5) Lecture, three hours; discussion, two hours. Comparative framework for looking at dance practices through time as they have developed around world, questioning relation of dance to culture and politics and providing students with tools for investigating histories of any given dance form. P/NP or letter grading.

45. Introduction to Dance Studies. (4) Lecture, three hours. Enforced requisite: course 44. Introduction to discipline of dance studies, with focus on study of corporeality as key contemporary perspective on body. Multidisciplinary approach to dancing bodies conceptualized as social constructs, including attention to gender, race, class, and national identity. P/NP or letter grading.

56. Intermediate World Arts Practices in Sub-Saharan Africa and Diaspora. (2) Studio, three hours. Intermediate-level study of world arts practices originating from sub-Saharan Africa or from cultures of African diaspora, including Brazil and Afro-Caribbean. Variable topics, such as dance of Guinea, Mali, and Senegal or Afro-Caribbean masking traditions, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

57. Intermediate World Arts Practices in Middle East/North Africa and Diaspora. (2) Studio, three hours. Intermediate-level study of world arts practices originating from Middle East and North Africa. Variable topics, such as belly dancing or Israeli folk dance, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

58. Intermediate World Arts Practices in Latin America and Diaspora. (2) Studio, three hours; outside study, three hours. Intermediate-level study of world arts practices originating from Latin America, including cultures of South and Central America. Variable topics, such as Argentine tango and Mexican folkloric dances, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

59. Intermediate World Arts Practices in North America and Diaspora. (2) Studio, three hours. Intermediate-level study of world arts practices originating from North America, including U.S., Canada, and Native America. Variable topics, such as Native American dance, jazz, and jazz-tap, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

60. Intermediate World Arts Practices in East Asia and Diaspora. (2) Studio, three hours; outside study, three hours. Intermediate-level study of world arts practices originating from East Asia, including China, Korea, and Japan. Variable topics, such as movement and music techniques of Beijing Opera, Korean shamanic movement practices, Kabuki theater, or Tai Chi, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

61. Intermediate World Arts Practices in South Asia and Diaspora. (2) Studio, three hours. Intermediate-level study of world arts practices originating from South Asia or from cultures of South Asian diasporas, including communities in England and West Africa. Variable topics, such as Bharata Natyam (classical dance of India), bhangra (diasporic social dance), and hatha yoga, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

62. Intermediate World Arts Practices in Southeast Asia and Diaspora. (2) Studio, three hours. Intermediate-level study of world arts practices originating from Southeast Asia. Variable topics, such as Cambodian court dance, Indonesian kechak, or Balinese legong, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

63. Intermediate World Arts Practices in Europe and Diaspora. (2) Studio, three hours. Intermediate-level study of world arts practices originating from Europe and extending to cultures of European diaspora, including U.S. Variable topics, such as flamenco, Balkan folk dances, and classical ballet, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

65. Intermediate Modern/Postmodern Dance. (2) Studio, four hours. Technical training with emphasis on increasing skill. May be repeated for credit without limitation. P/NP or letter grading.

67A. Theories and Methods in Dance Composition I: Languages. (4) Seminar, two hours; studio, two hours; outside study, eight hours. Enforced requisite: course 16. Examination of diverse movement sources from which dances are made. How do different choreographers envision vocabularies of movement they use? How do they select or create movement out of which they create dance? Answers to these questions in relation to broad range of artistic approaches, acknowledging that dance-making occurs distinctively in different cultural contexts and different historical moments. Readings about and viewing of videos of selected artists' work and their different strategies for creating languages of their dances for comparison. Use of these analyses to assist in creative process for making new dances. P/NP or letter grading.

67B. Theories and Methods in Dance Composition II: Processes. (4) Seminar, two hours; studio, two hours; outside study, eight hours. Enforced requisite: course 67A. Examination of diverse processes through which creation of dance can take place. How do different choreographers conceptualize creative process of dance-making? What kinds of strategies do they use for sequencing their materials? Answers to these questions in relation to broad range of artistic approaches, acknowledging that dance-making occurs distinctively in different cultural contexts and different historical moments. Readings about and viewing of videos of selected artists' work and their different strategies for their processes of creating dances for comparison. Use of these analyses to assist in creative process for making new dances. P/NP or letter grading.

Upper Division Courses

101. Theories of Dance. (5) Lecture, four hours; discussion, two hours. Enforced requisite: course 45. Ideas of dance, choreography, and movement have achieved broad resonance in contemporary performance, art, politics, culture, and studies of social behavior. Examination of concepts and approaches to dance studies and deployments of its vocabulary within field and beyond, concentrated in four principal approaches: history, ethnography, choreographic analysis, and critical theory. Use of key ideas in dance to investigate allied areas of performance, embodiment, social constructions of identity and difference, and relationship between aesthetics and politics. Design of dance performances to illustrate link between theory and practice. How dance creates alternative modes of history and knowledge in range of cultural contexts. P/NP or letter grading.

C106A. Advanced World Arts Practices in Sub-Saharan Africa and Diaspora. (2) Studio, three hours; outside study, three hours. Advanced-level study of world arts practices originating from sub-Saharan Africa and African diaspora. Variable topics and genres, such as West Africa (Burkina Faso, Mali, Guinea, Senegal) and diaspora (Haiti, Brazil, Caribbean, Cuba), including cultural and historical context. May be repeated for credit without limitation. Concurrently scheduled with course C406A. P/NP or letter grading.

C109A. Advanced World Arts Practices in North America and Diaspora. (2) Studio, three hours; outside study, three hours. Advanced-level study of world arts practices originating from North America, including U.S., Canada, and Native America. Variable topics, such as Native American dance, jazz, and jazz-tap, in cultural and historical context. May be repeated for credit without limitation. Concurrently scheduled with course C409A. P/NP or letter grading.

110B. Dance in East Asia. (4) Lecture, four hours. Survey of dances of Japan, China, and Korea and factors that have influenced their development and social function. Consideration of relationship of dance to other art forms. Lectures illustrated with demonstrations, films, and slides. P/NP or letter grading.

111B. Dance in South Asia. (4) Lecture, four hours. Survey of dance forms in India and Sri Lanka. Factors influencing development of dance, its social function, and its relationship to other art forms. Lectures illustrated with demonstrations, films, and slides. P/NP or letter grading.

112B. Dance in Southeast Asia. (4) Lecture, four hours. Survey of selected ritual, social, and court dances of Indonesia, Cambodia, Thailand, and Philippines. Social, historical, and aesthetic factors. Lectures illustrated with demonstrations, films, and slides. P/NP or letter grading.

C113A. Advanced World Arts Practices in Europe and Diaspora. (2) Studio, three hours; outside study, three hours. Advanced-level study of world arts practices originating from Europe and extending to cultures of European diaspora, including U.S. Variable topics, such as flamenco, Balkan folk dances, and classical ballet, in cultural and historical context. May be repeated for credit without limitation. Concurrently scheduled with course C413A. P/NP or letter grading.

C115. Advanced Modern/Postmodern Dance. (2) Studio, six hours. Requisite: course 65. Studies in advanced modern/postmodern dance technique, with emphasis on performing skills. May be repeated for credit without limitation. Concurrently scheduled with course C415. P/NP or letter grading.

116. Advanced Improvisation in Dance. (2) Studio, four hours. Enforced requisite: course 16. Development of aesthetic perspective through use of imagery, sound, and other art. Concentration and projection. May be repeated for credit without limitation. P/NP or letter grading.

117A. Theories and Methods in Dance Composition III: Locations. (4) Seminar, two hours; studio, two hours; outside study, eight hours. Enforced requisites: courses 16, 67A, 67B. Examination of how location of dancing impacts its meaning. How does occasion of dance, concert, festival, ritual, or celebration

influence experience of it? What are factors that need to be considered when locating dance in one particular place? Answers to these questions in relation to broad range of artistic approaches, acknowledging that dance-making occurs distinctively in different cultural contexts and different historical moments. Examination of range of locations for dances, including proscenium stages, theaters in round, parks, sidewalks, temples, amphitheaters, village squares, and other site-specific locations that endow dance with specific significance and how various artists have worked with place in construction of new dances. Use of these analyses to assist in creative process for making new dances. P/NP or letter grading.

117B. Theories and Methods in Dance Composition IV: Impacts. (4) Seminar, two hours; studio, two hours; outside study, eight hours. Enforced requisites: courses 16, 67A, 67B. Examination of relation of dance to its audience. Synthesis of analyses undertaken in previous courses to determine how dances move their viewers. How do dances appeal to or address their audiences? How do dance vocabulary, sequencing, and location combine to create particular effects? Answers to these questions in relation to broad range of artistic approaches, acknowledging that dance-making occurs distinctively in different cultural contexts and different historical moments. Different approaches to dance result in highly distinctive kinds of responses from audiences. Focus on creation of three in-depth studies, each of which endeavors to construct distinctive kind of response from viewers. P/NP or letter grading.

117C. Advanced Topics in Choreography. (4) Lecture, four hours; studio, two hours; outside study, six hours. Enforced requisites: courses 16, 67A, 67B. Directed exploration in composition, with focus on developing theme-based choreographic works that are informed by theoretical engagement with selected topics through lectures, readings, and discussion. Thematic topics include contemporary issues and concerns such as image, essence, and abstraction; home, history, and memory; interculturalism; constructing identity. May be repeated for credit without limitation. P/NP or letter grading.

118. Advanced Interdisciplinary Composition. (4) Lecture, four hours; studio, two hours. Enforced requisites: courses 67A, 67B. Directed exploration in composition, with focus on developing works that engage two or more disciplines, such as dance, music, visual art, performance art. Theoretical engagement with selected topics through lectures, readings, and discussions. May be repeated for credit without limitation. P/NP or letter grading.

119. Advanced Intercultural Composition. (4) Lecture, four hours; studio, two hours. Enforced requisites: courses 67A, 67B. Directed exploration in composition, with focus on works that engage techniques and practices of two or more cultures. Engagement with postcolonial theory through lectures, readings, and discussions. May be repeated for credit without limitation. P/NP or letter grading.

C122. Music and Dance Collaborations. (4) Studio, four hours. Requisites: courses 67A, 67B. Designed for dance students who have had prior coursework/experience in choreography and for music students who have had prior coursework/experience in music composition. Opportunity for directors, choreographers, and composers to work together creating and developing material in their respective disciplines. Exploration of different forms and ways of approaching creative process of making dance and music, presenting material on weekly basis, and developing skills for discussion, critique, and review. Concurrently scheduled with course C222. P/NP or letter grading.

C145. Selected Topics in Dance Studies. (4) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Selected topics in study of dance and corporeality. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit without limitation. Concurrently scheduled with course C245. P/NP or letter grading.

C152. History and Theory of Modern/Postmodern Dance. (4) Lecture, four hours; studio, two hours; outside study, six hours. Introduction to key figures in creation of modern dance, with special attention to their theories and philosophies and tracing of radical shift to postmodern dance that occurred in mid-20th century. Contemporary developments, both historical and theoretical. Student projects involve choreography and writing. Concurrently scheduled with course C252. P/NP or letter grading.

M157. Rechoreographing Disability. (Same as Disability Studies M157.) Seminar, four hours. Through study of range of performance by, featuring, or about people who identify as disabled, reading and discussion of range of writing about experiences of disability and process of making work about disability by key artists and thinkers. Introduction to concept of choreography as political/cultural idea broadly defined as scored movement and organization and behavior of bodies, as well as choreography as poetic form for expression of ideas, creative tool, or product. Viewing and discussion of work, and embodying ideas through movement and dance-making. P/NP or letter grading.

158. Choreographing Gender. (4) Lecture, three hours; laboratory, two hours. Designed for juniors/seniors. Analysis of aesthetic codes and theatrical choreographic approaches as they intersect with construction of gender in U.S., with close attention to race, class, and sexuality. P/NP or letter grading.

159. Movement Theories. (2) Lecture, two hours; laboratory, two hours. Study of motor coordination patterns as related to expressive movement features for dance performance. Personalized attention and use of video to increase students' stylistic diversity. Development of movement efficiency for prevention of dance injuries. May be repeated twice. P/NP or letter grading.

160. Topics in Body Mechanics. (4) Lecture, three hours; studio, one hour. Designed for juniors/seniors. Variable topics course with discussion of injury prevention, anatomy for dancers, and study of biological and physical principles of human movement as related to dance. May be repeated for credit without limitation. P/NP or letter grading.

161. Movement Observation and Analysis. (4) Lecture, two hours; laboratory, two hours. Designed for juniors/seniors. Use of variable theoretical frameworks and techniques such as labananalysis to emphasize culturally defined processes of observing, analyzing, and describing human movement. P/NP or letter grading.

165. Foundations of Dance Education. (4) Lecture, two hours; laboratory, three hours. Introduction to movement concepts, skills, and teaching principles for modern/postmodern dance instruction. Supervised teaching practicum included. P/NP or letter grading.

166. Dance as Culture in Education. (4) Lecture, two hours; laboratory, two hours. Theoretical and practical aspects of teaching ethnic dance, especially in higher education. P/NP or letter grading.

167. Creative Dance for Children. (4) Lecture, three hours; laboratory, one hour. Introduction to movement concepts, skills, and principles for teaching children's dance; emphasis on dance as creative medium of expression. P/NP or letter grading.

169. Repertory Tour Ensemble. (2 or 4) Lecture, two hours; studio, four to six hours. Designed for World Arts and Cultures majors. Creation and presentation of performances in community, with special emphasis on problems of touring companies with variable repertoire. May be repeated once. P/NP or letter grading.

C171. Dance Production: Variable Topics. (4) Lecture, four hours; laboratory, two hours. Foundational experience in range of dance production practices, including but not limited to lighting design, set design, costume design, and stage management. Practical training in area covered, combined with theoretical inquiry into practice and opportunities for students to reflect on their own work and that of others. Completion of production project required. May be repeated for maximum of 12 units. Concurrently scheduled with course C171. S/U or letter grading.

tion of production project required. May be repeated for maximum of 12 units. Concurrently scheduled with course C271. P/NP or letter grading.

182. Dance and Visual Media. (4) Lecture, four hours. Examination of aesthetic differences between dance, film, and video and exploration of new aesthetic when they are combined. Analysis of record and documentary dance film, choreo-cinema, and impact of MTV, as well as integration of media with performance. Letter grading.

C184. Production Arts Seminar. (4) Seminar, four hours. Theory and practice of production administration, including hands-on case studies for producing public events in arts and academia. Topics include, but are not limited to, history and theories of producing, mission statements, budgeting, marketing, public relations, fund-raising, legalities, and archiving. Concurrently scheduled with course C243. P/NP or letter grading.

Graduate Courses

211A-211F. Advanced Choreography. (4 each) Lecture, two hours; studio, two hours. Theoretical aspects of advanced choreography for students who have reached level of self-initiation of substantial creative works. Refinement and realistic self-evaluation; critical counsel by acknowledged choreographers. S/U or letter grading.

C222. Music and Dance Collaborations. (4) Studio, four hours. Requisites: courses 67A, 67B. Designed for dance students who have had prior coursework/experience in choreography and for music students who have had prior coursework/experience in music composition. Opportunity for directors, choreographers, and composers to work together creating and developing material in their respective disciplines. Exploration of different forms and ways of approaching creative process of making dance and music, presenting material on weekly basis, and developing skills for discussion, critique, and review. Concurrently scheduled with course C122. S/U or letter grading.

C243. Production Arts Seminar. (4) Seminar, four hours. Theory and practice of production administration, including hands-on case studies for producing public events in arts and academia. Topics include, but are not limited to, history and theories of producing, mission statements, budgeting, marketing, public relations, fund-raising, legalities, and archiving. Concurrently scheduled with course C184. S/U or letter grading.

C245. Selected Topics in Dance Studies. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Selected topics in study of dance and corporeality. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit without limitation. Concurrently scheduled with course C145. S/U or letter grading.

C252. History and Theory of Modern/Postmodern Dance. (4) Lecture, four hours; studio, two hours; outside study, six hours. Introduction to key figures in creation of modern dance, with special attention to their theories and philosophies and tracing of radical shift to postmodern dance that occurred in mid-20th century. Contemporary developments, both historical and theoretical. Student projects involve choreography and writing. Concurrently scheduled with course C152. S/U or letter grading.

C271. Dance Production: Variable Topics. (4) Lecture, four hours; laboratory, two hours. Foundational experience in range of dance production practices, including but not limited to lighting design, set design, costume design, and stage management. Practical training in area covered, combined with theoretical inquiry into practice and opportunities for students to reflect on their own work and that of others. Completion of production project required. May be repeated for maximum of 12 units. Concurrently scheduled with course C171. S/U or letter grading.

C406A. Advanced World Arts Practices in Sub-Saharan Africa and Diaspora. (2) (Formerly numbered World Arts and Cultures C406A.) Studio, three hours; outside study, three hours. Advanced-level study of world arts practices originating from sub-Saharan Africa and African diaspora. Variable topics and genres, such as West Africa (Burkina Faso, Mali, Guinea, Senegal) and diaspora (Haiti, Brazil, Caribbean, Cuba), including cultural and historical context. May be repeated for credit without limitation. Concurrently scheduled with course C106A. S/U or letter grading.

C409A. Advanced World Arts Practices in North America and Diaspora. (2) Studio, three hours; outside study, three hours. Advanced-level study of world arts practices originating from North America, including U.S., Canada, and Native America. Variable topics, such as Native American dance, jazz, and jazz-tap, in cultural and historical context. May be repeated for credit without limitation. Concurrently scheduled with course C109A. S/U or letter grading.

C413A. Advanced World Arts Practices in Europe and Diaspora. (2) Studio, three hours; outside study, three hours. Advanced-level study of world arts practices originating from Europe and extending to cultures of European diaspora, including U.S. Variable topics, such as flamenco, Balkan folk dances, and classical ballet, in cultural and historical context. May be repeated for credit without limitation. Concurrently scheduled with course C113A. S/U or letter grading.

C415. Advanced Modern/Postmodern Dance. (2) Studio, six hours. Requisite: course 65. Studies in advanced modern/postmodern dance technique, with emphasis on performing skills. May be repeated for credit without limitation. Concurrently scheduled with course C115. S/U or letter grading.

441. Dance Production Practicum. (2 to 4) Laboratory, four to eight hours (one or two hours may be individualized consultation). Skills and understanding of production components in roles of stage manager, production assistants, and producer. May be repeated for maximum of 8 units. S/U grading.

452. Directed Field Study in Dance Education. (2 to 8) Seminar, one hour; field study, two hours minimum. Directed field study to provide teaching experience in community school or other approved site. No more than 4 units may be applied toward MA degree requirements. S/U grading.

490. Projects in Choreography and Performance. (2 to 8) Tutorial, one three-hour rehearsal per unit per week minimum. Creation, casting, and rehearsing of culminating concert, reflecting professional achievement in choreography or performance, in first term. In second term, direction of on-stage rehearsals for culminating concert by each student leading to fully staged performance. May be repeated for maximum of 16 units. S/U or letter grading.

498. Professional Internship in Dance. (4, 8, or 12) Seminar, to be arranged. Full- or part-time supervised fieldwork. Limited to MFA students. Internship in dance, theater, film, or television organization. Participation in creative, administrative, or technical work of professionals in their specialties. S/U or letter grading.

World Arts and Cultures

Lower Division Courses

1. Introduction to World Arts and Cultures. (5) Lecture, three hours; discussion, one hour. Survey of concepts and theories involved in intercultural, interdisciplinary study of art, aesthetics, and performance. Examination of interactions among various modes of creative expression, role of style in daily life, performative representation of cultural identity and difference, and interaction of diverse artistic traditions. Letter grading.

2. Lower Division Seminar. (5) Seminar, four hours; outside study, 11 hours. Variable topics seminar with focus on scholarly and practice-based research in arts. In-depth investigations of topics ranging from body in cultural context, interdisciplinary art-making, visual cultures, oral genres, material culture, study of

culture and performance, including individual and cultural identity through arts, creation of dance/theatrical performance, theoretical and analytical approaches to arts practice, arts activism, and other topics pertaining to broad fields of culture, performance, and dance. Research inquiry methods may include readings, assigned written analysis, supervised fieldwork, individual and collaborative assignments, and/or practice-oriented processes. Substantial culminating project integrating theoretical and practical components of selected seminar topic required. May be repeated for credit. Letter grading.

5. Beginning Global and Transcultural Forms. (2) Studio, three hours. Beginning-level study of world arts practices crossing national and cultural boundaries. Variable topics, such as body music, cross-cultural textile creation, or mural painting, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

20. Culture: Introduction. (5) Lecture, four hours. Introduction to key concepts and major theoretical and methodological debates that characterize field of cultural studies, including discussion of notions of culture, popular culture, subculture, youth culture, hegemony, gender, race, class, and national identity. Letter grading.

22. Introduction to American Folklore Studies. (5) Lecture, four hours; discussion, one hour; outside study, 10 hours. Cultural/historical survey of role of folklore in development of American civilization and of influence of American experience in shaping folklore in American society; attention also to representative areas of inquiry and analytical procedures. P/NP or letter grading.

M23. Introduction to American Indian Studies. (5) (Same as American Indian Studies M10.) Lecture, three hours; discussion, one hour; activity, one hour. Survey of selected Native North American cultures from pre-Western contact to contemporary period, with particular emphasis on early cultural diversity and diverse patterns of political, linguistic, social, legal, and cultural change in postcontact period. P/NP or letter grading.

24. World Arts, Local Lives. (5) Lecture, three hours; discussion, one hour. Use of Fowler Museum's long-term exhibition entitled "Intersections: World Arts/Local Lives" as object of study to examine many insights that arts can offer into social, political, and religious experience. Drawing heavily on cultures of Africa, Asia, Pacific, and indigenous Americas, both ancient and contemporary, consideration of degree to which notions of aesthetics and efficacy are intertwined and interdependent in art forms made to intervene in people's lives in active, instrumental ways. Use of specific case studies to illustrate and interrogate theoretical paradigms. P/NP or letter grading.

33. Indigenous Worldviews. (5) Lecture, three hours; discussion, one hour. Introduction to study of indigenous worldviews as they are expressed through art, mythology, ritual, health practice, languages, and ecology. With examples spanning globe, consideration of issues of colonialism, tradition, religious change, and legal and social implications of epistemological differences between people. Examination of critical perspectives on social development, historical progress, and intellectual assimilation. P/NP or letter grading.

51W. Aliens, Psychics, and Ghosts. (5) Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3 or English as a Second Language 36. Combination of approaches of discourse analysis and scientific method to understand how people make sense of other people's stories of aliens, psychics, and ghosts. Exploration of how people come to believe what they do about human life, life after death, and other-than-human life. Satisfies Writing II requirement. Letter grading.

55. Intermediate World Arts Practices in Global and Transcultural Forms. (2) Studio, three hours; outside study, three hours. Intermediate-level study of world arts practices crossing national and cultural boundaries. Variable topics, such as body music,

cross-cultural textile creation, or mural painting, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

70. Production Practicum. (2) Lecture, 90 minutes; activity, three and one half hours. Introduction to practical perspectives on producing events in world arts and cultures, including but not limited to theatrical support and planning and executing lecture series. Introduction to professional stage production principles and hands-on experience in technical theater. May be repeated once for credit. P/NP grading.

78. Private Instruction in World Arts and Cultures. (2 to 4) Studio, three to six hours. Designed for freshmen/sophomores. Private or semiprivate instruction in one world arts practice with distinguished community-based artist to be arranged by students and approved by instructor. May be repeated for maximum of 24 units. P/NP grading.

80. Video Tools and Techniques. (2) Laboratory, four hours. Introduction to video tools and practices to train students in key techniques of video production. Basic skills spanned to develop short videos for circulation via DVD and/or Internet. Practical exercises based on materials and instruction provided in class, spanning production and postproduction processes of video making. Evaluation of students on these exercises and final submission of edited sequence of any or all materials developed during course. Training in technical aspects of video production and usage of video tools. P/NP or letter grading.

85. Sophomore-Year Proposal. (1) Lecture, 90 minutes. Planning and execution of proposal for junior year of study, with attention to exploring resources of department and University as whole. P/NP grading.

Upper Division Courses

100A. Art as Social Action. (5) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Discussion of what constitutes artist's social responsibility and in what ways art is qualified to engage in direct political action. Study of tension between powers of this world and powers of art. P/NP or letter grading.

100B. Art as Moral Action. (5) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. One's ability to distinguish between right and wrong action is culturally intuited, nurtured, and developed. Study of cultural strategies of moral engagement, persuasion, and inquiry in personal and public life, including acts of conscience and civil disobedience. P/NP or letter grading.

101. Theories of Performance. (5) Lecture, four hours; studio, two hours. Performance commonly refers to activities on proscenium stage. Explosion of that narrow notion of performance by delving into scholarship from young field of performance studies, which draws on disciplines of anthropology, cultural studies, gender studies, linguistics, postcolonial theory, and sociology. Exploration in studio of concept of performing theory by creating interdisciplinary performance works that engage with and amplify theories studied. P/NP or letter grading.

102. Seminar: Intercultural and Interdisciplinary Performance. (4) Seminar, four hours. Requisite: course 101. Recent discussions of multiculturalism have demanded broader base of cultural literacy for society in general and from artists in particular. Moving beyond stereotyping and formalism, focus on areas of overlap and exchange, collaborations, collective creation, hybridization, and evolving possibilities of video and extended media. P/NP or letter grading.

103. Arts in Communities. (5) Lecture, four hours. Introduction to theoretical and practical understanding of field of community arts by and for multiple publics. Review of relevant issues in field and exploration of roles of artists and arts organizations in struggles for social change, representation, and community building. Through national and international examples, exploration of art works that emphasize participation of citizens in community-based and culturally relevant performance, art, and exhibition. Ex-

amination of processes of creative thinking, community involvement, collaborative enterprise, research, and education in community arts. Letter grading.

104. Representations: Theories and Practices. (5) Lecture, three hours. Enforced requisite: course 20. Limited to juniors/seniors. Advanced survey into performance, postcolonial, and gender theories to critically analyze issues of representation, specifically interrogating divides and overlaps between intellectual and artistic practice and mixing theory with practice. P/NP or letter grading.

114. Performance Practicum. (1 to 4) Studio, three to 12 hours. Rehearsal and performance in selected community-based or theatrical work. May be repeated for credit without limitation. P/NP grading.

120. Selected Topics in Cultural Studies. (4) Lecture, three hours. Designed for juniors/seniors. Selected topics in interdisciplinary study of arts and performance in cultural and historical context. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit without limitation. P/NP or letter grading.

121. Ethnography and Performance. (4) Lecture, four hours; outside study, eight hours. Survey of some ways that ethnography and performance interrelate, as well as development of some preliminary approaches to effectively document performance events. Reading of ethnographies of performances, as well as consideration of how performances can work ethnographically. P/NP or letter grading.

124. Introduction to Field-Based Research Methods. (5) Lecture, three hours. Introduction to methods, techniques, and issues in conducting field-based research, including nature, uses, and limitations of major data-gathering procedures, ethical concerns, sampling, checks and controls, teamwork, interventions, and results as not only tangible and impersonal outcomes of inquiry but also personal and intangible. Through readings, discussion, and hands-on exercises, students learn how to plan fieldwork projects and write proposals, prepare consent forms and deal with ethical issues, observe behavior, construct questionnaires, interview, use audiovisual documentation, and manage and present data. P/NP or letter grading.

M125A. Beyond Mexican Mural: Beginning Muralism and Community Development. (4) (Same as Art M186A and Chicana and Chicano Studies M186A.) Studio/lecture, four hours. Corequisite: course M125AL. Investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. P/NP or letter grading.

M125AL-M125BL-M125CL. Beyond Mexican Mural: Muralism and Community Laboratory. (4-2-2) (Same as Art M186AL-M186BL-M186CL and Chicana and Chicano Studies M186AL-M186BL-M186CL.) Course M125AL is requisite to M125BL, which is requisite to M125CL. Mural and Digital Laboratory is art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in community-based setting. Open to students during scheduled hours with laboratory tech support, it offers instruction as students independently and in collaborative teams research, design, and produce large-scale painted and digitally generated murals to be placed in community setting. P/NP or letter grading. **M125AL.** Beginning. Laboratory, four hours. Corequisite: course M125A; **M125BL.** Intermediate. Laboratory, four hours. Requisites: courses M125A, M125AL. Corequisite: course M125B; **M125CL.** Advanced. Laboratory, two hours. Corequisite: course M125C.

M125B. Beyond Mexican Mural: Intermediate Muralism and Community Development. (4) (Same as Art M186B and Chicana and Chicano Studies M186B.) Studio/lecture, four hours. Requisites: courses M125A, M125AL. Corequisite: course M125BL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through devel-

opment of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through states of production to full scale and community approval. P/NP or letter grading.

M125C. Beyond Mexican Mural: Advanced Muralism and Community Development. (4) (Same as Art M186C and Chicana and Chicano Studies M186C.) Studio/lecture, six hours. Requisites: courses M125B, M125BL. Corequisite: course M125CL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through installation, documentation, and dedication, with work on more advanced independent projects. P/NP or letter grading.

M126. Whose Monument Where: Course on Public Art. (4) (Same as Art M185 and Chicana and Chicano Studies M185.) Lecture, four hours. Recommended corequisite: course M125A, M125B, or M125C. Examination of public monuments in U.S. as basis for cultural insight and critique of American values from perspective of artist. Use of urban Los Angeles as textbook in urban space issues such as who is public, what is public space at end of 20th century, what defines neighborhoods, and do different ethnic populations use public space differently. P/NP or letter grading.

M128. Chicana Art and Artists. (4) (Same as Art M184 and Chicana and Chicano Studies M175.) Lecture, four hours. Introduction to Chicana art and artists. Examination of Chicana aesthetic. Chicana artists have developed unique experience and identity as artists and Chicanas. Letter grading.

C129. Food Customs and Symbolism. (4) Lecture, three hours. Designed for juniors/seniors. Introduction to foodways, with particular attention to customs and symbolism in America. Topics include sensory realm, child rearing practices, foodsharing, food and identity, food and its emotional significance, aversions and taboos, advertising, changing food habits, and American diet. Concurrently scheduled with course C229. P/NP or letter grading.

M130. Space and Place. (4) (Same as Architecture and Urban Design M130.) Lecture, three hours. Survey of array of spaces and places from cross-cultural or comparative perspective and with performance emphasis, with focus on mutual interaction of human beings and their created environments. Emphasis on common, ordinary, anonymous, or vernacular nonbuilt and built environments, which are built and used by members of small-scale, traditional, and transitional communities around world. P/NP or letter grading.

131. Folk Art and Aesthetics. (4) Lecture, four hours. Designed for juniors/seniors. General course concerned with folk art, aesthetics, and material culture and with theoretical concepts and methodologies utilized in their analysis. P/NP or letter grading.

132. Narrative and Oral Performance. (4) Lecture, four hours. Survey of concepts of story as text versus narrating as oral performance, studies of individual narrators, how stories are composed in performance, interaction of narrator and audience, how place and experience become embodied in narratives, modes of representing oral narrating, and politics of stories and oral performance. P/NP or letter grading.

133. Textiles of World. (4) Lecture, four hours; discussion, one hour; laboratory, one hour. How cloth and clothing was and continues to be hand-woven in indigenous societies. Use of textiles from Fowler Museum collection to coordinate hands-on experience with cultural history. May be repeated twice for credit. P/NP or letter grading.

134. Oral Traditions in Africa. (4) Lecture, four hours. Designed for juniors/seniors. Survey of African folk traditions: folktale, epic, heroic poetry, and folk song. P/NP or letter grading.

M136. Culture of Jazz Aesthetics. (4) (Same as Anthropology M142R and Ethnomusicology M130.) Lecture, three hours. Requisite: course 20 or Anthropology 9 or 33 or Ethnomusicology 20A or 20B or 20C. Aesthetics of jazz from point of view of musicians who shaped jazz as art form in 20th century. Listening to and interacting with professional jazz musicians who answer questions and give musical demonstrations. Analytical resources and historical knowledge of musicians and ethnomusicologists combined with those interested in jazz as cultural tradition. P/NP or letter grading.

C138. American Indian Arts in Performance. (4) Seminar, four hours. Acquisition of awareness and sensitivity to dynamic contexts within Native American worlds of performance and material culture and development of ability to focus on them and learn to conduct research on them. Examination of wide range of American Indian art and craft traditions within fullest possible range of such contexts, with performance given its most generous definition. Study of spectrum of genres, including architecture, social and dance regalia, masks, and utilitarian material culture, to investigate how such items play their part and come alive through movement, sound, spoken word, silence, and even dreams and visions. Concurrently scheduled with course C238. P/NP or letter grading.

C139. Afro-Caribbean Ritual Arts: Vodou and Santería. (4) Lecture, three hours. Designed for juniors/seniors. Ethnography of diaspora African religions, including Vodou, Santería, and Candomble. Lectures, readings, and video material focus on performance of ritual and its expression in religious art. Concurrently scheduled with course C239. P/NP or letter grading.

CM140. Healers, Ritual, and Transformation. (4) (Same as Gender Studies CM143.) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Examination of role of healers, historically and within contemporary culture-specific contexts. Exploration of psychological functions served by rites of passage and healing rituals and of role of arts in healing troubled communities. Concurrently scheduled with course CM240. P/NP or letter grading.

C141. Carnival and Festivity. (4) Lecture, three hours; fieldwork, one hour. Study of traditional calendrical, religious, and local festivals and related events in their cultural and historical contexts, with emphasis on American festival occasions and their Old World antecedents. Topics include carnival and carnivalesque and politics of celebration. Concurrently scheduled with course C241. P/NP or letter grading.

C142. Myth and Ritual. (4) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Myths make sense of world and its peoples, purposes, and places. Rituals embody and activate myths through dramatic transformative devices. Concurrently scheduled with course C242. P/NP or letter grading.

143A. Introduction to Museology: Museum Collections and Administration. (5) Lecture, six hours. Introduction to history and functions of museums, tracing development to present. Collection, organization, management, and conservation of objects and legal and ethical issues surrounding these practices. P/NP or letter grading.

143B. Introduction to Museology: Museum Exhibitions and Education. (5) Lecture, six hours. Conceptual development of exhibitions and formulation of educational and other goals for specified audiences. Design considerations, media applications, and installation process. P/NP or letter grading.

143C. Introduction to Museology: Selected Topics. (4) Seminar, six hours; individual study, six hours. Students pursue projects in area of museum operations, working with staff members and museum directors to produce papers on contemporary issues in museums. For example, one student might work under curator and director to examine cultural property issues as they pertain to contemporary museums, following suggested reading list. P/NP or letter grading.

144. Make Art/Stop AIDS. (5) Lecture, four hours; studio, two hours. Can arts save lives? That is central question posed here in relation to global AIDS epidemic. Working in close connection with public health and epidemiology, exploration of arts as powerfully effective tool in AIDS prevention and treatment efforts. Review of literature of AIDS cultural analysis that emerged in late 1980s in U.S. and application of that literature to international hot spots such as India, China, South Africa, and Brazil. Collaborative theory-in-action projects. P/NP or letter grading.

C145. Curating Cultures. (4) Lecture, three hours. Exploration of poetics and politics of exhibiting non-Western arts and cultures. Series of provocative case studies with special guest speakers addressing themes in curatorial theory and practice. Concurrently scheduled with course C245. P/NP or letter grading.

C146. Politics of Performance. (4) Seminar, four hours; outside study, eight hours. Designed for juniors/seniors. Opportunity to reflect on artists and intellectuals as cultural workers operating in domains of ideology, aesthetics, and theory. Analysis of such keywords as ideology, aesthetics, theory, art, politics, intervention, intellectuals, and artists. Concurrently scheduled with course C246. P/NP or letter grading.

C147. Arts and Healing. (4) Lecture, four hours. Interdisciplinary, contemporary arts-based model of healing applicable to persons leading Western modernist lifestyles and coping with two kinds of social crises during their lifetimes: (1) developmental transitions that are disruptive life-cycle changes that have potential to promote self-regeneration or self-fragmentation and (2) external transitions that are situational catastrophic events that evoke great terror and trigger fears of annihilation and chaos, but if successfully negotiated, have potential to promote revitalized sense of self, greater compassion for others, and restored sense of trust and hope in humanity. Concurrently scheduled with course C247. P/NP or letter grading.

C150. Critical Ethnographies. (5) Lecture, three hours. Enforced requisite: course 20 or 33. Survey of major tropes and rhetorical strategies to explicitly locate ethnographic method as key component of cross-cultural understanding. Examination of categorical notions of insider and outsider while also developing various perspectives on performed acts of identity formation. Concurrently scheduled with course C250. P/NP or letter grading.

C151. Ethnography of Religions. (4) Lecture, three hours. Religions are cultural systems helping people to cope with misfortune, deal with death, and find fulfillment in life. Case studies reveal commonalities across cultures as cosmologies define moral being in world, divination determines causes of difficulty, spirit mediumship embodies divine intervention, and sacred arts render deities tangible. Nonjudgmental comparative investigation stressing conversation. Concurrently scheduled with course C251. P/NP or letter grading.

C152. Visual Cultures. (4) Lecture, three hours. How are ways of seeing constructed through culture, gender, religion, class, and nation? Theories and case studies from around world permit understanding of social processes through which gaze is determined and image economies negotiated. Topics include scopic regimes, aesthetics of streamlined design, and visuality and liberation. Concurrently scheduled with course C252. P/NP or letter grading.

C155. Self and Culture. (4) Lecture, two hours; laboratory, two hours; outside study, eight hours. Designed for juniors/seniors. Examination of critical developmental processes and situational factors contributing to construction of sense of self and emergence of creativity and subjective relatedness in different cultural contexts. Concurrently scheduled with course C255. P/NP or letter grading.

C158. Theorizing Arts Activism. (4) Seminar, three hours. Historicizing and theorizing of arts activism to provide context for concerted analysis, creation, and protest. Readings include theoretical texts and current performance histories. Consideration of one particular activist project, with focus on ongoing activism

sponsored by UCLA Art and Global Health Center. Arts activist projects organized by seminar members supported and encouraged. Concurrently scheduled with course C258. P/NP or letter grading.

C159. Art and Global Health. (4) Seminar, three hours. Exploration of interface of arts- and health-based methodologies in pursuit of improved health outcomes, using examples from international projects created and supported by UCLA Art and Global Health Center. Readings include texts by artists and arts scholars and articles from public health and medical literature. Seminar members propose their own arts-based health promotion interventions. Concurrently scheduled with course C259. P/NP or letter grading.

160. Performing Sexual Health: UCLA Sex Squad. (4) Seminar, three hours. Exploration of activist sexual health education theater as it has been used both locally and globally. Examination specifically of how humor, personal narrative, and nonjudgmental pro-sex approaches have been utilized to open empowering and educational dialogues about sexual health by and for diverse range of communities. Intensive training on sex, sexuality, HIV/AIDS, and powerful history of artists' interventions to open urgent dialogues on these taboo topics. May be repeated for maximum of 12 units. P/NP or letter grading.

C164. Public Writing in Arts. (4) Lecture, four hours; outside study, eight hours. Survey of journalistic approaches to writing about arts, with eye toward shaping critique of public writing practices and putting that critique into practice. Exploration of new modes of (and venues for) writing that rebalance power differential between art makers and commentators. Concurrently scheduled with course C264. P/NP or letter grading.

C168. Beyond Academia: Making Art in Real World. (4) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Focus on understanding bureaucratic structures and regional histories conditioning creation of art in real world, including such practical issues as publicity and grant-writing. Concurrently scheduled with course C268. P/NP or letter grading.

170. Advanced Production. (1 to 2) Laboratory, three hours; outside study, up to three hours. Requisite: course 70. Further development and application of practical perspectives on producing events in department, including but not limited to theatrical support and planning and executing lecture series. Provides students with advanced practical knowledge necessary, as well as opportunity to study nature of this component in world arts and cultures/dance studies. May be repeated for credit without limitation. P/NP grading.

C173. Sound Resources for Performance. (4) Lecture, three hours; studio, one hour; outside study, eight hours. Designed for juniors/seniors. Exploration of music, in search of interesting, new, and unusual. Investigation of musical possibilities via record store, Internet, and music library; environmental sounds and patterns; body (clapping, stepping, and singing); and hardware store (found sound). Participants collaborate with fellow students in creative efforts and in presentations of research results. Concurrently scheduled with course C273. P/NP or letter grading.

174A. Projects in World Arts and Cultures. (2) Laboratory, four hours. Individualized major projects in choreography, performance, cultural studies, production, and media. May be repeated for credit. P/NP or letter grading.

174B. Projects in World Arts and Cultures. (4) Laboratory, six hours. Individualized major projects in choreography, performance, cultural studies, production, and media. May be repeated for credit. P/NP or letter grading.

177SL. Taking Action: Arts Practice and Community Service. (4) Seminar, four hours; outside study, eight hours. Enforced requisite: course 103. Designed for juniors/seniors. Application of training in world arts and cultures through service projects designed by students in collaboration with selected community or

ganizations and institutions. Reflection on impact of service on communities and theories. May be repeated once for credit. P/NP or letter grading.

178. Advanced Private Instruction in World Arts and Cultures. (2 to 8) Studio, three to 12 hours. Designed for juniors/seniors. Private or semiprivate instruction in one world arts practice with distinguished community-based artist to be arranged by students and approved by instructor. May be repeated for maximum of 24 units. P/NP grading.

C180. Variable Topics in Video Production/Practice. (4) Lecture, two hours; laboratory, two hours. Enforced requisite: course 80. Training in low-budget and independent video and documentary practice as research tool. Visual ethnography combined with experimental film. Introduction to history, ethics, and aesthetics of documenting subjects such as culture, performance, and dance among range of forms for bodily expression and experience. Film and documentary theory, ethnography, and phenomenology used to create innovative and critical forms of visual documentation. Skills include cinematography, sound recording, interviews, and digital editing. May be repeated once for credit. Concurrently scheduled with course C280. Letter grading.

181. Ethnographic Film. (4) Lecture, four hours. Survey of ethnographic film and video, with focus on studies of expressive culture. Emphasis on critical and comparative approaches to visual study of culture, community, and arts. P/NP or letter grading.

C182. Film and Feminism. (5) Lecture, three hours. Enforced requisite: course 104. Designed for juniors/seniors. Introduction to feminist film theory to develop skills for feminist interpretations and analysis of films from classical and postclassical Hollywood cinema, experimental film, and Indian cinema. Examination of psychoanalytical feminist, postfeminist film, and postcolonial theories. Concurrently scheduled with course C282. P/NP or letter grading.

C184. Documentary: Theories and Approaches. (5) Lecture, three hours. Designed for juniors/seniors. Documentary practices—early actualities, city symphonies, observational cinema, avant garde, and self-reflexive films—to introduce complexity and creativity at heart of this form. Key theories and approaches of documentary film. Analysis of how performativity, subjectivity, and ideology percolate documentary aesthetics and inform cinematographic, audiographic, and editorial decisions. Concurrently scheduled with course C284. P/NP or letter grading.

185. Junior-Year Proposal. (1) Lecture, 90 minutes; outside study, 90 minutes. Limited to World Arts and Cultures majors. Planning and execution of proposal (either senior focus or senior honors project) for senior-year study, with attention to exploring resources of department and University as whole. May be repeated once for credit. P/NP grading.

186A-186B. Senior Honors Projects in World Arts and Cultures. (5-5) Lecture, four hours; outside study, 11 hours. Course 186A is requisite to 186B. Limited to senior World Arts and Cultures majors. Application of concepts and content from interdisciplinary major to individual projects. Methodologies may include critical, comparative, ethnographic, and performance approaches. Lecture/seminar format with World Arts and Cultures faculty during first term; faculty-directed presentations of individual projects during second term. Letter grading.

M187. Indigenous Film. (5) (Same as American Indian Studies M186.) Lecture, four hours; discussion, one hour. Introduction to study of indigenous filmic images and representations, with focus on selected ethnographic, documentary, animated, and feature films ranging from 1920 to present. P/NP or letter grading.

195. Community or Corporate Internships in World Arts and Cultures. (2 to 4) Tutorial, six hours. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

199. Directed Research in World Arts and Cultures. (2 to 4) Tutorial, two hours. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Theories of Culture. (4) Seminar, three hours; outside study, nine hours. Introduction to history of culture concept in arts, humanities, and social sciences. Analysis of contemporary debates concerning ownership and use of word "culture" and critical elucidation of study of culture. S/U or letter grading.

201. Theories of Performance. (4) Seminar, three hours; outside study, nine hours. Close reading and analysis of classic and contemporary studies of performance and related aesthetic practices. Familiarization with ways in which "performance" is defined and deployed by scholars working in disciplines of anthropology, dance, folklore, linguistics, literature, musicology, performance studies, philosophy, sociology, and theater. S/U or letter grading.

202. Research Methodologies. (4) Seminar, three hours; outside study, nine hours. Hands-on course designed to help students develop understanding of many developed qualitative research methods and designs they encounter in their work. Identification and creation of research problems, development of designs, actual data collection, and analysis procedures to address those problems. S/U or letter grading.

203. Proseminar: Dance Studies. (4) Seminar, three hours; outside study, nine hours. Survey of theoretical issues and problems in study of dance and body movement in cultural, social, and historical context. S/U or letter grading.

204. Theories of Corporeality. (4) Seminar, three hours; outside study, nine hours. Cross-cultural and interdisciplinary perspectives on human body. Topics include representations of body, body symbolism, embodiment of identity (including gender, race, ethnicity, and class identities), and analysis of dance and other somatic modes of performance. S/U or letter grading.

207. Ethnography of Performance. (4) Seminar, three hours; outside study, nine hours. Survey of methods and methodological issues in ethnographic study of performance in cultural context. Field documentation, participant observation, oral history and interview techniques, performative dimensions of ethnographic research, ethics, and politics of ethnographic representation. S/U or letter grading.

210. Ethnography of and as Colonialism. (4) Seminar, three hours. Beginning with 1550 debates over Indian humanity and ranging to contemporary scholarship about and by indigenous peoples, focus on intersections of writing, colonialism, violence, and historiography in Americas. Exploration of relationship between 16th-century reasoning about race and postmillennial, Western, and academic practices of writing history. Development of critical stance on utility of postcolonial theories as such perspectives bear on anthropological and historical studies of indigenous religiosity. Regions include southwest Columbia, Orinoco Delta in Venezuela, Valley of Mexico, and several examples throughout U.S. southwest, plains, and northeast. S/U or letter grading.

216. Analyzing Narrative and Oral Performance. (5) Lecture, four hours. Designed for graduate students. Exploration of ways of documenting individual narrators and interpreting their styles and repertoires; how narrators conceptualize and perform narrative discourse, impact of audience and situated event on both narrating and story, how experiences and values are communicated through narrating, modes of representing oral narrating, and politics of narrative and oral performance. S/U or letter grading.

C220. Seminar: Culture and Performance. (4) Seminar, three hours; outside study, nine hours. Designed for graduate students. Variable topics in interdisciplinary study of expressive culture, arts, and performance in social and historical context. May be repeated for credit without limitation. S/U or letter grading.

C229. Food Customs and Symbolism. (4) Lecture, three hours. Designed for graduate students. Introduction to foodways, with particular attention to customs and symbolism in America. Topics include sensory realm, child rearing practices, foodsharing, food and identity, food and its emotional significance, aversions and taboos, advertising, changing food habits, and American diet. Concurrently scheduled with course C129. S/U or letter grading.

C238. American Indian Arts in Performance. (4) Seminar, four hours. Acquisition of awareness and sensitivity to dynamic contexts within Native American worlds of performance and material culture and development of ability to focus on them and learn to conduct research on them. Examination of wide range of American Indian art and craft traditions within fullest possible range of such contexts, with performance given its most generous definition. Study of spectrum of genres, including architecture, social and dance regalia, masks, and utilitarian material culture, to investigate how such items play their part and come alive through movement, sound, spoken word, silence, and even dreams and visions. Concurrently scheduled with course C138. S/U or letter grading.

C239. Afro-Caribbean Ritual Arts: Vodou and Santería. (4) Lecture, three hours. Designed for graduate students. Ethnography of diaspora African religions, including Vodou, Santería, and Candomble. Lectures, readings, and video material focus on performance of ritual and its expression in religious art. Concurrently scheduled with course C139. S/U or letter grading.

CM240. Healers, Ritual, and Transformation. (4) (Same as Gender Studies CM243.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Examination of role of healers, historically and within contemporary culture-specific contexts. Exploration of psychological functions served by rites of passage and healing rituals and of role of arts in healing troubled communities. Concurrently scheduled with course CM140. S/U or letter grading.

C241. Carnival and Festivity. (4) Lecture, three hours; fieldwork, one hour. Study of traditional calendrical, religious, and local festivals and related events in their cultural and historical contexts, with emphasis on American festival occasions and their Old World antecedents. Topics include carnival and carnivalesque and politics of celebration. Concurrently scheduled with course C141. S/U or letter grading.

C242. Myth and Ritual. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Myths make sense of world and its peoples, purposes, and places. Rituals embody and activate myths through dramatic transformative devices. Concurrently scheduled with course C142. S/U or letter grading.

C245. Curating Cultures. (4) Lecture, three hours. Exploration of poetics and politics of exhibiting non-Western arts and cultures. Series of provocative case studies with special guest speakers addressing themes in curatorial theory and practice. Concurrently scheduled with course C145. S/U or letter grading.

C246. Politics of Performance. (4) Seminar, four hours; outside study, eight hours. Designed for graduate students. Opportunity to reflect on artists and intellectuals as cultural workers operating in domains of ideology, aesthetics, and theory. Analysis of such keywords as ideology, aesthetics, theory, art, politics, intervention, intellectuals, and artists. Concurrently scheduled with course C146. S/U or letter grading.

C247. Arts and Healing. (4) Lecture, four hours. Interdisciplinary, contemporary arts-based model of healing applicable to persons leading Western modernist lifestyles and coping with two kinds of social crises during their lifetimes: (1) developmental transitions that are disruptive life-cycle changes that have

potential to promote self-regeneration or self-fragmentation and (2) external transitions that are situational catastrophic events that evoke great terror and trigger fears of annihilation and chaos, but if successfully negotiated, have potential to promote revitalized sense of self, greater compassion for others, and restored sense of trust and hope in humanity. Concurrently scheduled with course C147. S/U or letter grading.

C250. Critical Ethnographies. (5) Lecture, three hours. Enforced requisite: course 20 or 33. Survey of major tropes and rhetorical strategies to explicitly locate ethnographic method as key component of cross-cultural understanding. Examination of categorical notions of insider and outsider while also developing various perspectives on performed acts of identity formation. Concurrently scheduled with course C150. S/U or letter grading.

C251. Ethnography of Religions. (4) Lecture, three hours. Religions are cultural systems helping people to cope with misfortune, deal with death, and find fulfillment in life. Case studies reveal commonalities across cultures as cosmologies define moral being in world, divination determines causes of difficulty, spirit mediumship embodies divine intervention, and sacred arts render deities tangible. Nonjudgmental comparative investigation stressing conversation. Concurrently scheduled with course C151. S/U or letter grading.

C252. Visual Cultures. (4) Lecture, three hours. How are ways of seeing constructed through culture, gender, religion, class, and nation? Theories and case studies from around world permit understanding of social processes through which gaze is determined and image economies negotiated. Topics include scopic regimes, aesthetics of streamlined design, and visuality and liberation. Concurrently scheduled with course C152. S/U or letter grading.

C255. Self and Culture. (4) Lecture, two hours; laboratory, two hours; outside study, eight hours. Designed for graduate students. Examination of critical developmental processes and situational factors contributing to construction of sense of self and emergence of creativity and subjective relatedness in different cultural contexts. Concurrently scheduled with course C155. S/U or letter grading.

C258. Theorizing Arts Activism. (4) Seminar, three hours. Historicizing and theorizing of arts activism to provide context for concerted analysis, creation, and protest. Readings include theoretical texts and current performance histories. Consideration of one particular activist project, with focus on ongoing activism sponsored by UCLA Art and Global Health Center. Arts activist projects organized by seminar members supported and encouraged. Concurrently scheduled with course C158. S/U or letter grading.

C259. Art and Global Health. (4) Seminar, three hours. Exploration of interface of arts- and health-based methodologies in pursuit of improved health outcomes, using examples from international projects created and supported by UCLA Art and Global Health Center. Readings include texts by artists and arts scholars and articles from public health and medical literature. Seminar members propose their own arts-based health promotion interventions. Concurrently scheduled with course C159. S/U or letter grading.

C264. Public Writing in Arts. (4) Lecture, four hours; outside study, eight hours. Survey of journalistic approaches to writing about arts, with eye toward shaping critique of public writing practices and putting that critique into practice. Exploration of new modes of (and venues for) writing that rebalance power differential between art makers and commentators. Concurrently scheduled with course C164. S/U or letter grading.

C268. Beyond Academia: Making Art in Real World. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Focus on understanding bureaucratic structures and regional histories conditioning creation of art in real world, in-

cluding such practical issues as publicity and grant-writing. Concurrently scheduled with course C168. S/U or letter grading.

C273. Sound Resources for Performance. (4) Lecture, three hours; studio, one hour; outside study, eight hours. Designed for graduate students. Exploration of music, in search of interesting, new, and unusual. Investigation of musical possibilities via record store, Internet, and music library; environmental sounds and patterns; body (clapping, stepping, and singing); and hardware store (found sound). Participants collaborate with fellow students in creative efforts and in presentations of research results. Concurrently scheduled with course C173. S/U or letter grading.

C280. Variable Topics in Video Production/Practice. (4) Lecture, two hours; laboratory, two hours. Enforced requisite: course 80. Training in low-budget and independent video and documentary practice as research tool. Visual ethnography combined with experimental film. Introduction to history, ethics, and aesthetics of documenting subjects such as culture, performance, and dance among range of forms for bodily expression and experience. Film and documentary theory, ethnography, and phenomenology used to create innovative and critical forms of visual documentation. Skills include cinematography, sound recording, interviews, and digital editing. May be repeated once for credit. Concurrently scheduled with course C180. Letter grading.

C282. Film and Feminism. (5) Lecture, three hours. Enforced requisite: course 104. Designed for graduate students. Introduction to feminist film theory to develop skills for feminist interpretations and analysis of films from classical and postclassical Hollywood cinema, experimental film, and Indian cinema. Examination of psychoanalytical feminist, postfeminist film, and postcolonial theories. Concurrently scheduled with course C182. S/U or letter grading.

C284. Documentary: Theories and Approaches. (5) Lecture, three hours. Designed for graduate students. Documentary practices—early actualities, city symphonies, observational cinema, avant garde, and self-reflexive films—to introduce complexity and creativity at heart of this form. Key theories and approaches of documentary film. Analysis of how performativity, subjectivity, and ideology percolate documentary aesthetics and inform cinematographic, audiographic, and editorial decisions. Concurrently scheduled with course C184. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Directed Professional Activities. (2 to 8) Lecture, to be arranged. Directed projects in professional editing, bibliography, filmography, videography, conference and festival direction, and other professional activities. May not be applied toward MA degree requirements. May be repeated. S/U grading.

478. Advanced Private Instruction in World Arts and Cultures. (2 to 8) Studio, three to 12 hours; outside study, three to 12 hours. Private or semiprivate instruction with distinguished community-based artist to be arranged by students and approved by instructor. May be repeated for maximum of 24 units. S/U grading.

480. Seminar: Research Topics. (2 to 4) Seminar, three hours; outside study, three to nine hours. Forum in which faculty, students, and visitors make presentations and obtain feedback on research being planned, conducted, or recently completed. Students required to make minimum of one presentation each term they are enrolled for credit. May be repeated for maximum of 8 units. S/U grading.

495. Teaching Assistant Seminar. (2) (Formerly numbered 451.) Seminar, one hour; laboratory, three hours. Required of all World Arts and Cultures Depart-

ment teaching assistants. Lectures, discussion, readings, and practice teaching. May be repeated once for credit. S/U grading.

496. Teacher Preparation in World Arts and Cultures. (2) (Formerly numbered 495.) Seminar, two hours. Directed work in preparation of course syllabi and discussion of topics relevant to developing teaching skills. Fundamental principles and methods with which to design course syllabi and gather resources for courses. Topics include development of teaching philosophy, evaluating/selecting course content, teaching methodologies, assessment/evaluation/grading practices, and consideration of practical, administrative, and ethical issues. Students meet with instructor to review their specific needs as they progress in development and elaboration of course plans. Microteaching sessions provide context for applying concepts and principles discussed. S/U grading.

596A. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U or letter grading.

596R. Directed Study or Research in Hospital or Clinic. (2 to 8) Tutorial, to be arranged. S/U grading.

597. Preparation for Master's Comprehensive Examination or PhD Qualifying Examination. (2 to 8) Tutorial, to be arranged. Preparation for MA or MFA comprehensive examination or PhD qualifying examination. S/U grading.

598. Research for and Preparation of Master's Thesis. (2 to 8) Tutorial, to be arranged. Research for and preparation of MA or MFA thesis. S/U grading.

599. Research for and Preparation of PhD Dissertation. (2 to 12) Tutorial, to be arranged. Preparation of research data and writing of PhD dissertation. May be repeated for credit. S/U grading.

Maja Manojlovic, PhD
Lauri M. Mattenson, MA
Mia L.G. McIver, PhD
Nedda Mehdizedeh, PhD
Michele L. Moe, PhD
Shelby A. Popham, PhD
Tara L. Prescott, PhD
Gregory J. Robinson, PhD
Mary G. Samuelson, PhD
Steven K. Steinberg, EdD
Bruce D. Stone, MFA
Carleen C. Velez, PhD
Dana Cairns Watson, PhD
Jennifer Westbay, PhD
Laurel A. Westrup, PhD
Reed D. Wilson, PhD

Scope and Objectives

Students need to develop their proficiency as writers and communicators at every stage of their university careers and beyond. Writing Programs offers a series of courses introducing the varieties of university discourse and providing instruction in basic to high-level skills. Besides courses that satisfy the University of California Entry-Level Writing requirement and UCLA's English as a Second Language, Writing I, and Writing II requirements, Writing Programs offers language support for international teaching assistants, as well as advanced courses in writing across the curriculum and composition pedagogy.

Undergraduate Study

Entry-Level Writing

Every student who does not satisfy the Entry-Level Writing requirement by presenting transfer credit or acceptable test scores is required to take, as early as possible during the first year in residence, English Composition A, 2, or 2I as determined by performance on the Analytical Writing Placement Examination (AWPE). Students who have not otherwise satisfied the Entry-Level Writing requirement and who have not taken the AWPE before entering UCLA must take it in their first term. For more information regarding Entry-Level Writing, see Undergraduate Degree Requirements in the Undergraduate Study section of this catalog.

English as a Second Language Requirement

All entering undergraduate students whose native language is not English and who have not otherwise satisfied the English as a Second Language (ESL) requirement may be required to take one or more ESL courses. First-year undergraduate students are placed into the courses based on the AWPE.

Some transfer students may be held for the ESL requirement. Students are placed into the courses based on the UCLA English as a Second Language Placement Examination (ESLPE) and may be held for up to three English Composition courses (1A, 1B, 1C). Transfer students who are required to sit for the ESLPE include (1) those who have not yet satisfied the Intersegmental General Education Transfer Curriculum (IGETC) and (2) those held

at the discretion of Transfer Admission. The ESLPE may be taken once only.

Graduate Study

English as a Second Language Requirement

All entering graduate students whose native language is not English and who have not otherwise satisfied the English as a Second Language (ESL) requirement may be required to take one or more ESL courses. Students are placed into the courses based on the UCLA English as a Second Language Placement Examination (ESLPE) and may be held for up to two ESL courses (200, 201).

The following students are exempt from the ESL requirement: (1) students who hold a bachelor's or higher degree from a university in which English is the medium of instruction and (2) students with a score of 100 or better on the TOEFL iBT (Test of English as a Foreign Language Internet-Based Test) or at least a 7.5 overall band score on the International English Language Testing System (IELTS) examination. See International Applicants in the Graduate Study section of this catalog.

Graduate Degree

Writing Programs offers a Graduate Certificate in Writing Pedagogy.

English as a Second Language

Lower Division Courses

20. Conversation and Fluency. (4) (Formerly numbered 32.) Lecture, four hours. Emphasis on speaking fluently in English by examining rules of conversation, participating actively in class discussions, making group presentations, and completing out-of-class assignments designed to promote interaction with native speakers and familiarize international students with UCLA campus and local community. Offered in summer only. P/NP or letter grading.

21. Pronunciation. (4) Lecture, four hours. Designed to improve clarity, accuracy, and understanding of spoken English through study and practice of pronunciation features as they occur in real speech, using models from television, movies, and online talks. Emphasis on individualized feedback through audiorecording and videorecording technology. Offered in summer only. P/NP or letter grading.

22. Public Speaking. (4) Lecture, four hours. Emphasis on making presentations, interacting with audience members, and leading group discussions. Videorecording of student performances to allow students to improve through self and peer evaluation, as well as through individualized instructor feedback. Offered in summer only. P/NP or letter grading.

23. American Culture through Film. (4) Lecture, four hours. Designed to improve listening comprehension and discussion skills by viewing and analyzing variety of American films. Emphasis on understanding and using idiomatic language, expanding vocabulary, recognizing dialect differences, and reflecting on cultural similarities and differences. Offered in summer only. P/NP or letter grading.

24. Preparation for American Universities. (4) Lecture, four hours. Designed for international students planning to study at American universities. Students research suitable undergraduate or graduate programs, interview advisers at local universities, and learn to write effective personal statements. Addi-

WRITING PROGRAMS

College of Letters and Science

UCLA
146 Humanities Building
Box 951384
Los Angeles, CA 90095-1384
310-206-1145
fax: 310-267-2224
<http://wp.ucla.edu>

Bruce J. Beiderwell, PhD, *Director*
Leigh C. Harris, PhD, *Associate Director*

Lecturers

Bruce J. Beiderwell, PhD
Leslie A. Bennett, MS
Teddi L. Chichester, PhD
Tamar S. Christensen, MA
Richard A. Creese, PhD
Margaret E. Davis, MA
Esha N. De, PhD
Nathan A. Deuel, MFA
Randall J. Fallows, PhD
Ed P. Frankel, MA
Rachel I. Fretz, PhD
George E. Gadda, CPhil
Mary E. Galvin, PhD
Lisa Gerrard, PhD
Cheryl F. Giuliano, PhD
Janet M. Goodwin, MA
Susan M. Griffin, PhD
Leigh C. Harris, PhD
Thomas A. Hitchner, PhD
Christine Holten, MA
Laila D. Hualpa, PhD
Colleen M. Jaurettche, PhD
Jeremy C. Kelley, PhD
David M. Kipen, BA
Janette Lewis, PhD
Bonnie J. Lisle, PhD
Karl F. Lisovsky, MA
Sonia Maasik, MA
Sandra Mano, PhD

tional focus on academic reading, vocabulary, and speaking skills. Offered in summer only. P/NP or letter grading.

25. Academic Reading and Writing. (4) Lecture, four hours. Designed to improve reading speed, comprehension, and knowledge of academic writing conventions. Emphasis on synthesizing information from sources, providing proper citations, and avoiding plagiarism. Focus on development of ability to revise and edit one's own writing. Offered in summer only. P/NP or letter grading.

26. Business Communication: Speaking. (4) Lecture, four hours. Emphasis on giving business and marketing-focused presentations (both individual and group), handling audience questions, and running effective meetings. Videorecording of student performances to allow students to improve through self-evaluation, as well as through individualized instructor feedback. Offered in summer only. P/NP or letter grading.

27. Business Communication: Writing. (4) Lecture, four hours. Emphasis on writing persuasive texts for diverse business audiences. Topics include writing effective summaries and reports, researching companies, and developing professional online profile. Offered in summer only. P/NP or letter grading.

97A. Variable Topics in English as a Second Language. (4) Lecture, four hours. Specialized topics in English as second language or English for academic purposes. Emphasis varies according to topics covered and/or audience to whom course is directed. May be repeated for credit with topic change. Offered in summer only. P/NP (undergraduates), S/U (graduates), or letter grading.

97B. Variable Topics in English as a Second Language. (2) Lecture, two hours. Enforced requisite: course 33B or proficiency demonstrated on English as a Second Language Placement Examination. Specialized topics in English as second language or English for academic purposes. Emphasis varies according to topics covered and/or audience to whom course is directed. May be repeated for credit with topic change. P/NP (undergraduates), S/U (graduates), or letter grading.

Upper Division Courses

103. Pronunciation for Multilingual Students. (4) (Formerly numbered 38B.) Lecture, four hours. Emphasis on accurate articulation of sounds, word stress, rhythm, linking between syllables, intonation, and other features of fluent spoken English, using variety of videorecorded models and online pronunciation resources. Individualized feedback provided through frequent recording assignments. P/NP or letter grading.

104. Public Speaking for Multilingual Students. (4) (Formerly numbered 34.) Lecture, four hours. Emphasis on making presentations in academic and professional settings, interacting with audience members, leading group discussions, and preparing for job interviews. Videorecording of student performances to allow students to improve through self and peer evaluation, as well as through individualized instructor feedback. P/NP or letter grading.

105. Advanced Grammar and Style for Multilingual Students. (4) (Formerly numbered 37.) Lecture, four hours. Review of form and use of common grammatical structures found in academic discourse. Analysis of stylistic function of certain structures and practice in self-editing strategies. P/NP or letter grading.

106. Workshop in Disciplinary Writing for Multilingual Students. (4) Lecture, four hours. Requisite: satisfaction of English as a Second Language requirement. Writing of texts that are rhetorically appropriate for discipline-specific audiences. Extensive revising of papers to allow writers to edit their texts for grammatical appropriateness and for clear and coherent style. Focus on language and writing issues of concern to multilingual writers. P/NP or letter grading.

107. Academic Reading and Vocabulary for Multilingual Students. (4) Lecture, four hours. Instruction in and practice of academic reading skills using authentic university texts. Focus on improving reading rate and comprehension, expanding academic vocabulary, and developing critical reading skills. P/NP or letter grading.

109. Literature and Language for Multilingual Students. (4) Lecture, four hours. Requisite: satisfaction of English as a Second Language requirement. Introduction to effective approaches to appreciating and analyzing variety of literature written in English. Review of literary techniques and terms to deepen understanding of poetry, short stories, and novels. Focus on author styles and grammatical and vocabulary choices. P/NP or letter grading.

197. Individual Studies in English as a Second Language. (4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study for undergraduate and graduate students who desire more advanced or specialized treatment of issues in English as second language beyond those covered in current course offerings. Scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required; see academic coordinator. P/NP (undergraduates), S/U (graduates), or letter grading.

Graduate Courses

200. Intermediate Writing and Communication for International Graduate Students. (4) Lecture, four hours. Enforced requisite: proficiency demonstrated on English as a Second Language Placement Examination. Development of academic reading, writing, and language skills with focus on reading comprehension, vocabulary development, and analysis of discipline-specific research articles, with additional work on fundamental composition techniques, grammar, and editing. S/U or letter grading.

201. High-Intermediate Writing and Communication for International Graduate Students. (4) (Formerly numbered 33G.) Lecture, four hours. Enforced requisite: course 200 or proficiency demonstrated on English as a Second Language Placement Examination. Development of academic writing skills with focus on reading comprehension, vocabulary development, and composition techniques, with additional work on grammar and editing. S/U or letter grading.

202. Advanced Writing Workshop for International Graduate Students. (4) Lecture, four hours. Requisite: course 201 or proficiency demonstrated on English as a Second Language Placement Examination. Writing and revision of papers for academic work or publication in student fields of study. Emphasis on rhetorical strategies as well as stylistic and organizational conventions for presenting research-based arguments in disciplines including humanities, social sciences, and pure and applied sciences. Focus on grammar structures and vocabulary that contribute to clear and coherent writing style. S/U or letter grading.

210. Pronunciation for International Teaching Assistants. (4) Lecture, four hours. Satisfies Test of Oral Proficiency (TOP) requirement for international graduate students who have received marginal pass on TOP. Focus on accurate articulation of sounds, word stress, linking, and other features of fluent spoken English, using authentic models of classroom language. Additional emphasis on comprehending typical undergraduate speech. Frequent audiorecordings and videorecordings provide opportunity for self-review and individualized instructor feedback. S/U grading.

211. Classroom Communication for International Teaching Assistants I. (4) (Formerly numbered 38A.) Lecture, four hours. Satisfies Test of Oral Proficiency (TOP) requirement for international graduate students who received marginal pass on TOP. Focus on stress, rhythm, and intonation of fluent spoken English using videos and transcripts of actual teaching assistants. Communication patterns include introducing syllabus, explaining visuals, handling questions, and interacting

in office hours. Microteaching performances videorecorded for self, peer, and instructor evaluation. S/U grading.

212. Classroom Communication for International Teaching Assistants II. (4) (Formerly numbered 39B.) Lecture, four hours. Satisfies Test of Oral Proficiency (TOP) requirement for international graduate students who received marginal pass on TOP. Course 211 is not requisite to 212. Focus on stress, rhythm, and intonation of fluent spoken English using videos and transcripts of actual teaching assistants. Communication patterns include building rapport, giving instructions, handling questions, encouraging participation, and organizing lessons. Microteaching performances videorecorded for self, peer, and instructor evaluation. S/U grading.

213. Presentation and Discussion-Leading Skills for International Teaching Assistants. (4) (Formerly numbered 39C.) Lecture, four hours. Satisfies Test of Oral Proficiency (TOP) requirement for international graduate students who received marginal pass on TOP. Focus on communicating effectively as teaching assistants through interactive teaching demonstrations and student-led discussions of topics from one's own field. Emphasis on presenting academic subject matter in well-organized, interactive, and accessible way. Student performances videorecorded for extensive self, peer, and instructor evaluation. S/U grading.

English Composition

Lower Division Courses

A. Introduction to University Discourse. (No credit) Lecture, five hours. Enforced requisite: appropriate score on Analytical Writing Placement Examination. Displaces 4 units on student's Study List but yields no credit toward degree. First course in reading university-level texts and framing written responses that employ range of rhetorical strategies from paraphrase to analysis. Emphasis on revision, developing syntactic variety and academic vocabulary, and editing for grammar and style. Completion of course with grade of C or better or demonstration of minimum competence on Analytical Writing Placement Examination is requisite to course 2. Letter grading.

1A. Intermediate Composition for Multilingual Students. (4) (Formerly numbered English as a Second Language 33B.) Lecture, five hours. Enforced requisite: proficiency demonstrated on Analytical Writing Placement Examination (first-year students) or English as a Second Language Placement Examination (transfer students). Development of academic writing skills with focus on reading comprehension, vocabulary development, and fundamental composition techniques, with additional work on grammar and editing. Letter grading.

1B. High-Intermediate Composition for Multilingual Students. (4) (Formerly numbered English as a Second Language 33C.) Lecture, five hours. Requisite: course 1A (C or better) or proficiency demonstrated on Analytical Writing Placement Examination (first-year students) or English as a Second Language Placement Examination (transfer students). Development of academic writing skills with focus on synthesizing sources, strategies of argumentation, academic reading, and vocabulary, with additional work on grammar and editing. Letter grading.

1C. Advanced Composition for Multilingual Transfer Students. (5) (Formerly numbered English as a Second Language 35.) Lecture, four hours. Requisite: course 1B (C or better) or proficiency demonstrated on English as a Second Language Placement Examination. Development of academic writing skills with focus on writing process, grammatical structures key to clear and effective style, and practice with major forms of academic writing, with additional work on critical analysis of readings. Completion of course with grade of C or better satisfies English as a Second Language requirement. Letter grading.

2. Approaches to University Writing. (5) Lecture, four hours. Requisite: course A with grade of C or better or appropriate score on Analytical Writing Placement Examination. Second course in university-level discourse, with analysis and critique of university-level texts. Emphasis on revision for argumentative coherence and effective style. Completion of course with grade of C or better satisfies Entry-Level Writing requirement. Letter grading.

2I. Approaches to University Writing for Multilingual Students. (5) Lecture, six hours. Requisite: course 1B (C or better) or demonstrated proficiency on Analytical Writing Placement Examination. Second course in university-level discourse, with analysis and critique of university-level texts. Emphasis on strategies for developing coherent and well-argued pieces of academic writing and for achieving effective and clear style in academic prose. Completion of course with grade of C or better satisfies Entry-Level Writing and English as a Second Language requirements. Letter grading.

3. English Composition, Rhetoric, and Language. (5) Lecture, three hours. Requisites: satisfaction of Entry-Level Writing requirement, course 1C or 2 (C or better). Rhetorical techniques and skillful argument. Analysis of varieties of academic prose and writing of minimum of 20 pages of revised text. Completion of course with grade of C or better satisfies Writing I requirement. Letter grading.

3D. English Composition, Rhetoric, and Language. (5) Lecture, three hours. Requisites: satisfaction of Entry-Level Writing requirement, course 1C or 2 or 2I (C or better). Rhetorical techniques and skillful argument, with focus on diversity and inclusiveness. Analysis of varieties of academic texts and writing of minimum of 20 pages of revised prose. Completion of course with grade of C or better satisfies Writing I requirement. Letter grading.

3SL. English Composition, Rhetoric, and Language (Service Learning). (5) Lecture, three hours; fieldwork, two hours. Requisites: satisfaction of Entry-Level Writing requirement, course 1C or 2 (C or better). Rhetorical techniques and skillful argument. Analysis of varieties of academic prose and writing of minimum of 20 pages of revised text. Service learning component includes meaningful work with off-campus agency selected by instructor. Completion of course with grade of C or better satisfies Writing I requirement. Letter grading.

5W. Literature, Culture, and Critical Inquiry. (5) Lecture, four hours. Enforced requisite: course 3. Use of analysis of literary works within cultural context to engage students in critical thinking and writing about issues important to academic inquiry and responsible citizenship. Minimum of 15 to 20 pages of revised text required in addition to regular informal writing exercises. Satisfies Writing II requirement. Letter grading.

6W. Language, Culture, and Discourse. (5) Lecture, four hours. Enforced requisite: course 3. Study of structure and use of English and how it reflects social structure and cultural values. Readings in linguistic analysis, language acquisition, sociolinguistics, and pragmatics provide foundation as students analyze authentic language as it is used in private and public contexts. Minimum of 15 to 20 pages of revised writing required. Satisfies Writing II requirement. Letter grading.

50. Writing Workshop. (2) Lecture, five hours. Designed for any students who have not yet enrolled in their first full term at UCLA. Introduction to demands of university writing and often unstated conventions that govern it. Writing techniques developed to address specific writing tasks such as timed examination, application essay, effective e-mail, and college paper. Offered in summer only. P/NP or letter grading.

51. Writing Workshop. (2) Lecture, two hours. Limited to students admitted to one UC campus who have not completed their first year of college coursework. Introduction to demands of university writing and often unstated conventions that govern it. Addresses not only specific writing tasks such as timed examinations, effective e-mails, and college papers,

but also broad communication concerns such as classroom participation and oral presentations. P/NP grading.

Upper Division Courses

100W. Interdisciplinary Academic Writing. (5) Lecture, four hours. Requisite: course 3 or 3H or English as a Second Language 36. Designed for sophomores/juniors/seniors. Course in academic writing suitable for both lower and upper division students that helps them develop academic papers with range of complexity and length. Focus on conventions of academic prose and genres across disciplines. Written assignments include common forms of academic writing such as argument, research paper, and/or critical essay. Satisfies Writing II requirement. Letter grading.

110. Writing Adjunct. (4) Lecture, four hours. Requisites: satisfaction of Entry-Level Writing requirement, course 3 or 3H. Students must be concurrently enrolled in course offered in conjunction with course 110 (consult Schedule of Classes for courses so designated). Writing assignments use materials from adjunct course and reflect and develop analytic writing skills needed in that course. May be repeated for credit with consent of instructor. P/NP or letter grading.

120A. Language Study for Teachers: Elementary School. (4) Lecture, four hours. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Survey of topics in English linguistics of special interest to elementary school teachers. Subjects include approaches to English grammar; language acquisition and development; language attitudes; regional and social dialects of American English; bilingual schooling; contribution of English language study to teaching of reading, writing, spelling, and literature. P/NP or letter grading.

120B. Language Study for Teachers of English: Secondary School. (4) Lecture, four hours. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Review of terminology of English grammar and survey of development of modern grammars. Introduction to basic concepts in bilingual and multilingual education, sociolinguistics, dialectology, and stylistics, especially as applied to analysis and evaluation of writing assigned in secondary school. P/NP or letter grading.

123. Information Literacy and Research Skills. (1) Lecture, one hour. Preparation: satisfaction of Writing I requirement. Designed to help students become information literate, so they know how to identify, locate, critically evaluate, and use print and electronic information effectively and ethically. Closely interwoven with Writing Programs courses that have information/research-related assignments. P/NP or letter grading.

129A-129D. Academic Writing in Disciplines. (4 each) Lecture, four hours. Designed for juniors/seniors. Advanced study of writing conventions in specific disciplinary areas, with focus on analysis and development of writing expertise in common discursive forms, stylistic patterns, and research practices in given discipline. Each course may be taken independently for credit. P/NP or letter grading. **129A.** Literature; **129B.** Social Sciences. Lecture, three hours; discussion, one hour; **129C.** Physical and Life Sciences; **129D.** Fine Arts.

130A. Composition for Teachers: Elementary School. (4) Lecture, four hours. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Preparation for future elementary school teachers of English composition in writing and criticism of kinds of prose discourse usually taught in primary schools. Letter grading.

130B. Composition for Teachers: Secondary School. (4) Lecture, four hours. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Preparation for future secondary school teachers of English composition in writing and criticism of kinds of prose discourse usually taught in secondary schools. P/NP or letter grading.

131A-131D. Specialized Writing. (4 each) Lecture, four hours. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Designed for juniors/seniors. Advanced writing course designed to help students develop stylistic, formal, and argumentative sophistication in various rhetorical contexts, including different sections that emphasize rhetorical values of major professions and research areas. Each course may be taken independently for credit. P/NP or letter grading. **131A.** Law and Politics; **131B.** Business and Social Policy; **131C.** Medicine and Public Health; **131D.** Media and Communications.

132A-132D. Topics in Rhetoric and Writing. (4 each) Lecture, four hours; discussion, one hour. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Designed for juniors/seniors. Study of specific topics in relationship between rhetoric/writing and social or political history. Each course may be taken independently for credit. P/NP or letter grading. English majors who wish to use course to satisfy departmental requisites must take it for letter grade. **132A.** Gender and Writing; **132B.** Autobiographical Writing; **132C.** Cultural Studies; **132D.** Variable Topics.

136A-136B-136C. Practical Writing and Editing. (4-4-4) Lecture, three hours. Preparation: one course from 131 series. Requisites: satisfaction of Entry-Level Writing requirement, course 3. Sequence in practical writing and editing ability specifically designed to prepare students for careers. Analysis of prose and literary styles necessary to variety of writing in professional, nonacademic fields combined whenever possible with practical experience in variety of writing internships and training in wide range of editorial skills. In Progress (136A) and P/NP or letter (136B, 136C) grading.

M141. Current Methods of Language Teaching. (5) (Same as Linguistics M141.) Lecture, four hours; discussion, one hour. Enforced requisite: Linguistics 20. Survey of theory and practice in teaching second languages, including (1) past and present methods used to teach second languages, (2) current theory and practice underlying skills-based instruction and integrated approaches, and (3) factors that affect second language acquisition and learning. Development of knowledge base in and rational base for design, development, implementation, and evaluation of second language instruction programs. P/NP or letter grading.

175. Apprenticeship in Composition Tutoring. (2) Seminar, two hours. Enforced requisite: satisfaction of Writing II requirement. Composition Peer Learning Facilitators (PLFs) who work in Undergraduate Writing Center provided with ongoing mentoring in composition and peer learning methodologies. Overview of language, writing, and literacy needs of diverse college-age writers, including developing writers, multilingual writers, and nonnative English-speaking (NNS) writers. Provides opportunity to reflect critically on theoretical and practical frameworks for tutoring to which students have been introduced. PLFs receive guidance in their tutoring process via observations by course instructor and their peers. May be repeated for credit with consent of instructor. P/NP grading.

195. Community or Corporate Internships in English Composition. (4) Tutorial, to be arranged. Requisites: course 3 or 3H, satisfaction of Writing II requirement. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

199. Directed Research or Senior Project in English Composition. (2 to 4) Tutorial, to be arranged. Requisite: course 3 or 3H. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

300. Teaching English. (4) Lecture, four hours. Required of candidates for single subject credential in English. Study of theories of rhetoric, composition, reading, and literature as they apply to secondary school or college English curriculum. S/U or letter grading.

401. Current Issues in University Writing Pedagogy. (4) (Formerly numbered 494.) Seminar, three hours. Limited to graduate students. Exploration of literature and theories of postsecondary writing pedagogy that may include focus on changing institutional role of writing instruction, multimodal composition, and linguistic/educational diversity. Letter grading.

495A. Teaching Preparation Seminar: Second Language Learners. (4) (Formerly numbered 495G.) Seminar, three hours. Limited to graduate students. Required of all English as a second language (ESL) teaching assistants and open to students seeking Graduate Certificate in Writing Pedagogy. Focus on pedagogical issues specifically related to academic reading and composition skills for second language learners, including course design, assessment of student writing, conferencing, and specialized problems that may occur in teaching ESL courses. S/U grading.

495B. Supervised Teaching of Second Language Learners. (4) Seminar, two hours. Enforced requisite: course 495A. Required of all English as a second language (ESL) teaching assistants each term they are assigned to teach ESL courses. Focus on composition pedagogy, writing course design, assessment of student writing, and specialized problems that may occur in teaching ESL courses. S/U grading.

495C. Teaching Preparation Seminar: First-Year Composition. (4) (Formerly numbered 495B.) Seminar, three hours. Limited to graduate students. Required of all teaching assistants prior to teaching English Composition 3 courses and open to students seeking Graduate Certificate in Writing Pedagogy. Focus on composition pedagogy, writing course design, assessment of student writing, and specialized problems that may occur in teaching English Composition 3. S/U grading.

495D. Supervised Teaching of First-Year Composition. (2) (Formerly numbered 495C.) Seminar, two hours. Enforced requisite: course 495C. Required of all teaching assistants who are assigned to English Composition 3 courses. Focus on composition pedagogy, writing course design, assessment of student writing, and specialized problems that may occur in teaching English Composition 3. May be repeated for credit. S/U grading.

495E. Teaching Preparation Seminar: Writing in Disciplines. (2) (Formerly numbered 495A.) Seminar, two hours. Limited to graduate students. Required of all teaching assistants for Writing II courses not exempt by appropriate departmental or program training and open to students seeking Graduate Certificate in Writing Pedagogy. Training focused on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in disciplinary contexts. Practical concerns of creating assignments, marking and grading essays, and conducting peer reviews and conferences. S/U grading.

495F. Supervised Teaching of Writing in Disciplines. (2) (Formerly numbered 495D.) Seminar, two hours. Enforced requisite: course 495E. Required of all teaching assistants for Writing II courses not exempt by appropriate departmental or program training. Mentoring conferences and teaching obser-

vations, with focus on student-centered pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in disciplinary contexts. Practical concerns of creating assignments, marking and grading essays, and conducting peer reviews and conferences. May be repeated for credit. S/U grading.

M495I. Teaching Preparation Seminar: Writing for Engineers. (2) (Formerly numbered M495E.) (Same as Engineering M495I.) Seminar, two hours. Limited to graduate students. Required of all teaching assistants for Engineering writing courses not exempt by appropriate departmental or program training. Training and mentoring, with focus on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in engineering writing contexts. Practical concerns of preparing students to write course assignments, marking and grading essays, and conducting peer reviews and conferences. S/U grading.

M495J. Supervised Teaching of Writing for Engineers. (2) (Formerly numbered M495F.) (Same as Engineering M495J.) Seminar, one hour. Enforced requisite: course M495I. Required of all teaching assistants in their initial term of teaching Engineering writing courses. Mentoring in group and individual meetings. Continued focus on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in engineering writing contexts. Practical concerns of preparing students to write course assignments, marking and grading essays, and conducting peer reviews and conferences. S/U grading.

Appendices

APPENDIX A: REGULATIONS AND POLICIES

Nondiscrimination

The University of California, in accordance with applicable federal and state laws and University policies, does not discriminate on the basis of race, color, national origin, religion, sex, gender identity, pregnancy (including pregnancy, childbirth, and medical conditions related to pregnancy and childbirth), physical or mental disability, medical condition (cancer-related or genetic characteristics), ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services (including membership, application for membership, performance of service, application for service, or obligation for service in the uniformed services). The University also prohibits sexual harassment. This nondiscrimination policy covers admission, access, and treatment in University programs and activities.

Inquiries regarding the University's student-related nondiscrimination policies may be directed to the UCLA Campus Counsel, 3149 Murphy Hall, Box 951405, Los Angeles, CA 90095-1405, 310-825-4042.

Inquiries regarding nondiscrimination on the basis of disability covered by the Americans with Disabilities Act (ADA) of 1990 or Section 504 of the Rehabilitation Act of 1973 may be directed to the ADA and 504 Compliance Officer, A239 Murphy Hall, UCLA, Box 951405, Los Angeles, CA 90095-1405, voice 310-825-1514, TTY 310-206-3349. See <http://www.ada.ucla.edu>.

Title IX prohibits sex discrimination, including sexual harassment and sexual violence, in any education program or activity receiving federal financial assistance. Inquiries regarding the application of Title IX may be directed to the Title IX Coordinator, 2241 Murphy Hall, 310-206-3417, titleix@conet.ucla.edu, or the U.S. Department of Education Office for Civil Rights at ocr@ed.gov.

Students may grieve any action that they believe discriminates against them on the ground of race, color, national origin, marital status, sex, sexual orientation, disability, or age by contacting the Office of Student Conduct, 1206 Murphy Hall. Refer to UCLA Procedure 230.1 available in 1206 Murphy Hall or at <http://policy.ucop.edu/doc/2710531/PACAO-110> for further information and procedures.

Student Conduct Policies

Students are members of both society and the academic community with attendant rights and responsibilities. Students are expected to make themselves aware of and comply with the law, and with University and campus policies and regulations. While many of UCLA's policies and regulations parallel federal, state,

and local laws, UCLA's standards may be set higher. The *University of California Policies Applying to Campus Activities, Organizations, and Students (UC Policies)* have been incorporated into the *UCLA Student Conduct Code* either by adapting or inserting verbatim the language of the policies. The complete *University of California Policies Applying to Campus Activities, Organizations, and Students* is available at <http://ucop.edu/student-affairs/policies/student-life-policies/pacaos.html>. Students may contact the Office of Student Conduct, Office of Ombuds Services, or Student Legal Services for advice concerning these policies.

A. Jurisdiction

The University has jurisdiction over student conduct that occurs on University property, or in connection with official University functions whether on or off University property. The University may, at its sole discretion, exercise jurisdiction over conduct that occurs off campus and that would violate student conduct when (1) the alleged misconduct indicates the student poses a threat to the safety or security of any member(s) of the University community or (2) the alleged misconduct involves academic work or the forgery, alteration, or misuse of any University document, record, key, electronic device, or identification.

In determining whether or not to exercise off-campus jurisdiction, the University will consider the seriousness of the alleged misconduct; whether the alleged victim is a member of the campus community; the ability of the University to gather information, including the statements of witnesses; and whether the off-campus conduct is part of a series of actions that occurred both on and off campus.

B. Types of Misconduct

Students may be held accountable for committing or attempting to commit a violation of the *UCLA Student Conduct Code* or for assisting, facilitating, or participating in the planning of an act that violates this Code (or an act that would be in violation of this Code if it were carried out by a student). Violations include the following types of misconduct:

102.01: Academic Dishonesty. All forms of academic misconduct, including but not limited to cheating, fabrication or falsification, plagiarism, multiple submissions, or facilitating academic misconduct. For the purposes of the *UCLA Student Conduct Code*, the following definitions apply:

102.01a: Cheating. Cheating includes, but is not limited to, the use of unauthorized materials, information, or study aids in any academic exercise; the alteration of any answers on a graded document before submitting it for regrading; or the failure to observe the expressed procedures or instructions of an academic exercise (e.g., examination instructions regarding alternate seating or conversation during an examination).

102.01b: Fabrication. Fabrication includes, but is not limited to, falsification or invention of any information or citation in an academic exercise, including fabrication or falsification of research. Fabrication of research is making up data or results and recording or reporting them. Falsification of research is manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.

102.01c: Plagiarism. Plagiarism includes, but is not limited to, the use of another person's work (including words, ideas, designs, or data), without giving appropriate attribution or citation. This includes, but is not limited to, representing, with or without the intent to deceive, part or all of an entire work obtained by purchase or otherwise, as the student's original work; the omission of or failure to acknowledge the true source of the work; or representing an altered but identifiable work of another person or the student's own previous work as if it were the student's original or new work.

Unless otherwise specified by the faculty member, all submissions, whether in draft or final form, to meet course requirements (including a paper, project, take-home examination, computer program, oral presentation, or other work) must either be the student's own work, or must clearly acknowledge the source.

102.01d: Multiple Submissions. Multiple submissions includes, but is not limited to, the resubmission in identical or similar form by a student of any work which has been previously submitted for credit, whether at UCLA or any other school, college, or university in identical or similar form in one course to fulfill the requirements of a second course, without the informed permission/consent of the instructor of the second course; or the submission by a student of any work submitted for credit in identical or similar form in one course to fulfill the requirements of a concurrent course, without the permission/consent of the instructors of both courses.

102.01e: Facilitating Academic Dishonesty. Facilitating academic dishonesty includes, but is not limited to, knowingly helping another student commit an act of academic dishonesty.

102.01f: Coercion Regarding Grading or Evaluation of Coursework. Threatening personal or professional repercussions or discipline against an instructor to coerce the instructor to change a grade or otherwise evaluate the student's work by criteria not directly reflective of coursework.

102.01g: Unauthorized Collaboration. Unauthorized collaboration means working with others without the expressed permission of the instructor on any submission, whether in draft or final form, to meet course requirements (including a paper, project, take-home examination, computer program, oral presentation, or other work). Collaboration between students

will be considered unauthorized unless expressly part of the assignment in question, or expressly permitted by the instructor.

102.02: Other Forms of Dishonesty. Other forms of dishonesty, including but not limited to fabricating information or knowingly furnishing false information or reporting a false emergency to the University.

102.03: Forgery. Forgery, alteration, or misuse of any University document, record, key, electronic device, or identification, or submission of any forged document or record to the University.

102.04: Theft, Damage, or Destruction of Property.

102.04a: Theft. Theft includes taking without expressed permission or, misappropriation of any property or services of the University or property of others while on University premises or at official University functions; or possession of any property that the student had knowledge or reasonably should have had knowledge was stolen.

102.04b: Damage or Destruction of Property. Damage or destruction of any University property or the property of others while on University premises or at official University functions.

102.05: Computer Misuse. Theft or abuse of University computers and other University electronic resources such as computer and electronic communications facilities, systems, and services. Abuses include, but are not limited to, unauthorized entry, use, transfer, or tampering with the communications of others; use of either software or physical devices to enroll in classes for yourself or on behalf of others using processes other than those specifically delineated by the UCLA Registrar's Office; interference with the work of others and with the operation of computer or electronic communications facilities, systems, and services; or violations of copyright laws, whether by theft, unauthorized sharing, or other misuse of copyrighted materials such as songs, movies, software, photos, or text. Violation of the *University of California Electronic Communications Policy* (available at <http://policy.ucop.edu/doc/7000470/ElectronicCommunications>), or of any other University acceptable or allowable use policy is also considered a violation of Section 102.05.

102.06: Unauthorized Use of University Resources or Name. Unauthorized entry to, possession of, receipt of, or use of any University services, equipment, resources, or properties, including the University's name, insignia, or seal.

102.07: Violations of University Policy. Students may be subject to discipline for violation of any University policy.

102.07a: University Housing. Violations of policy regarding University-owned, -operated, or -leased housing facilities or other housing facilities located on University property.

102.07b: University Parking. Violations of policy regarding University parking services or University-owned or -operated parking facilities.

102.07c: University Recreation. Violations of policy regarding University recreation services, programs, or within University-owned or -operated recreation facilities.

102.07d: University Identification Card (BruinCard). Violation of policies, regulations, or rules governing use of official University identification cards, including manufacturing or possession of false identification cards, using another person's BruinCard to obtain services or establish identity, facilitating the misuse of one's BruinCard by another person to obtain services or establish identity, or other misuse of the BruinCard.

102.08: Conduct that Threatens Health or Safety. Conduct that threatens the health or safety of any person, including oneself. This includes, but is not limited to, physical assault, sexual misconduct, domestic violence, dating violence, threats that cause a person reasonably to be in sustained fear for one's own safety or the safety of her or his immediate family, incidents involving the use or display of a weapon likely to cause great bodily harm, and intoxication or impairment through the use of alcohol or controlled substances to the point one is unable to exercise care for one's own safety, or other conduct that threatens the health or safety of any person.

For incidents involving allegations of sexual violence (including domestic violence, dating violence, and sexual assault), see the *UC Policy on Sexual Violence and Sexual Harassment* (hereafter referred to as the *SVSH Policy*) at <http://policy.ucop.edu/doc/4000385/SVSH>.

102.09: Sexual Harassment.

For incidents involving allegations of sexual harassment, see the *SVSH Policy*.

102.10: Stalking. Stalking is behavior in which a student repeatedly engages in a course of conduct directed at another person and makes a credible threat with the intent to place that person in reasonable fear for his or her safety, or the safety of his or her family, where the threat is reasonably determined by the University to seriously alarm, torment, or terrorize the person, and where the threat is additionally determined by the University to serve no legitimate purpose.

The *UCLA Student Conduct Code* prohibits retaliation against a person who reports stalking, assists someone with a report of stalking, or participates in any manner in an investigation or resolution of a stalking report. Retaliation includes threats, intimidation, reprisals, and/or adverse actions related to employment or education.

For stalking violations of a sexual nature, see the *SVSH Policy*.

102.11: Harassment. Harassment is defined as conduct that is so severe and/or pervasive, and objectively offensive, and that so substantially impairs a person's access to University programs or activities that the person is effectively denied equal access to the University's resources and opportunities.

Sanctions may be enhanced where an individual was selected for harassment because of the individual's race, color, national or ethnic origin, citizenship, sex, religion, age, sexual orientation, gender identity, pregnancy, marital status, ancestry, service in the uniformed services, physical or mental disability, medical condition, or perceived membership in any of these classifications.

For violations involving sexual harassment and sexual violence (including domestic violence, dating violence, and sexual assault), see the *SVSH Policy*.

102.12: Hazing. Participating in, engaging in, or supporting hazing or any method of initiation or preinitiation into a campus organization or other activity engaged in by the organization or members of the organization at any time that causes, or is likely to cause, physical injury or personal degradation or disgrace resulting in psychological harm to any student or other person.

102.13: Obstruction or Disruption. Obstruction or disruption of teaching, research, administration, disciplinary procedures, or other University activities.

102.14: Disorderly Behavior. Engaging in disorderly or lewd conduct.

102.15: Disturbing the Peace. Participation in a disturbance of the peace or unlawful assembly.

102.16: Failure to Comply. Failure to identify oneself to, or comply with directions of, a University official or other public official acting in the performance of her or his duties while on University property or at official University functions, or resisting or obstructing such University or other public officials in the performance of or the attempt to perform their duties.

102.17: Controlled Substances. Manufacture, distribution, dispensing, possession, use, or sale of, or the attempted manufacture, distribution, dispensing, or sale of controlled substances (including medicinal marijuana), identified in federal and state laws or regulations, which is unlawful or otherwise prohibited by, or not in compliance with, any University policy or campus regulations or being unable to exercise care for one's own safety because one is under the influence of controlled substances. NOTE: This provision shall not apply to circumstances wherein the person under the influence was given a controlled substance without her or his knowledge and permission.

102.18: Alcohol. Manufacture, distribution, dispensing, possession, use, or sale of, or the attempted manufacture, distribution, dispensing, or sale of alcohol which is unlawful or otherwise prohibited by, or not in compliance with, University policy or campus regulations, or being unable to exercise care for one's own safety because one is under the influence of alcohol. NOTE: This provision shall not apply to circumstances wherein the person under the influence was given alcohol without her or his knowledge and permission.

102.19: Destructive Devices. Possession, use, storage, or manufacture of explosives, firebombs, or other destructive devices.

102.20: Weapons and Replica Weapons.

102.20a: Weapons. Except as expressly permitted by law, possession, use, storage, or manufacture of a firearm or other weapon capable of causing bodily injury is prohibited.

102.20b: Replica Weapons. Except as expressly permitted by UCPD policy, possession, use, storage, or manufacture of replicas of firearms or other weapons is prohibited.

102.21: Violation of Disciplinary Conditions. Violation of the conditions contained in the terms of a disciplinary action imposed under the *UCLA Student Conduct Code*.

102.22: Violation of Interim or Emergency Suspension Conditions. Violation of the conditions contained in a written Notice of Interim or Emergency Suspension issued pursuant to Section IV of the *UCLA Student Conduct Code*.

102.23: Unauthorized Use or Sale of University Materials. Except as provided herein, no student shall give, sell, or otherwise distribute to others or publish any recording made during any course presentation without the written consent of the University and the instructor/presenter. This policy is applicable to any recording in any medium, including handwritten or typed notes.

Any distribution of a recording of a course presentation at UCLA that captures the actual sounds and/or images of that course presentation, in any medium, must consider not only the rights of the instructor and the University, but also those of other parties. Examples include the privacy rights of students enrolled in the course, the rights of guest lecturers, and the copyright interests in materials authored by others that are displayed or presented during the course presentation. In addition to the consent of the University and the instructor/presenter, it may be necessary to secure permission from these other parties before any recording, distribution, publication, or communication is legally permitted.

102.23a: Selling Academic Materials. Selling, preparing, or distributing for any commercial purpose academic materials, including but not limited to written, video, or audio recordings of any course unless authorized by the University in advance and explicitly permitted by the course instructor in writing. The unauthorized sale or commercial distribution of academic materials, including but not limited to recordings, by a student is a violation of the *UCLA Student Conduct Code* whether or not it was the student or someone else who prepared the notes or recordings. This policy is applicable to any recording in any medium, including handwritten or typed notes.

102.23b: Copying Course Notes. Copying for any commercial purpose handouts, readers, or other course materials provided by an instructor as part of a University of California course unless authorized by the University in advance and explicitly permitted by the course instruc-

tor or the copyright holder in writing (if the instructor is not the copyright holder). Students currently enrolled in a course may provide a copy of their own notes or recordings to other currently enrolled students for noncommercial purposes reasonably arising from participation in the course, including individual or group study.

102.23c: Commencement Tickets. Selling commencement tickets.

102.24: Misuse of University Property. Organizing or carrying out unlawful activity on University property.

102.25: Violations of Law. Students may be subject to discipline on the basis of a conviction under any federal, California state, or local criminal law, when the conviction constitutes reasonable cause to believe that the student poses a threat to the health or safety of any person, or to the security of any property, on University premises or at official University functions, or to the orderly operation of the campus.

102.26: Terrorizing Conduct. Conduct, where the actor means to communicate a serious expression of intent to terrorize, or acts in reckless disregard of the risk of terrorizing, one or more University students, faculty, or staff. Terrorize means to cause a reasonable person to fear bodily harm or death, perpetrated by the actor or those acting under his/her control. Reckless disregard means consciously disregarding a substantial risk. This section applies without regard to whether the conduct is motivated by race, ethnicity, personal animosity, or other reasons. This section does not apply to conduct that constitutes the lawful defense of oneself, of another, or of property.

102.27: Unwanted Personal Contact. Contact (whether physical, verbal, written, face-to-face, telephonic, electronic, or by other means) that (1) a student knows or should know is unwanted, (2) is communicated directly to one or more specific students, faculty, or staff, (3) constitutes severe and/or pervasive, and objectively offensive, conduct, and (4) does not constitute speech protected by the First Amendment to the U.S. Constitution (e.g., speech in a public forum on a matter of public concern).

102.28: Expectation of Privacy. The following is prohibited:

Making a video recording, audio recording, taking photographs, or streaming audio/video of any person in a location where the person has a reasonable expectation of privacy, without that person's knowledge and express consent.

Making a video recording, audio recording, or streaming audio/video of private nonpublic conversations and/or meetings, without the knowledge and express consent of all recorded parties.

Looking through a hole or opening, into, or otherwise viewing, by means of any instrumentality, the interior of a private location without the subject's knowledge and express consent.

Express consent is clear, unmistakable, and voluntary consent that may be in written, oral, or nonverbal form.

Private locations are settings where the person reasonably expected privacy. For example, in most cases the following are considered private locations: residential living quarters, bathrooms, locker rooms, and personal offices.

Private nonpublic conversations and/or meetings include any communication carried on in circumstances that reasonably indicate that any party wants the communication to be confined to the parties, but excludes a communication made in a public gathering, or in any other circumstance in which the parties to the communication may reasonably expect that the communication may be overheard or recorded.

These provisions do not extend to public events or discussions, nor to lawful official law or policy enforcement activities. These provisions may not be utilized to impinge on the lawful exercise of constitutionally protected rights of freedom of speech or assembly.

Sexual Assault and Other Sexual Violence

UCLA does not tolerate sexual violence and responds to all reports of sexual violence in accordance with UCLA Procedures and the *UC Policy on Sexual Violence and Sexual Harassment* at <http://policy.ucop.edu/doc/4000385/SVSH>. Sanctions for a student found responsible for committing sexual assault or other sexual violence may include dismissal from the University. See <http://www.sexualviolence.ucla.edu/Policies>.

If a Person Has Been Sexually Assaulted

Those who believe that they are the victims of sexual assault should

- Immediately call the police department.** If possible, call the UCLA Police Department at 310-825-1491 or 911
- Get medical attention.** Campus police will provide transportation to the Rape Treatment Center at Santa Monica-UCLA Medical Center for medical treatment and evidence collection. A confidential counselor from the Rape Treatment Center will be available at that time, free of charge

Utilize confidential campus and community support services:

- Contact a Campus Assault Resources and Education (CARE) advocate.** CARE advocates have expertise in working with people who have been sexually assaulted or who have experienced sexual violence. They can discuss options and alternatives, help identify the most appropriate support services, and provide information about medical care, psychological counseling, academic assistance, legal options, how to file a police report, and how to file a complaint with the Title IX Office. CARE advocates are available to assist any UCLA student regardless of where or

when the assault occurred. For assistance, contact CARE at 310-206-2465 or go to Wooden Center West First Floor and ask to speak to a CARE advocate.

2. **Contact the Rape Treatment Center** at Santa Monica-UCLA Medical Center (424-259-7208) for free emergency medical treatment and counseling services. See <http://www.911rape.org>.

Caring assistance is available for persons who have been subjected to sexual violence. They are encouraged in the strongest terms to make a report.

Harassment

Sexual Harassment

The University of California is committed to creating and maintaining a community where all persons who participate in University programs and activities can work and learn together in an atmosphere free from all forms of harassment, exploitation, or intimidation. Every member of the University community should be aware that the University is strongly opposed to sexual harassment and that such behavior is prohibited both by law and by the *UC Policy on Sexual Violence and Sexual Harassment* (hereafter referred to as the *SVSH Policy*) at <http://policy.ucop.edu/doc/4000385>. The University will respond promptly and effectively to reports of sexual harassment and will take appropriate action to prevent, correct and, if necessary, discipline behavior that violates the *SVSH Policy*. See <http://www.sexualharassment.ucla.edu>.

Definitions

For detailed definitions of **sexual harassment**, refer to the *SVSH Policy*.

Complaint Resolution

An individual who believes that she or he has been sexually harassed may contact the Title IX Coordinator, 2241 Murphy Hall, 310-206-3417, titleix@conet.ucla.edu. If a student reports sexual harassment or sexual violence to a responsible employee, as defined under the *SVSH Policy*, the responsible employee must report it to the Title IX coordinator. Responsible employees include academic personnel, faculty members, and most other employees who are not defined as a confidential resource under the *SVSH Policy*.

Title IX prohibits sex discrimination, including sexual harassment and sexual violence, in any education program or activity receiving federal financial assistance. Inquiries regarding the application of Title IX may be directed to the Title IX Coordinator, 2241 Murphy Hall, 310-206-3417, titleix@conet.ucla.edu, or the U.S. Department of Education Office for Civil Rights at ocr.ed.gov.

Other Forms of Harassment

The University strives to create an environment that fosters the values of mutual respect and tolerance and is free from discrimination based on race, ethnicity, sex, religion, sexual orientation, disability, age, and other personal characteristics. Certainly harassment, in its many

forms, works against those values and often corrodes a person's sense of worth and interferes with one's ability to participate in University programs or activities. While the University is committed to the free exchange of ideas and the full protection of free expression, the University also recognizes that words can be used in such a way that they no longer express an idea, but rather injure and intimidate, thus undermining the ability of individuals to participate in the University community. The *University of California Policies Applying to Campus Activities, Organizations, and Students* (hereafter referred to as *Policies*; <http://ucop.edu/student-affairs/policies/student-life-policies/pac-aos.html>) presently prohibit a variety of conduct by students which, in certain contexts, may be regarded as harassment or intimidation.

For example, harassing expression which is accompanied by physical abuse, threats of violence, or conduct that threatens the health or safety of any person on University property or in connection with official University functions may subject an offending student to University discipline under the provisions of the *Policies*.

Similarly, harassing conduct, including symbolic expression, which also involves conduct resulting in damage to or destruction of any property of the University or property of others while on University premises may subject a student violator to University discipline under the provisions of Section 102.04 of the *Policies*.

Further, under specific circumstances described in Section 102.11 of the *Policies*, students may be subject to University discipline for misconduct which may consist solely of expression. Copies of this *Policy* are available in the Office of Student Conduct, 1206 Murphy Hall, or in any of the Harassment Information Centers listed below:

1. Title IX Office, 2241 Murphy Hall, 310-206-3417, <http://www.sexualharassment.ucla.edu>
2. Counseling and Psychological Services, 221 Wooden Center West, 310-825-0768, <http://www.counseling.ucla.edu>
3. Dashew Center for International Students and Scholars, 106 Bradley Hall, 310-825-1681, <http://www.internationalcenter.ucla.edu>
4. Office of Fraternity and Sorority Relations, 105 Kerckhoff Hall, 310-825-6322, <http://www.greeklife.ucla.edu>
5. Office of Ombuds Services, 105 Strathmore Building, 310-825-7627, <http://www.ombuds.ucla.edu>
6. Residential Life, 205 Bradley Hall, 310-825-3401, <https://reslife.ucla.edu>

Complaint Resolution

One of the necessary measures in our efforts to assure an atmosphere of civility and mutual respect is the establishment of procedures which provide effective informal and formal mechanisms for those who believe that they have been victims of any of the above misconduct.

Many incidents of harassment and intimidation can be effectively resolved through informal

means. For example, an individual may wish to confront the alleged offender immediately and firmly. An individual who chooses not to confront the alleged offender and who wishes help, advice, or information is urged to contact any of the Harassment Information Centers listed immediately above.

In addition to providing support for those who believe they have been victims of harassment, Harassment Information Centers offer persons the opportunity to learn about the phenomena of harassment and intimidation; to understand the formal and informal mechanisms by which misunderstandings may be corrected and, when appropriate, student perpetrators may be disciplined; and to consider which of the available options is the most useful for the particular circumstances.

With regard to the *Universitywide Student Conduct Harassment Policy*, complainants should be aware that not all conduct which is offensive may be regarded as a violation of this *Policy* and may, in fact, be protected expression. Thus, the application of formal institutional discipline to such protected expression may not be legally permissible. Nevertheless, the University is committed to reviewing any complaint of harassing or intimidating conduct by a student and intervening on behalf of the complainant to the extent possible.

Faculty Code of Conduct

The entire Faculty Code of Conduct can be found in the *UCLA Faculty Handbook* (copies are available in the Academic Personnel Office, 3109 Murphy Hall, and at http://www.ucop.edu/academic-personnel-programs/_files/apm/apm-015.pdf). Part IIA of the Faculty Code of Conduct outlines faculty obligations to students and reads as follows:

Teaching and Students

Ethical Principles: "As teachers, the professors encourage the free pursuit of learning of their students. They hold before them the best scholarly standards of their discipline. Professors demonstrate respect for students as individuals and adhere to their proper roles as intellectual guides and counselors. Professors make every reasonable effort to foster honest academic conduct and to assure that their evaluations of students reflect each student's true merit. They respect the confidential nature of the relationship between professor and student. They avoid any exploitation, harassment, or discriminatory treatment of students. They acknowledge significant academic and scholarly assistance from them. They protect their academic freedom." (from 1966 AAUP statement, revised 1987)

Types of Unacceptable Conduct

Failure to meet the responsibilities of instruction, including (1) arbitrary denial of access to instruction, (2) significant intrusion of material unrelated to the course, (3) significant failure to adhere, without legitimate reason, to the rules of the faculty in the conduct of courses, to meet class, to keep office hours, or to hold examinations as scheduled, (4) evaluation of student work by criteria not directly reflective of

course performance, (5) undue and unexcused delay in evaluating student work.

Discrimination, including harassment, against a student on political grounds or for reasons of race, religion, sex, sexual orientation, gender, gender expression, gender identity, ethnic origin, national origin, ancestry, marital status, pregnancy, physical or mental disability, medical condition, genetic information, status as a covered veteran or, within the limits imposed by law or University regulations, because of age or citizenship or for other arbitrary or personal reasons.

Violation of University policy, including the pertinent guidelines, applying to nondiscrimination against students on the basis of disability.

Use of the position or powers of a faculty member to coerce the judgment or conscience of a student or to cause harm to a student for arbitrary or personal reasons.

Participating in or deliberately abetting disruption, interference, or intimidation in the classroom.

Entering into a romantic or sexual relationship with any student for whom a faculty member has, or should reasonably expect to have in the future, academic responsibility (instructional, evaluative, or supervisory).

Exercising academic responsibility (instructional, evaluative, or supervisory) for any student with whom a faculty member has a romantic or sexual relationship.

Charges of Violation

If a student has reason to believe that a faculty member has violated the Faculty Code of Conduct and that formal discipline may be warranted, the alleged violator should be reported to the chair of the department and to the dean of the division or school with a request that a charge be filed with the Academic Senate Charges Committee. If the dean, in consultation with the vice chancellor of Academic Personnel, determines that there are not sufficient grounds for the administration to file a charge, the student may, after discussing the matter with the Office of Ombuds Services and a member of the Academic Senate Grievance Advisory Committee, file such a charge in person if the student continues to feel it is warranted.

Residence for Tuition Purposes

Students who have not been living in California with intent to make it their permanent home for more than one year immediately before the residence determination date for each term in which they propose to attend the University must pay nonresident supplemental tuition in addition to all other fees. The residence determination date is the day instruction begins at the last of the University of California campuses to open for the quarter, and for schools on the semester system, the day instruction begins for the semester.

Who Is a Resident?

Persons who are adult students (at least 18 years of age) may establish residence for tuition purposes in California if (1) they are U.S. citizens, (2) they are permanent residents or other immigrants, or (3) they are nonimmigrants who are not precluded from establishing a domicile in the U.S.

Nonimmigrants who are not precluded from establishing domicile in the U.S. include those who hold valid visas of the following types: A, E, G, H-1, H-4, I, K, L, O-1, O-3, P-1, R, T, U, or V. To establish residence students must be physically present in California for more than one year, and they must have come here with the intent to make California their home as opposed to coming to this state to go to school. Physical presence within the state solely for educational purposes does not constitute the establishment of California residence, regardless of the length of stay. Students must demonstrate their intention to make California their home by severing any and all residential ties with their former state of residence and establishing those ties with California. If these steps are delayed, the one-year durational period is extended until students have demonstrated both presence and intent for one full year. If their parents are not California residents (over one year of physical presence with intent to remain in the state), students are required to be financially independent in order to be a resident for tuition purposes. Their residence cannot be derived from their spouse, registered domestic partner, or their parents.

Requirements for Financial Independence

Students are considered financially independent if one or more of the following apply: (1) they are at least 24 years of age by December 31 of the calendar year for which they are requesting residence classification; (2) they are a veteran of the U.S. Armed Forces; (3) they are a ward of the court or both parents are deceased; (4) they have legal dependents other than a spouse; (5) they are married, have a registered domestic partner, or are a graduate student or a professional student, and they were not claimed as an income tax deduction by their parents or any other individual for the tax year immediately preceding the term for which they are requesting resident classification; or (6) they are a single undergraduate student and they were not claimed as an income tax deduction by their parents or any other individual for the two tax years immediately preceding the term for which they are requesting resident classification, and they can demonstrate self-sufficiency for two full years prior to the residence determination date of the term they propose to attend the University through their own resources (such as employment, commercial loans, financial aid, and savings that can be officially documented). The two years required for self-support might not coincide with the two tax years during which they must not have been claimed by their parents.

Note: Financial dependence is not a factor in determining residence status for graduate student instructors, graduate student teaching as-

sistants, research assistants, junior specialists, postgraduate researchers, graduate student researchers, and teaching associates who are employed 49 percent or more of full time or awarded the equivalent in University-administered funds (e.g., grants, stipends, fellowships) in the term for which classification is sought.

Establishing Intent to Become a California Resident

Indications of students' intent to make California their permanent residence can include the following: (1) registering to vote and voting in California elections, (2) designating California as their permanent address on all school and employment records, including military records if they are in the U.S. Armed Forces, (3) obtaining a California Driver License or, if they do not drive, a California Identification Card, (4) obtaining California vehicle registration, (5) paying California income taxes as a resident, including taxes on income earned outside California from the date they establish residence, (6) establishing a California residence in which they keep their personal belongings, and (7) licensing for professional practice in California.

The absence of these indicia in other states during any period for which students claim residence can also serve as an indication of their intent. Documentary evidence is required, and all relevant indications are considered in determining the classification. Intent is questioned if students return to their prior state of residence when the University is not in session.

General Rules Applying to Minors

If students are unmarried minors (under age 18), the residence of the parent with whom they live is considered to be their residence. If they have a parent living, they cannot change their residence by their own act, by the appointment of a legal guardian, or by the relinquishment of their parent's right of control. If students live with neither parent, their residence is that of the parent with whom they last lived. Unless they are minor aliens present in the U.S. under the terms of a nonimmigrant visa that precludes them from establishing a domicile in the U.S., students may establish their own residence when both their parents are deceased and a legal guardian has not been appointed. If they derive California residence from a parent, that parent must satisfy the one-year durational residence requirement.

Specific Rules Applying to Minors

Divorced or Separated Parents

Minor U.S. citizens or eligible aliens may be able to derive California resident status from a California resident parent if they move to California to live with that parent before their 18th birthday. If they begin residing with their California parent after their 18th birthday, they are treated like any other adult student coming to California to establish residence.

Parent of Minor Moves from California

Students may be entitled to resident status if they are minor U.S. citizens or eligible aliens whose parent(s) was a resident of California who left the state within one year of the residence determination date if (1) they remained

in California after their parent(s) departed, (2) they enroll in a California public postsecondary institution within one year of their parent(s) departure, and (3) once enrolled, they maintain continuous attendance in that institution. Financial independence is not required in this case.

Two-Year Care and Control

A minor or 18-year-old student may be entitled to resident classification if, immediately prior to enrolling in a postsecondary institution, they have been living with and been under the continuous direct care and control of an adult or adults other than a parent for a period of no less than two years. The adult or adults having control must have been residents of California during the one year immediately prior to the residence determination date. The classification continues until students have attained the age of 19 and have lived in the state the minimum time necessary to become a resident, so long as continuous full-time attendance is maintained at a public postsecondary institution.

Self-Support

If students are U.S. citizens or eligible aliens and are minors who can prove that they lived in California for the entire year immediately before the residence determination date, that they have been self-supporting for that year, and that they intend to make California their permanent home, they may be eligible for resident status.

Exemptions from Nonresident Supplemental Tuition

Member of the U.S. Armed Forces

Members of the U.S. Armed Forces may be exempt from nonresident supplemental tuition unless their assignment to California is for the purpose of attending a state-supported institution of higher education. Graduate and professional students are eligible for this exemption for two years, during which time they must fulfill the UC residence requirements in order to maintain their resident status. They must provide the residence deputy on campus with a statement from their commanding officer or personnel officer stating that their assignment to active duty in California is not for educational purposes. The letter must include the dates of their assignment to the state.

Undergraduate students discharged from military service after having been stationed in California on active duty for at least 366 days are entitled to resident classification for the minimum time necessary to establish residence (366 days). In this case, financial independence is not a requirement.

Some members of the U.S. Armed Forces may qualify for an exemption from nonresident supplemental tuition based on the federal Higher Education Opportunity Act of 2008. Under this Act, undergraduate and graduate students who are members of the U.S. Armed Forces on active duty for a period of more than 30 days and whose domicile or permanent duty station is in California, are entitled to an exemption from nonresident supplemental tuition. Students must be continuously enrolled at the

University, notwithstanding a subsequent change in their permanent duty station to a location outside of California.

Effective July 2015, certain nonresident veterans (and their dependents) who were separated from U.S. military service within 36 months of enrolling at UC and are eligible for G.I. Bill (Post-9/11 or Montgomery) program funds may qualify for an exemption from nonresident supplemental tuition.

Spouse, Registered Domestic Partner, or Other Dependents of Military Personnel

Students are exempt from payment of nonresident supplemental tuition if they are a spouse, registered domestic partner, or natural or adopted child or stepchild who is a dependent of a member of the U.S. Armed Forces stationed in California on active duty. Graduate and professional students are eligible for the exemption only until they have resided in the state the minimum time necessary to become a resident (366 days). Students must petition for a waiver of nonresident supplemental tuition each term they are eligible. If they are enrolled in an educational institution and the member of the Armed Forces is transferred on military orders to a place outside California where he or she continues to serve in the Armed Forces, or the member of the Armed Forces retires from active duty immediately after having served in California on active duty, they may retain this exemption under conditions listed above.

Some dependents of members of the U.S. Armed Forces may qualify for an exemption from nonresident supplemental tuition based on the federal Higher Education Opportunity Act of 2008. Under this Act, undergraduate or graduate students who are the spouse, registered domestic partner, or dependent child of a member of the U.S. Armed Forces on active duty for a period of more than 30 days and whose domicile or permanent duty station is in California, are entitled to an exemption from nonresident supplemental tuition. Students must be continuously enrolled at the University, notwithstanding a subsequent change in the U.S. Armed Forces member's permanent duty station to a location outside of California.

Child, Spouse, or Registered Domestic Partner of Faculty Member

To the extent funds are available, if students are an unmarried dependent child under age 21, spouse, or registered domestic partner of a member of the University faculty who is a member of the Academic Senate, they may be eligible for a waiver of nonresident supplemental tuition. Confirmation of the faculty member's membership on the Academic Senate must be secured each term this waiver is granted.

Child, Spouse, or Registered Domestic Partner of University Employee

Students may be entitled to resident classification if they are an unmarried dependent child, spouse, or registered domestic partner of a full-time University employee whose assignment is outside California (e.g., Los Alamos Scientific Laboratory or University of California Washington, DC, Center). Their parent's,

spouse's, or registered domestic partner's employment status with the University must be ascertained each term.

Child, Spouse, or Registered Domestic Partner of Deceased Public Law Enforcement or Fire Suppression Employee

Employee

Students may be entitled to a waiver of nonresident supplemental tuition if they are the child, spouse, or registered domestic partner of a deceased public law enforcement or fire suppression employee who was a California resident at the time of his or her death and who was killed in the course of fire suppression or law enforcement duties.

Dependent Child of a California Resident

If students have not been an adult resident of California for more than one year and are the natural or adopted dependent child of a California resident who has been a resident for more than one year immediately prior to the residence determination date, they may be entitled to a waiver of nonresident supplemental tuition until they have resided in California the minimum time necessary to become a resident, so long as continuous attendance is maintained at an institution.

Native American Graduate of a Bureau of Indian Affairs High School

Students who are graduates of a California high school operated by the federal Bureau of Indian Affairs may be exempt from nonresident supplemental tuition.

Employee of a California Public School District

Students holding a valid credential authorizing service in the public schools of the State of California who are employed by a school district in a full-time certificate position may be exempt from nonresident supplemental tuition.

Student Athlete in Training at the U.S. Olympic Training Center, Chula Vista

Any amateur student athletes in training at the U.S. Olympic Training Center in Chula Vista may be exempt from nonresident supplemental tuition until they have resided in California the minimum time necessary to become a resident.

Graduate of a California High School

Students who attended high school in California for three or more years (9th grade included) or attained credits/units earned in California from a California high school equivalent to three or more years of full-time high school coursework and attended a combination of elementary, middle, and/or high school (K-12) in California for a total of three or more years, and graduated from a California high school (or attained the equivalent, such as a High School Equivalency Certificate issued by the California state GED Office or a Certificate of Proficiency resulting from the California High School Proficiency Examination), may be exempt from nonresident supplemental tuition. Nonimmigrant alien students are not eligible for the exemption.

Recipients of the Congressional Medal of Honor and Their Children under Age 28

Undergraduate students who are recipients of the Congressional Medal of Honor or who are the children of a recipient may be exempt from nonresident supplemental tuition. Recipients must be California residents, and students must be under age 28. Students' annual income must not exceed the national poverty level. If the recipient was a parent who died, the parent must have been a California resident at the time of death.

Dependents or Wards of State through California's Child Welfare System

Notwithstanding any other provisions, students who reside in California and are 19 years of age or under at the time of enrollment, and who are currently dependents or wards of the state through California's child welfare system, or were served by California's child welfare system and are no longer being served either due to emancipation or aging out of the system, shall be entitled to a resident classification as long as they remain continuously enrolled.

Temporary Absences

If persons are nonresident students who are in the process of establishing a residence for tuition purposes and they return to their former home during noninstructional periods, their presence in the state is presumed to be solely for educational purposes and only convincing evidence to the contrary rebuts this presumption. Students who are in the state solely for educational purposes are NOT classified as residents for tuition purposes regardless of the length of their stay.

If persons are students who have been classified as residents for tuition purposes and they leave the state temporarily, their absence could result in the loss of their California residence. The burden is on students (or their parents if they are minors) to verify that they did nothing inconsistent with their claim of a continuing California residence during their absence. Steps that students (or their parents) should take to retain a California residence include the following:

1. Continue to use a California permanent address in all records—educational, employment, military, etc.
2. Continue to satisfy California tax obligations. If students are claiming California residence, they are liable for payment of income taxes on their total income from the date they establish their residence in the state, including income earned in another state or country.
3. Retain California voter registration and vote by absentee ballot.
4. Maintain a California Driver License and vehicle registration. If it is necessary to change the driver's license or vehicle registration, students must change them back within the time prescribed by law.

Petition for Residence Classification

Students may obtain a petition at 1113 Murphy Hall or at <http://www.registrar.ucla.edu/Fees-Residence/Residence-Requirements/Classification-as-a-Resident> for a change of classification from nonresident to resident status. All changes of status must be initiated at least three weeks in advance of the fee payment deadline for the applicable term.

Time Limitation on Providing Documentation

If additional documentation is required for residence classification but is not readily accessible, students are allowed until the end of the applicable term to provide it.

Incorrect Classification

Students who were incorrectly classified as residents are subject to nonresident classification and to payment of all nonresident tuition fees not paid. If they concealed information or furnished false information and were classified incorrectly as a result, they are also subject to University discipline. Resident students who become nonresidents must immediately notify the residence deputy.

Inquiries and Appeals

Inquiries regarding residence requirements, determination, and/or recognized exceptions should be directed to the Residence Deputy, UCLA Registrar's Office, 1113 Murphy Hall, Box 951429, Los Angeles, CA 90095-1429, 310-825-3447, residedeputy@registrar.ucla.edu.

Students are cautioned that this summary is NOT a complete explanation of the law regarding residence. Note that changes may be made in the residence requirements between the publication of this statement and the relevant residence determination date.

Students may appeal a campus nonresident determination to the Office of the General Counsel only on the grounds and within the deadline specified below.

Grounds for Appeal

1. The decision to classify students as nonresidents for purposes of tuition was based on (a) a significant error of fact, (b) a significant procedural error, or (c) an incorrect application of policy that, if corrected, would require that the students be reclassified as residents.
2. Significant new information became available after the date of the campus decision classifying the students as nonresidents; despite the exercise of reasonable diligence (care and attention) the information was not previously known or available to the students; and, based on the new information classification as nonresidents is incorrect.

No appeals based solely on disagreement with the campus decision are acceptable.

Appeal Deadline

The Office of the General Counsel must receive the appeal from students within 30 days of the date of the campus decision notifying students

of the nonresident classification. Send the completed Application to Appeal and a copy of the nonresident decision by (1) e-mail to residency.appeal@ucop.edu, (2) fax to 510-987-9757, or (3) mail to Residency Analyst, UC Office of General Counsel, 1111 Franklin Street, 8th Floor, Oakland, CA 94607-5200. No other university personnel are authorized to supply information relative to residence requirements for tuition purposes.

Privacy Notice

All of the information requested on the Statement of Legal Residence form is required for determining whether or not students are legal residents for tuition purposes. Registration cannot be processed without this information. The Registrar's Office on campus maintains the requested information. University of California governing residency for tuition purposes are established by The Regents pursuant to and implemented by regulations established by the President, in consultation with the General Counsel (Regents Standing Order 110.2; Regents policies 3105 and 3106). Students have the right to inspect University records containing the residence information requested on the form.

Financial Aid Standards for Satisfactory Academic Progress

UCLA Financial Aid and Scholarships establishes standards for satisfactory academic progress to measure students' progress toward degree completion using both qualitative and quantitative methods in accordance with federal regulations. To be eligible for financial aid, students must meet or exceed these standards. Failure to maintain these standards may result in suspension of financial aid eligibility. The standards are as strict or more strict than the UCLA standards for a student enrolled in the same educational program who is not receiving Title IV assistance. See the *Standards for Satisfactory Academic Progress Guide* at http://www.financialaid.ucla.edu/Portals/9/publications/2016-17/SAP_guide.pdf.

Qualitative Standard

Undergraduate students must maintain a cumulative grade-point average (GPA) of 2.0; **graduate students** must maintain a cumulative grade-point average of 3.0.

Quantitative Standard

Students must complete a minimum of 67 percent of cumulative coursework attempted.

Maximum Timeframe

Units attempted or total enrolled terms may not exceed 150 percent of the published length of students' programs.

Change of Academic Major/Pursuit of Double Major or Minor

Students who have a change of academic major or pursue a double major or minor do not have additional financial aid eligibility beyond the maximum timeframe established in this policy.

Successful Completion of Units

To successfully complete units, students must receive a grade of A, B, C, D, or P (S for graduate students) in each course. Grades of F, I, NP (U for graduate students), NR (No Report), and DR (Deferred Report) do not count as successful completion of coursework attempted.

The standards for satisfactory academic progress apply to all coursework attempted, including coursework for which students did not receive financial aid.

Cancellations

Cancellation of registration on or before the first day of classes does not count as units attempted.

English as a Second Language and Summer Sessions Coursework

English as a Second Language (ESL) and Summer Sessions coursework counts as units attempted and toward the cumulative grade-point average.

Remedial Coursework

Remedial coursework counts as units attempted but does not count toward the cumulative grade-point average.

Repeat Coursework

Repeated courses and grade-point average are treated in accordance with the University's academic policy as outlined in this catalog. If the Registrar's Office counts repeat coursework as attempted/completed, this counts equally for academic progress standards. Financial Aid and Scholarships determines if students are eligible for aid for repeat coursework.

Transfer Coursework

Coursework accepted for transfer credit counts as both units attempted and completed and has no affect on grade-point average unless the coursework is transferred from another UC campus.

Withdrawals

Withdrawals after the first day of classes during a term count as units attempted unless students do not attend any classes for the given term and receive a 100 percent refund of all fees.

Evaluation

Academic progress is evaluated annually after winter quarter grades are available. For students on probation and for students who are required to follow an academic plan (see below), academic progress is evaluated each term.

Suspension

Students who fail to meet the standards for satisfactory academic progress are placed on suspension and are no longer eligible to receive financial aid. Suspended students are notified via their MyUCLA account.

Appeal Process

Students who have their financial aid suspended may submit a written appeal using the Satisfactory Academic Progress Appeal form. When filing an appeal, they must provide a full explanation along with documentation, verify-

ing the circumstances that led to their inability to meet the standards for satisfactory academic progress. Before filing an appeal, students should seek assistance from an academic adviser to explore ways to eliminate deficiencies and to establish a realistic plan toward graduation. Refer to the appeal instruction packet for specific examples of valid reasons for an appeal.

Appeal Deadline

Appeals must be submitted to Financial Aid and Scholarships prior to the last day of the term for which students are appealing to have aid reinstated. Appeals are not considered retroactively. Refer to the appeal instruction packet for priority deadlines.

Denied Appeals

If the appeal is denied, students may file a secondary appeal and submit additional information that may help explain the circumstances by which they were not able to maintain the standards for satisfactory academic progress. They are notified of the decision of the secondary appeal in writing; the decision is final.

Probation

Students who have an appeal approved are placed on probation and their academic progress monitored on a quarterly basis to ensure that they meet the conditions of their academic plan.

Reinstatement

Students who have had their aid eligibility suspended for failing to maintain the standards for satisfactory academic progress, or who have a denied satisfactory academic progress appeal, may regain financial aid eligibility by becoming compliant with the qualitative and quantitative components of the academic progress standards. Students who exceed the maximum timeframe cannot regain eligibility through the reinstatement process.

Academic Plans

If students are required to submit an academic plan as a condition of their approved appeal, their financial aid cannot be disbursed until Financial Aid and Scholarships confirms that they are adhering to their academic plan. Students on an academic plan are evaluated each term. Their ability to adhere to the units and courses specified in their academic plan is closely monitored. Failure to adhere to their academic plan causes delays in their aid being disbursed and may result in suspension of their financial aid eligibility.

Professional Schools

Students attending the Schools of Dentistry, Law, Management, Medicine, and University Extension are covered by criteria established by the respective school.

Grading Regulations

Assigning a Grade

The instructor in charge of a course is responsible for determining the grade of each student in the course. The standards for evaluating student performance are based on the course de-

scription as approved by the appropriate course committee.

The final grade in the course is based on the instructor's evaluation of the student's achievement in the course. When on an examination or other work submitted by a student, the student is suspected of having engaged in plagiarism or otherwise having cheated, the suspected infraction is to be reported to the appropriate administrative officer of the University for consideration of disciplinary proceedings against the student. Until such proceedings, if any, have been completed, the grade DR (Deferred Report) is assigned for that course. If in such disciplinary proceedings it is determined that the student did engage in plagiarism or otherwise cheat, the administrative officer, in addition to imposing discipline, reports back to the instructor of the course involved, the nature of the plagiarism or cheating. In light of that report, the instructor may replace the grade DR with a final grade that reflects an evaluation of that which may fairly be designated as the student's own achievement in the course as distinguished from any achievement that resulted from plagiarism or cheating.

Grade Complaints

A grade may be appealed, on any reasonable grounds, to the instructor, the chair of the department, and the dean of the division or school.

If the student believes that the instructor has violated the Faculty Code of Conduct by assigning the grade on any basis other than academic grounds, the matter should first be taken up with the instructor. If the matter is not resolved, the student may go for counsel to the Office of Ombuds Services or may follow the procedures for the formal filing of charges (see Faculty Code of Conduct earlier in the Appendix). If a charge is sustained by the Academic Senate Committees on Charges and on Privilege and Tenure, an ad hoc committee is appointed within two weeks to review the disputed grade, and any warranted change is made within four weeks.

Correction of Grades

All grades, except DR, I, and IP, are final when filed by the instructor in the end-of-term course report. However, the Registrar's Office is authorized to change a final grade (1) on written request of an instructor, provided that a clerical or procedural error is the reason for the change or (2) on written request of the chair of the UCLA Academic Senate in cases where it has been determined by the Committee on Privilege and Tenure that an instructor has assigned a grade on any basis other than academic grounds. No change of grade may be made on the basis of re-examination or, with the exception of the I and IP grades, the completion of additional work. Any grade change request made more than one year after the original filing must be validated for authenticity of the instructor's signature by the department chair. Any grade change request made by an instructor who has left the University must be countersigned by the department chair. No

grade change may be made once a student has graduated. All grade changes are recorded on the transcript.

Policy on Alternate Examination Dates

In compliance with Section 92640(a) of the California Education Code, the University must accommodate requests for alternate examination dates for any test or examination at a time when that activity would not violate a student's religious creed. This requirement does not apply in the event that administering the test or examination at an alternate time would impose an undue hardship that could not reasonably be avoided. Accommodation for alternate examination dates are worked out directly and on an individual basis between the student and the faculty member involved.

In general, students should make such requests of the instructor during the first two weeks of any given academic term, or as soon as possible after a particular examination date is announced by the instructor.

Students unable to reach a satisfactory arrangement with their instructor should contact the Office of Ombuds Services, 105 Strathmore Building, or the Office of Student Conduct, 1206 Murphy Hall, for assistance.

Instructors who have questions or who wish to verify the nature of the religious event or practice involved should contact the Office of Ombuds Services or the Office of Student Conduct for assistance.

Undergraduate Final Examinations

No student shall be excused from assigned final examinations, except as provided above in the policy on alternate examination dates and as provided in the following three paragraphs.

The instructor in charge of an undergraduate course is responsible for assigning the final grade in the course. The final grade shall reflect the student's achievement in the course and shall be based on adequate evaluation of that achievement. The instructor's method of evaluation must be announced at the beginning of the course. The methods may include a final written examination, a term paper, a final oral examination, a take-home examination, or other evaluation device. Evaluation methods must be of reasonable duration and difficulty and must be in accord with applicable departmental policies. Final written examinations may not exceed three hours' duration and are given only at the times and places established and published by the department chair and the Registrar's Office.

At the end of the term in which a student is expected to be graduated, a student's major department may examine him or her in the field of the major, may excuse the student from final examinations in courses offered by the department during that term and, with the approval of the Undergraduate Council, assign a credit value to such general examination.

An instructor shall, if he or she wishes, release to individual students their original final exam-

inations (or copies). This may be done by any method that insures the students' right to privacy. Otherwise, the instructor shall retain final examination materials, or a copy thereof, until the end of the next succeeding regular term of instruction, during which period students shall have access to their examinations.

Disclosure of Student Records

Pursuant to the Federal Family Educational Rights and Privacy Act (FERPA), the California Information Practices Act, and the *University of California Policies Applying to the Disclosure of Information from Student Records*, students at UCLA have the right to (1) inspect and review records pertaining to themselves in their capacity as students, except as the right may be waived or qualified under federal and state laws and University policies, (2) have withheld from disclosure, absent their prior written consent for release, personally identifiable information from their student records, except as provided by federal and state laws and University policies, (3) inspect records maintained by UCLA of disclosures of personally identifiable information from their student records, (4) seek correction of their student records through a request to amend the records or, if such request is denied, through a hearing, and (5) file complaints with the U.S. Department of Education regarding alleged violations of the rights accorded them by FERPA.

UCLA, in accordance with federal and state laws and University policies, has designated the following categories of personally identifiable information as public information that UCLA may release and publish without the student's prior consent: name, address (local/mailing, permanent, and/or e-mail), telephone numbers, major field of study, dates of attendance, enrollment status, grade level, number of course units in which enrolled, degrees and honors received, the most recent previous educational institution attended, participation in officially recognized activities (including intercollegiate athletics), and the name, weight, and height of participants on intercollegiate athletic teams.

As a matter of practice, UCLA does not publish student addresses or telephone numbers in the campus electronic directory unless released by the student. The term public information in this policy is synonymous with the term directory information in FERPA.

Students who do not wish certain items (i.e., name, local/mailing, permanent, and/or e-mail address, telephone numbers, major field of study, dates of attendance, number of course units in which enrolled, and degrees and honors received) of this public information released and published may so indicate through MyUCLA (<http://my.ucla.edu>). To restrict the release and publication of the additional items in the category of public information, complete the UCLA FERPA Restriction Request form available from the Registrar's Office, 1113 Murphy Hall.

Student records that are the subject of federal and state laws and University policies may be maintained in a variety of offices, including the Registrar's Office, Office of Student Conduct, UCLA Career Center, Graduate Division, UCLA External Affairs Department, and the offices of a student's College or school and major department. Students are referred to the online *UCLA Campus Directory* (<http://www.directory.ucla.edu>) which lists all the offices that may maintain student records, together with their campus address and telephone number. Students have the right to inspect their student records in any such office subject to the terms of federal and state laws and University policies. Inspection of student records maintained by the Registrar's Office is by appointment only and must be arranged three working days in advance. Call 310-825-1091, option 6, or inquire at the Registrar's Office, 1113 Murphy Hall.

A copy of the federal and state laws, University policies, and the print *UCLA Telephone Directory* may be inspected in the office of the Information Practices Coordinator, 500 UCLA Wilshire Center. Information concerning students' hearing rights may be obtained from that office and from the Office of Student Conduct, 1206 Murphy Hall.

Undergraduate Retention, Graduation, and Time to Degree

Retention and graduation rates in undergraduate programs at UCLA are consistently among the highest in the nation. At least 97 percent of all students entering as freshmen and 96 percent of all students entering as transfers regularly return to enroll at UCLA for the second academic year and beyond.

Recent four-year, five-year, and six-year graduation rates for students entering from high school have averaged 74, 89, and 91 percent respectively, and 92 percent of all entering freshmen eventually graduate from UCLA.

Recent two-year, three-year, and four-year graduation rates for entering transfer students have averaged 63, 86, and 91 percent respectively, and 93 percent of all entering transfer students eventually graduate from UCLA.

Time to degree for UCLA undergraduates has improved significantly over the past decade. Among all graduates in recent years who entered directly from high school, 83 percent were registered for 12 quarters or less (i.e., four years or less), 89 percent for 13 quarters or less, 93 percent for 14 quarters or less, and 98 percent for 15 quarters or less (i.e., five years or less).

Among all graduates in recent years who entered as transfer students, 70 percent were registered for six quarters or less (i.e., two years or less), 79 percent for seven quarters or less, 86 percent for eight quarters or less, and 95 percent for nine quarters or less (i.e., three years or less).

Additional information is available at <http://www.aim.ucla.edu>.

Campus Security Information

UCLA Police Department

The UCLA Police Department (UCPD), 310-825-1491, <https://www.ucpd.ucla.edu>, is located at 601 Westwood Plaza. The sworn State of California Police Officers are empowered by the State of California with the authority to enforce all state and local laws. UCLA police officers patrol the campus 24 hours a day, 365 days a year. They enforce all applicable local, state, and federal laws, arrest violators, investigate and suppress crime, and provide a full range of police services and community safety programs.

The department is linked by computer to city, state, and federal criminal justice agencies that provide access to information concerning criminal records, wanted persons, stolen property, and vehicle identification. The Detective Unit handles criminal investigations, and detectives conduct interviews, arrest violators, execute search warrants, and file cases with the Los Angeles District and City Attorney offices.

Incident Reporting

UCLA police officers have primary jurisdiction over the UCLA campus, Reagan UCLA Medical Center, Center for the Health Sciences, Santa Monica-UCLA Medical Center, and University Apartments South. The City of Los Angeles Police Department does not routinely handle calls for service on campus or on most UCLA properties. All requests for police service should be made to UCPD. All crime occurring on campus, the Center for the Health Sciences, and other UCLA properties should be reported immediately to the police department to ensure appropriate action is taken. Crimes occurring off campus should be reported immediately to the local law enforcement agency. UCPD does take reports from students, faculty, and staff for incidents occurring in the Westwood area.

Police, fire, or medical emergencies can be reported by calling **911** from any telephone on campus. All landline telephones (University, private, public) located on University grounds are tied into the 911 emergency system. Emergencies can also be reported by using the blue-hooded or yellow Emergency Reporting Telephones located throughout the campus.

Nonemergency calls for service can be made by contacting the department at 310-825-1491. Campus community members are encouraged to program the department number into their cell phones and report on suspicious circumstances.

Crime Statistics and Reports

As required by the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act and consistent with the amendments of the Violence against Women Reauthorization Act of 2014, UCLA prepares an annual report describing campus security policy and information concerning alcohol and drug use, crime prevention, crime reporting, and related matters. It also includes three years of

crime statistics. Printed copies are available by calling 310-825-1491. The report can be accessed at <https://www.ucpd.ucla.edu/reports-statistics/jeanne-clery-act>.

Community Service Officers

UCPD employs approximately 80 student community service officers (CSOs; <https://www.ucpd.ucla.edu/services/community-service-officers-csos>) who are the additional "eyes and ears" (trained observers) of the department and act as noninterventive visual deterrents to crime. CSOs wear high-visibility uniforms and carry two-way police radios. They are dispatched by the department's Communications Center and provide a direct link to police, fire, and medical aid. CSOs provide security service to a number of campus buildings, including residence halls and libraries. They are most well-known for the Campus Escort Service and the Evening Van Service. The Campus Escort Service (<https://www.ucpd.ucla.edu/services/community-service-officers-csos/evening-escorts>) operates every day of the year from dusk to 1 a.m. (2 a.m. on Thursdays during academic quarters). Individuals requesting the service call the Communications Center at 310-794-WALK; a CSO is then dispatched to walk them safely to their destination. The service is available to UCLA students, staff, faculty, and visitors and operates on campus and in the nearby residential areas. The Evening Van Service (<https://www.ucpd.ucla.edu/services/community-service-officers-csos/evening-van-service-walking-escorts>) provides a safe and convenient mode of transportation around campus at night (Monday through Thursday from 6 to 11 p.m. during academic terms) and is accessible to people with disabilities.

Crime Prevention

An involved community is one of the best defenses against crime. Therefore, the department is committed to a community policing philosophy and supports a proactive Crime Prevention Unit (<https://www.ucpd.ucla.edu/prevention-education/programs>) that works closely with community members to make UCLA a safer place to work, live, and learn. The unit gives presentations on vehicle and residential security, personal safety, office and equipment security, sexual assault prevention, and active shooter situations. Other programs are developed to meet the special needs of the campus community. Brochures and literature on crime prevention and personal safety are available. Counseling and Psychological Services (CAPS) and the Crime Prevention Unit provide presentations on sexual assault issues. Topics include acquaintance rape education and prevention, personal safety and prevention techniques, recovery from sexual assault, clear communications, and the continuum of violence and rape in society. The educational programs, tailored to meet the needs of individual audiences, include films, discussion groups, lectures, role-plays, and communication exercises. CAPS reaches students through the residence halls, sororities, fraternities, athletic teams, student clubs, and various student functions. Services include crisis intervention

and advocacy for victims of sexual assault; short-term counseling and referrals for survivors, their families, and friends; support groups for rape survivors; and self-defense classes and a lending library. CAPS works closely with the student housing offices and the police department to increase campus safety.

Several programs have been designed to increase the level of crime awareness and campus safety at UCLA. Incidents of criminal activity that pose a potential threat to the campus are brought to the attention of the community through campus crime alert bulletins (<https://www.ucpd.ucla.edu/reports-statistics/crime-alerts-safety-bulletins>). Additionally, those interested in receiving public safety bulletins and news briefs can sign up for the public safety list server at <http://lists.ucla.edu/cgi-bin/mailman/listinfo/campussafety-l>.

Emergency Medical Services

UCPD provides emergency medical assistance for the campus community through the Emergency Medical Service program, which is staffed by students certified as emergency medical technicians (EMTs). As in all emergencies, call 911 for this service.

Alcohol and Substance Abuse Education

Students with alcohol or substance abuse problems create safety and health risks for themselves and others. Such abuses also can result in a wide range of emotional and behavioral problems. Therefore, UCLA makes available to every student a variety of alcohol and substance abuse awareness programs that are designed to discourage the use of illicit substances and to educate students on the merits of legal and responsible alcohol consumption. Counseling and Psychological Services (310-825-0768; <http://www.counseling.ucla.edu>) provides counseling and referral assistance to students who are troubled by alcohol or substance abuse problems. The service is completely confidential and free to regularly enrolled students. All information and counseling is treated in accordance with University policies and state and federal laws. Any decision to seek assistance is not used in connection with any academic determination or as a basis for disciplinary proceedings.

Policies

UCLA is designated as a drug-free environment, and only under certain conditions is alcohol consumption permitted (none is permitted at athletic events). In keeping with its educational mission, the University assumes the responsibility to better inform the UCLA community about alcohol and substance abuse.

The sale, manufacture, distribution, or possession of any controlled substance without a prescription is illegal under both state and federal laws. Such laws are strictly enforced by UCLA police officers. Student violators are subject to University disciplinary action, criminal prosecution, fine, and imprisonment. Refer to the UCLA policies on substance abuse for further information.

The sale, consumption, and distribution of alcohol on the UCLA campus is restricted by the UCLA alcohol policy and California state law. Organizations or groups violating alcohol or substance policies or laws may be subject to sanctions by the University.

Residential Housing

UCLA is the size of a small city and provides residential housing to approximately 11,000 students. Housing facilities range from apartments designed for students with children to multistudent apartment complexes to high-rise student residence halls. UCPD and student housing staff work hand in hand to create a safe and comfortable living and learning environment.

Campuswide security and safety programs for residents are held throughout the year to increase crime potential awareness and improve campus safety. To keep residents immediately informed of major crime or threats to the campus, Crime Alert bulletins are posted in residential areas by the housing staff. However, residents must take an active role to ensure their own safety by exercising simple commonsense crime prevention techniques. Because the campus is open 24 hours a day, visitation to residence halls and apartments is not restricted. All residence halls have 24-hour access control on entrance doors, and during the evening hours access control monitors are stationed at each entrance. Police officers and CSOs are also assigned to the residence halls.

UCLA-affiliated organizations that maintain off-campus facilities are under the shared jurisdiction of their local police department and the UCLA Police Department, which provides assistance to students, faculty, and staff and/or referrals to neighboring police departments.

Safety Tips

The nature of the studies and research done at UCLA requires many of the campus buildings to be open 24 hours. Because the campus is so large and adjacent to the greater Los Angeles community, individuals with criminal intent are able to access the University grounds. Regardless of the time of day or night and no matter where persons are on campus, they should be alert and aware of their surroundings and exercise good commonsense safety precautions. Anyone parking on campus should remember to lock their vehicles and consider investing in locking devices and/or alarms. Take advantage of all of the safety services provided by the University and UCPD. Use the Campus Escort Service when walking at night. Keep room and apartment doors locked at all times. Most important, anyone needing assistance should not hesitate to contact the department.

APPENDIX B: UNIVERSITY ADMINISTRATIVE OFFICERS

Terms of Regents (<http://regents.universityofcalifornia.edu>) appointed by the Governor expire March 1 of the year in parentheses. The Student Regent (Marcela Ramirez) and Alumni Regents serve a one-year term beginning July 1 and ending June 30 of the year listed.

Regents Ex Officio

Governor of California

Edmund G. Brown, Jr.

Lieutenant Governor of California

Gavin C. Newsom

Speaker of the Assembly

Anthony Rendon

State Superintendent of Public Instruction

Thomas A. Torlakson

President of the Alumni Associations of the University of California

Cynthia So Schroeder (2017)

Vice President of the Alumni Associations of the University of California

Harvey Brody (2017)

President of the University

Janet Napolitano

Appointed Regents

Richard C. Blum (2026)

William De La Peña (2018)

Gareth Elliott (2025)

Russell S. Gould (2017)

Eddie Island (2017)

George D. Kieffer (2021)

Sherry L. Lansing (2022)

Monica C. Lozano (2022)

Hadi Makarechian (2020)

Eloy Ortiz Oakley (2024)

Norman J. Pattiz (2026)

John A. Pérez (2024)

Bonnie Reiss (2020)

Richard Sherman (2025)

Bruce D. Varner (2018)

Charlene Zettel (2021)

Marcela Ramirez, Student Regent (2017)

Faculty Representatives to the Board of Regents

James A. Chalfant (2015-17)

Shane White (2016-18)

Staff Advisers to the Board of Regents

LaWana Richmond (2015-17)

Jason Valdry (2016-18)

Officers of The Regents

President of The Regents

Edmund G. Brown, Jr.

Chair of The Regents

Monica C. Lozano

Vice Chair of The Regents

Bonnie Reiss

Chief Investment Officer

Jagdeep Singh Bachher

General Counsel

Charles F. Robinson

Secretary and Chief of Staff

Anne Shaw

Senior Vice President—Chief Compliance and Audit Officer

Sheryl Vacca

Office of the President

President of the University

Janet Napolitano

Provost and Executive Vice President—Academic Affairs

Aimée Dorr

Executive Vice President—Chief Financial Officer

Nathan Brostrom

Executive Vice President—Chief Operating Officer

Rachael Nava

Executive Vice President—UC Health

John D. Stobo

Senior Vice President—Government Relations

Nelson Peacock

Senior Vice President—Public Affairs

Julie Henderson

Senior Vice President—Research, Innovation, and Entrepreneurship

Christine Gulbranson

Vice President—Agriculture and Natural Resources

Glenda Humiston

Vice President—Human Resources

Dwaine B. Duckett

Vice President—Information Technology Services and Chief Information Officer

Tom Andriola

Vice President—Institutional Research and Academic Planning

Pamela Brown

Vice President—Investments

Jagdeep Singh Bachher

Vice President—Laboratory Management

Kimberly Budil

Vice President—Legal Affairs

Charles F. Robinson

Vice President—Research and Graduate Studies

To be announced

Vice President—Student Affairs

Judy K. Sakaki

Chancellors of the Campuses

Chancellor at Berkeley

Nicholas B. Dirks

Chancellor at Davis

Ralph J. Hexter, *Acting*

Chancellor at Irvine

Howard Gillman

Chancellor at Los Angeles

Gene D. Block

Chancellor at Merced

Dorothy Leland

Chancellor at Riverside

Kim A. Wilcox

Chancellor at San Diego

Pradeep K. Khosla

Chancellor at San Francisco

Sam Hawgood

Chancellor at Santa Barbara

Henry T.Y. Yang

Chancellor at Santa Cruz

George W. Blumenthal

University Professors, UCLA

Robert B. Edgerton, *University Professor Emeritus*, Los Angeles, Anthropology, Psychiatry and Biobehavioral Sciences
 M. Frederick Hawthorne, *University Professor Emeritus*, Los Angeles, Chemistry and Biochemistry
 Owen N. Witte, *University Professor*, Los Angeles, Microbiology, Immunology, and Molecular Genetics

UCLA Administrative Officers

Chancellor
 Gene D. Block, PhD
Executive Vice Chancellor and Provost
 Scott L. Waugh, PhD
Administrative Vice Chancellor
 Michael J. Beck, MBA
Vice Chancellor—Academic Personnel
 Michael S. Levine, PhD, *Interim*
Vice Chancellor and Chief Financial Officer
 Steven A. Olsen, MPP
Vice Chancellor—Equity, Diversity, and Inclusion
 Jerry Kang, JD
Vice Chancellor—External Affairs
 Rhea Turteltaub, BA
Vice Chancellor—Health Sciences
 John C. Mazziotta, MD, PhD
Vice Chancellor—Legal Affairs
 L. Amy Blum, JD, *Interim*
Vice Chancellor—Research
 Ann R. Karagozian, PhD, *Interim*
Vice Chancellor—Student Affairs
 Monroe Gordon, Jr., JD, *Interim*
Vice Provost—Graduate Education and Dean of Graduate Division
 Robin L. Garrell, PhD
Vice Provost—Information Technology
 James F. Davis, PhD
Vice Provost—Institute of American Cultures
 To be announced
Vice Provost—Interdisciplinary and Cross-Campus Affairs
 Timothy F. Brewer, MD
Vice Provost—International Studies and Global Engagement
 C. Cindy Fan, PhD
Vice Provost—New Collaborative Initiatives
 Kathryn Ann Atchison, DDS, MPH
Vice Provost—Undergraduate Education
 Patricia A. Turner, PhD
University Librarian
 Virginia Steel, MA
University Registrar
 Frank Y. Wada, MA
Dean of Continuing Education and University Extension
 Wayne Smutz, PhD

Deans of UCLA College and Schools

School of the Arts and Architecture
 David J. Roussève, BA, *Interim*
School of Dentistry
 Paul H. Krebsbach, DDS, PhD
Graduate School of Education and Information Studies
 Marcelo M. Suárez-Orozco, PhD

Henry Samueli School of Engineering and Applied Science

Jayathi Y. Murthy, PhD
School of Law
 Jennifer L. Mnookin, JD, PhD
College of Letters and Science
Division of Humanities
 David C. Schaberg, PhD
Division of Life Sciences
 Victoria L. Sork, PhD
Division of Physical Sciences
 Miguel A. García-Garibay, PhD
Division of Social Sciences
 Laura E. Gómez, JD, PhD
Division of Undergraduate Education
 Patricia A. Turner, PhD
John E. Anderson Graduate School of Management
 Judy D. Olian, PhD
David Geffen School of Medicine
 Kelsey C. Martin, MD, PhD, *Interim*
Herb Alpert School of Music
 Judith L. Smith, PhD, *Interim*
School of Nursing
 Linda P. Sarna, RN, PhD, FAAN, *Interim*
Meyer and Renee Luskin School of Public Affairs
 Lois M. Takahashi, PhD, *Interim*
Jonathan and Karin Fielding School of Public Health
 S. Jody Heymann, MD, PhD
School of Theater, Film, and Television
 Teri E. Schwartz, MA

**APPENDIX C:
ENDOWED CHAIRS**

Although UCLA is a public institution, private gifts are increasingly important in maintaining the quality of the University's three missions of teaching, research, and community service. Among the principal forms of private support are endowed professorships or "chairs," which support the educational and research activities of distinguished members of the faculty.

As this catalog goes to press, UCLA has 430 endowed chairs that have been approved by the Office of the President of the University of California, as follows. (Asterisks indicate new chairs that have been approved by the Office of the President since publication of the 2015-16 *UCLA General Catalog*.)

School of the Arts and Architecture

Susan G. Covel and Mitchel D. Covel, MD, Chair in Music
 Alma M. Hawkins Memorial Chair
 Mickey Katz Endowed Chair in Jewish Music
 Leo M. And Elaine Krown Klein Chair in Performance Studies
 S. Charles Lee Chair in Architecture and Urban Design
 Harvey S. Perloff Chair
 Mohindar Brar Sambhi Endowed Chair in Indian Music
 Shirley and Ralph Shapiro Directorship at the Fowler Museum
 UCLA Art Council Professorship in Art

School of Dentistry

*Alumni and Friends Presidential Endowed Chair
 Dr. Thomas R. Bales Endowed Chair in Orthodontics
 Dr. Thomas K. Barber Endowed Chair in Pediatric Dentistry
 Nobel Biocare Endowed Chair in Surgical Implant Dentistry
 Dr. No-Hee Park Chair in Dentistry
 Tarrson Family Endowed Chair in Periodontics
 United Cerebral Palsy of Los Angeles
 Endowed Chair in Special Patient Care
 Jack A. Weichman Chair in Endodontics
 Bob and Marion Wilson Endowed Chair
 Felix and Mildred Yip Endowed Professorship in Dentistry

Graduate School of Education and Information Studies

Martin and Bernard Breslauer Professorship in Bibliography
 Allan Murray Carter Chair in Higher Education
 *Carol L. Collins UES Director's Chair Fund
 George F. Kneller Chair in Education and Anthropology
 George F. Kneller Chair in Education and Philosophy
 MacArthur Foundation Chair in Digital Media and Learning
 Presidential Chair in Education and Diversity
 Presidential Chair in Information Studies
 UNESCO Chair on Global Learning and Global Citizenship Education
 Wasserman Endowed Deanship of Education and Information Studies

Henry Samueli School of Engineering and Applied Science

L.M.K. Boelter Chair in Engineering
 *Vijay K. Dhir Chair in Engineering
 *Englekirk Presidential Endowed Chair in Structural Engineering
 Traugott and Dorothea Frederking Endowed Chair in Cryogenics
 Norman E. Friedmann Chair in Knowledge Sciences
 Leonard Kleinrock Chair in Computer Science
 Evalyn Knight Chair in Engineering
 Levi James Knight, Jr., Chair in Engineering
 Richard G. Newman AECOM Endowed Chair in Civil Engineering
 Nippon Sheet Glass Company Chair in Materials Science
 Northrop Grumman Chair in Electrical Engineering
 Northrop Grumman Chair in Electrical Engineering/Electromagnetics
 Northrop Grumman Opto-Electronic Chair in Electrical Engineering
 Ralph M. Parsons Foundation Chair in Chemical Engineering
 Jonathan B. Postel Chair in Computer Systems
 Jonathan B. Postel Chair in Networking
 Raytheon Company Chair in Electrical Engineering
 Raytheon Company Chair in Manufacturing Engineering

Charles P. Reames Endowed Chair in Electrical Engineering
 Ben Rich Lockheed Martin Chair in Aeronautics
 Rockwell Collins Chair in Engineering
 William Frederick Seyer Chair in Materials Electrochemistry
 Ronald and Valerie Sugar Endowed Chair in Engineering
 Symantec Term Chair in Computer Science
 Carol and Lawrence E. Tannas, Jr., Endowed Chair in Engineering
 William D. Van Vorst Chair in Chemical Engineering Education
 Volgenau Endowed Chair in Engineering
 Wintek Endowed Chair in Electrical Engineering

School of Law

Norman Abrams Endowed Chair in Law
 Omar and Azmeralda Alfi Chair in Islamic Law
 Harry Graham Balter Chair in Law
 Barrall Family Endowed Chair in Tax Law and Policy
 David A. Binder Endowed Chair in Clinical Law
 Connell Professorship of Law
 Dan and Rae Emmett Endowed Chair in Environmental Law
 Rosalinde and Arthur Gilbert Foundation Endowed Chair in Civil Rights and Civil Liberties
 Paul Hastings Endowed Chair in Business Law
 Robert Henigson Endowed Chair in Legal Ethics
 Pete Kameron Endowed Chair in Law
 Pete Kameron Chair in Law and Social Justice
 Richard C. Maxwell Chair in Law
 McDonald/Wright Chair in Law
 Arjay and Frances Fearing Miller Chair in Law
 Susan Westerberg Prager Endowed Chair in Law
 Honorable Harry Pregerson Endowed Chair in Law
 David G. and Dallas P. Price Chair in Law
 Michael H. Schill Endowed Chair in Law
 Gary T. Schwartz Endowed Chair in Law
 Security Pacific Bank Chair
 Shirley Shapiro Endowed Chair in Environmental Law
 Jonathan D. Varat Endowed Chair in Law
 William D. Warren Chair in Law
 Frank G. Wells Endowed Chair in Environmental Law
 *Stephen Yeazell Endowed Chair in Law

College of Letters and Science

Armen A. Alchian Chair in Economic Theory
 Maurice Amado Chair in Sephardic Studies
 Jahangir and Eleanor Amuzegar Chair in Iranian Studies
 Joyce Oldham Appleby Endowed Chair of America in the World
 Thomas M. Asher Endowed Chair in Microbiology
 Marilyn Beaudry-Corbett Endowed Chair in Mesoamerican Archaeology
 *Mani L. Bhaumik Presidential Endowed Chair in Theoretical Physics
 Paul D. Boyer Professorship in Molecular Biology and Biochemistry

Henry J. Bruman Chair in German History
 Dr. E. Bradford Burns Chair in Latin American Studies
 Robert N. Burr Endowed History Department Chair
 Edward W. Carter Chair in Netherlandish Art
 Morgan and Helen Chu Endowed Chair in Asian American Studies
 James and Carol Collins Chair in College of Letters and Science
 Lloyd E. Cotsen Chair in Archaeology
 Norman Cousins Endowed Chair in Psychoneuroimmunology
 D.J. and J.M. Cram Chair in Organic Chemistry
 *Lore and Gerald Cunard Chair in UCLA/Getty Conservation Program
 Charles E. Davidson Endowed Chair in Economics
 De Logi Chair in Biological Sciences
 *Donald R. Dickey Chair in Vertebrate Biology
 *Edward A. Dickson Emeriti Professorship
 A. Richard Diebold, Jr., Endowed Chair in Indo-European Studies
 *Distinguished Chair in Environment and Sustainability
 Navin and Pratima Doshi Chair in Indian Studies
 Mr. and Mrs. C.N. Flint Professorship in Philosophy
 Christopher S. Foote Term Chair
 Evan Frankel Endowed Chair in English
 Gloria and Paul Griffin Chair in Philosophy
 Haruhisa Handa Professorship in Shinto Studies
 John Charles Hillis Chair in Literature
 Marvin Hoffenberg Chair in American Politics and Public Policy
 Richard Hovannianian Chair in Modern Armenian History
 Marcia H. Howard Term Chair in Literary Studies
 Sady and Ludwig Kahn Chair in Jewish History
 Sady and Ludwig Kahn Endowed Directorship for Jewish Studies
 Penny Kanner Endowed Chair in Women's Studies
 *Renée and David Kaplan Presidential Endowed Chair in Philosophy
 Fred Kavli Chair in Nanosystems Sciences
 Kershaw Chair in Ancient Eastern Mediterranean Studies
 Leon and Joanne V.C. Knopoff Assistant Professorship in Physics and Geophysics
 Alexander and Renee Kolin Endowed Professorship in Molecular Biology and Biophysics
 Korea Times-Hankook Ilbo Endowed Chair in Korean American Studies and Law
 Lauren B. Leichtman and Arthur E. Levine Astrophysics Endowed Chair
 Madeleine L. Letessier Chair in French and Francophone Studies
 Thomas E. Lifka Chair in History
 Vladimir and Lydia Markov Chair in Russian Literature
 John McTague Career Development Chair
 Dorothy L. Meier Social Equities Chair
 Ronald J. Mellor Chair in Ancient History
 John Muir Memorial Endowed Chair in Geography
 Franklin D. Murphy Chair in Italian Renaissance Studies
 Narekatsi Chair in Armenian Studies
 Gary B. Nash Endowed Chair in United States History
 Waldo W. Neikirk Term Chair
 LeRoy Neiman Term Chair
 1939 Society Samuel Goetz Chair in Holocaust Studies
 Joan Palevsky Chair in Classics
 *Presidential Chair in Chemistry
 Presidential Chair in Developmental Immunology
 Presidential Chair in Institute of the Environment
 Presidential Chair in Modern European History
 Presidential Chair in Molecular Cell Biology
 Hans Reichenbach Chair in Scientific Philosophy
 Peter Reill Chair in European History (1450 to Modern)
 Howard Reiss Career Development Chair
 Maria Rowena Ross Term Chair in Cell Biology and Biochemistry
 Michael and Irene Ross Chair in Yiddish Studies
 Musa Sabi Chair in Iranian Studies
 David Saxon Presidential Term Chair in Mathematics
 David Saxon Presidential Term Chair in Physics
 David S. Saxon Presidential Chair in Physics
 *David O. Sears Presidential Endowed Chair in Division of Social Sciences
 Johanna F. and Joseph H. Shaper Family Chair in Microbiology
 Joan Silsbee Chair in African Cultural Archaeology
 Louis B. and Martha B. Slichter Endowed Chair in Geophysics and Planetary Physics
 Louis B. and Martha B. Slichter Endowed Chair in Geosciences
 Kenneth L. Sokoloff Chair in Economic History
 Charles Speroni Chair in Italian Literature and Culture
 Staglin Family Chair in Psychology
 Steinmetz Chair in Classical Archaeology and Material Culture
 Irving and Jean Stone Endowed Chair in Life Science
 Irving and Jean Stone Endowed Chair in Physical Science
 Irving and Jean Stone Endowed Chair in Humanities
 Jean Stone Chair
 *Keith and Cecilia Terasaki Presidential Endowed Chair in Division of Life Sciences
 UCLA Alumni and Friends of Japanese Ancestry Chair in Japanese American Studies
 UCLA Foundation Chair
 Steven F. and Christine L. Udvar-Hazy Chair
 Viterbi Family Foundation Visiting Professorship in Mediterranean Jewish Studies
 Alexander von Humboldt Endowed Chair in Geography
 Walter and Shirley Wang Chair in U.S./China Relations and Communications
 Scott Waugh Endowed Chair in Division of Social Sciences
 Eugen Weber Chair in Modern European History

Robert and Dorothy Wellman Chair in Medieval History
 Wendell Jeffrey and Bernice Wenzel Term Chair in Behavioral Neuroscience
 Dean M. Willard Chair in Chemistry
 Saul Winstein Chair in Organic Chemistry
 Linda and Fred Wudi Term Chair
 Stanley M. Zimmerman Endowed Chair in Economics and Finance

John E. Anderson Graduate School of Management

Allstate Chair in Insurance and Finance
 Andersen Worldwide Chair in Management
 John E. Anderson Chair in Management
 Marion Anderson Chair in Management
 Arden Realty Chair
 *Donnalisa '86 and Bill Barnum Endowed Term Chair in Management
 Robert D. Beyer '83 Chair in Management
 California Chair in Real Estate and Land Economics
 Edward W. Carter Chair in Business Administration
 *William M. Cockrum III Presidential Term Chair in Entrepreneurship
 William M. Cockrum Professorship in Entrepreneurial Finance
 James A. Collins Chair in Management
 Warren C. Cordner Chair in Money and Financial Markets
 Ernst and Young Chair in Accounting
 Laurence D. and Lori W. Fink Endowed Chair in Finance
 Henry Ford II Chair in International Management
 Joel Fried Chair in Applied Finance
 Lee and Seymour Graff Endowed Professorship
 Goldyne and Irwin Hearsh Chair in Money and Banking
 Hans Hufschmid Chair in Management
 IBM Chair in Management
 Joseph Jacobs Chair in Entrepreneurial Studies
 Neil Jacoby Chair in Management
 Japan Alumni Chair in International Finance
 Bud Knapp Marketing Professorship
 Harry and Elsa Kunin Chair in Business and Society
 J. Clayburn La Force Chair in Management
 William E. Leonhard Chair in Management
 Los Angeles Times Professor of Management and Policy
 Chauncey J. Medberry Chair in Management
 Peter W. Mullin Chair in Management
 Howard Noble Chair in Management
 Paine Chair in Management
 George Robbins Chair in Management
 Sanford and Betty Sigoloff Chair in Corporate Renewal
 UCLA Anderson Board of Visitors Term Chair in Management
 UCLA Anderson Dean's Term Chair in Management
 UCLA Anderson Faculty Term Chair in Management
 J. Fred Weston Chair in Finance
 Harold Williams Chair in Management
 Ho-Su Wu Chair in Management

David Geffen School of Medicine

William S. Adams, MD, Chair in Medicine
 Ahmanson Chair in Ophthalmology
 Wallis Annenberg Endowed Chair in Integrative East-West Medicine
 Leonard Apt Endowed Chair in Pediatric Ophthalmology
 Archstone Foundation Endowed Chair in Geriatrics
 Casey Lee Ball Endowed Chair in Pediatric Nephrology
 Wiley F. Barker Chair in Vascular Surgery
 Dena Bat-Yaacov Endowed Chair in Childhood Psychiatry and Biobehavioral Sciences
 Ulrich Batzdorf, MD, Chair in Spinal Neurosurgery
 Louis D. Beaumont Chair in Surgery
 Jerome L. Belzer Chair in Medical Research
 Lillian and Alvin L. Bergman Chair in Vascular Research
 Bing Professorship in Urologic Research
 Anna and Harry Borun Chair in Geriatrics/Gerontology
 Bowyer Professorship in Medical Oncology
 Saul Brandman Endowed Chair in Pulmonary Arterial Hypertension
 Judson Braun Chair in Biological Psychiatry
 Geri and Richard Brawerman Chair in Pediatric Neurosurgery
 *Gary L. Brinderson Family Chair in Neuro-Intensive Care
 Eli and Edythe L. Broad Foundation Chair in Inflammatory Bowel Disease Research
 Rubin Brown Chair in Pediatric Neurology
 *Burnett Family Chair
 Joseph Campbell Chair in Child Psychiatry
 Iris Cantor Chair in Breast Imaging
 Edward W. Carter Chair in Internal Medicine
 Castera Chair in Cardiology
 Vincent and Stella Coates Chair in Molecular Neurobiology
 Tony Coelho Chair in Neurology
 Carol and James Collins Chair
 James and Carol Collins Chair in Geriatric Medicine
 William E. Connor Chair in Cardiothoracic Transplantation
 Eliot Corday Chair in Cardiovascular Medicine and Science
 Norman Cousins Endowed Chair in Psychoneuroimmunology
 Crump Chair in Medical Engineering
 Karen and Frank Dabby Endowed Chair in Ophthalmology
 Dr. Alfonsina Q. Davies Endowed Chair in Honor of Paul Crandall, MD, for Epilepsy Research
 M. Philip Davis Chair in Microbiology and Immunology
 Robert and Kelly Day Chair in Cardiothoracic Surgery
 Robert and Kelly Day Chair in General Surgery
 Robert and Kelly Day Chair in Surgical Outcomes
 Robert and Kelly Day Chair in Transplantation
 Jean B. deKernion, MD, Endowed Chair in Urology
 Wini and William J. Dignam Chair in Obstetrics and Gynecology

John Bartley Dillon, MD, Endowed Chair in Anesthesiology
 Doumani Chair in Molecular Pharmacology
 Roy and Carol Doumani Chair in Urological Oncology
 Dumont-UCLA Chair in Transplantation Surgery
 Max Factor Family Foundation Chair in Nephrology
 Charles Kenneth Feldman Chair in Ophthalmology
 Elsie and Isaac Fogelman Endowed Chair in Pediatric Neurology
 Dr. Daniel X. Freedman Administrative Chair in Academic Psychiatry
 Joaquin M. Fuster Chair in Cognitive Neuroscience
 David Geffen Chair in Informatics
 David Geffen Chair in Medical Research
 Laraine and David Gerber Chair in Ophthalmology
 Maggie G. Gilbert Endowed Chair in Bipolar Disorders
 Rosalinde and Arthur Gilbert Foundation Endowed Chair in Interdepartmental Clinical Pharmacology
 Joan S. and Ralph N. Goldwyn Chair in Immunobiology and Transplantation Research
 Victor Goodhill, MD, Chair in Head and Neck Surgery
 Steven C. Gordon Family Chair in Parkinson's Disease Research
 Julia S. Gouw Chair in Mood Disorders
 Dolly Green Chair in Ophthalmology
 Thomas N. Grove Chair in Anesthesiology
 Maud Cady Guthman Chair in Cardiology
 Muriel Harris Chair in Geriatric Psychiatry
 Shirley M. Hatos Chair
 Stefan Hatos Endowed Chair in Psychiatry and Biobehavioral Sciences
 Ernest G. Herman Chair in Ophthalmology
 Holt and Jo Hickman Endowed Chair in Advanced Lung Disease and Lung Transplantation
 Ronald S. Hirshberg Chair in Translational Pancreatic Cancer Research
 Margaret Holden Jones Kanaar, MD, Chair in Cerebral Palsy
 Kaiser Permanente Endowed Chair in Community Medicine
 Maddie Katz Endowed Chair in Palliative Care Research and Education
 Ronald L. Katz, MD, Endowed Chair in Anesthesiology
 Chizuko and Nobuyuki Kawata Chair in Cardiology
 Dorothy and Robert Keyser Endowed Chair
 Karl Kirchgessner Foundation Chair in Vision Science
 Arnold W. Klein, MD, Chair in Dermatology
 George F. Kneller Chair in Family Medicine
 Kolokotrones Chair in Ophthalmology
 John J. Kuiper Chair in Nephrology and Renal Transplantation
 Grace and Walter Lantz Endowed Chair in Ophthalmology
 Lya and Harrison Latta Endowed Chair in Pathology

Eleanor I. Leslie Chair in Innovative Brain Research
 Eleanor I. Leslie Chair in Neuroscience
 Eleanor I. Leslie Chair in Pioneering Brain Research
 Barbara A. Levey, MD, and Gerald S. Levey, MD, Endowed Chair
 Gerald S. Levey, MD, Endowed Chair
 Walton Li Chair in Cornea and Uveitis
 Lincy Foundation Chair in Clinical Gastroenterology
 Lincy Foundation Distinguished Service Chair
 William P. Longmire, Jr., Chair in Surgery
 Meyer and Renee Luskin Chair in Migraine and Headache Studies
 Gordon and Virginia MacDonald Distinguished Chair in Human Genetics
 Charles H. Markham Chair in Neurology
 Delta Martin Chair in Psychiatry
 Mattel Executive Endowed Chair in Pediatrics
 David May II Chair in Ophthalmology
 *John Mazziotta, MD, PhD, Term Chair in Medicine
 Henry Alvin and Carrie L. Meinhardt Chair in Kidney Cancer Research
 Sherman M. Mellinkoff Distinguished Professor in Medicine Chair
 Joanne and George Miller and Family Endowed Chair
 Timothy A. Miller Chair in Plastic Surgery
 Jeffrey Modell/Sidney Sheldon Chair in Immunology
 Moss Foundation Chair in Gastrointestinal and Personalized Surgery
 Dr. Walter and Mrs. Kathryn Mullikin Chair in Orthopaedic Surgery
 Jane and Marc Nathanson Endowed Chair
 James H. Nicholson Chair in Pediatric Cardiology
 Mary Oakley Foundation Chair in Neurodegenerative Diseases
 Frances M. O'Malley Administrative Chair in Neuroscience History
 Oppenheimer Brothers Chair
 Helga and Walter Oppenheimer Endowed Chair in Orthopaedic Oncology
 Albert F. Parlow and David H. Solomon Chair for UCLA Program on Aging
 Gail Patrick Endowed Administrative Chair in Brain Research
 Samuel J. Pearlman, MD, and Della Z. Pearlman Chair in Head and Neck Surgery
 Carl M. Pearson, MD, Endowed Chair in Rheumatology
 Pennington Family Foundation Endowed Chair in Pediatrics
 Frances and Albert Piansky Chair in Anatomy
 Guitiara Pierpoint Endowed Chair in Interstitial Pulmonary Fibrosis
 Thomas P. and Katherine K. Pike Chair in Addictive Studies
 Elizabeth R. and Thomas E. Plott Chair in Gerontology
 Edith Agnes Plumb Endowed Chair in Neurobiology
 Presidential Chair in Cell Biology
 Harold and Pauline Price Chair in Ophthalmology
 Pritzker Family Endowed Chair in Pathology
 Shlomo Raz, MD, Chair in Urology

*Lynda and Stewart Resnick Endowed Chair in Human Nutrition
 Resnick Chair in Eating Disorders
 Revlon Chair in Women's Health
 Leo G. Rigler Chair in Radiological Sciences
 Augustus S. Rose Chair in Neurology
 Arthur L. Rosenbaum, MD, Chair in Pediatric Ophthalmology
 Maxine and Eugene Rosenfeld Endowed Chair in Computational Genetics
 Maxine and Eugene Rosenfeld Endowed Chair in Medical Education
 Carol and Saul Rosenzweig Endowed Chair in Cancer Therapies Development
 Estelle, Abe, and Marjorie Sanders Chair in Cancer Research
 Daljit S. and Elaine Sarkaria Endowed Chair in Diagnostic Medicine
 Bernard G. Sarnat, MD, Endowed Chair in Craniofacial Biology
 *Ethel Scheibel Chair in Neuroscience
 Peter William Shapiro Chair for Center for Cerebral Palsy
 Shapiro Family Chair in Child Development Studies and Cerebral Palsy
 *Fred Silton Family Chair in Movement Disorders
 Jennifer Jones Simon Chair in Radiation Oncology
 Norton Simon Chair in Biophysics
 Jonathan Sinay Chair in Epilepsy
 Henry E. Singleton Chair in Urology
 Jack H. Skirball Chair in Multiple Sclerosis Research
 Jack H. Skirball Chair in Ocular Inflammatory Eye Disease
 Jack H. Skirball Chair in Pediatrics
 P. Gene and Elaine Smith Endowed Chair in Alzheimer's Disease Research
 Rebecca Smith Chair in Molecular and Cellular Pathology
 *Smotrich Family Optometric Clinician-Scientist Chair
 Jerome and Joan Snyder Chair in Ophthalmology
 Joan and Jerome Snyder Chair in Cornea Diseases
 George F. Solomon Professorship in Psychobiology
 Spielberg Family Chair in Urologic Oncology
 Norman F. Sprague Chair in Molecular Oncology
 Fran and Ray Stark Foundation Chair in Digestive Diseases
 Fran and Ray Stark Foundation Chair in Ophthalmology
 Fran and Ray Stark Foundation Chair in Urology
 Frances Stark Chair in Neurology
 *Peter Starrett Term Chair in Medical Education
 Jules Stein Chair in Ophthalmology
 Michael and Sue Steinberg Endowed Chair in Global AIDS Prevention and Policy Research
 W. Eugene Stern Chair in Neurosurgery
 Ruth and Raymond H. Stotter Chair in Neurosurgery
 Bradley R. Straatsma, MD, Endowed Chair in Ophthalmology

Dorothy and Leonard Straus Chair in Gastroenterology in Memory of Gussie Borun
 Streisand Chair in Cardiology
 Dr. George Tarjan Chair in Mental Retardation
 Michael E. Tennenbaum Family Endowed Chair in Creativity Research
 *Paul I. Terasaki Chair in Surgery
 Leon J. Tiber, MD, and David S. Alpert, MD, Chair in Medicine
 Vernon O. Underwood Family Chair in Ophthalmology
 Philo Woodrow Van Wagoner Professorship
 Variety Club-D. Barry Reardon Endowed Chair in Pediatric Hematology/Oncology
 Richard D. and Ruth P. Walter Chair in Neurology
 Wasserman Professor of Ophthalmology
 David Weil Chair in Psychiatry and Biobehavioral Sciences
 Dr. Louis Jolyon West Chair in Psychiatry
 Billy and Audrey Wilder Endowed Chair in Psychiatry and Neuroscience
 *Susan and David Wilstein Endowed Chair in Medicine
 Susan and David Wilstein Endowed Chair in Rehabilitation Medicine
 Judith and Robert Winston Chair in Pediatric Urology

Herb Alpert School of Music

Presidential Chair in Music and Interactive Arts

School of Nursing

Lulu Wolf Hassenplug Chair in Nursing
 Audrienne H. Moseley Chair in Biological Nursing Science
 Audrienne H. Moseley Chair in Community Health Research
 Audrienne H. Moseley Chair in Nursing
 Audrienne H. Moseley Chair in Women's Health Research

Meyer and Renee Luskin School of Public Affairs

Marjorie Crump Chair in Social Welfare
 *Meyer and Renee Luskin Chair in Inequality and Democracy
 Luskin Endowed Chair for Dean of the School of Public Affairs
 Harvey S. Perloff Chair

Jonathan and Karin Fielding School of Public Health

Fred H. Bixby Chair in Population Policy
 *Jonathan and Karin Fielding Presidential Chair in Health and Equity
 Fred W. and Pamela K. Wasserman Endowed Chair in Health Policy Management

School of Theater, Film, and Television

David C. Copley Chair for Study of Costume Design
 Lew and Pamela Hunter/Jonathan and Janice Zakin Chair in Screenwriting
 Rouben Mamoulian Visiting Chair in Film Directing
 Rouben Mamoulian Visiting Chair in Theater Directing

UCLA Chancellor's Office

James S. Coleman Chair in International Development Studies
 Betsy Wood Knapp Chair in Innovation and Creativity

UCLA Institute of American Cultures

George and Sakaye Aratani Chair in Japanese American Incarceration, Redress, and Community

Ralph Bunche Chair in International Studies

UCLA International Institute

Rosalinde and Arthur Gilbert Foundation Endowed Chair in Israel Studies
 Dong Soon Im and Mi Ja Im Endowed Chair in Korean Christianity
 Paul I. and Hisako Terasaki Chair in Contemporary Japanese Studies
 Paul I. Terasaki Chair in U.S.-Japanese Relations

APPENDIX D: DISTINGUISHED TEACHING AWARDS

Academic Senate Recipients

Each year the UCLA Alumni Association presents Distinguished Teaching Awards to six Academic Senate faculty members. The highly prized awards are presented at the annual Andrea L. Rich Night to Honor Teaching, and selection of recipients is based on recommendations of the Academic Senate Committee on Teaching. Nominations are solicited from academic departments during fall quarter.

The Luckman Distinguished Teaching Awards Program was established in late 1991 after receipt of a generous gift from Harriet and Charles Luckman. Awards given for 1992 through 1997 were named the Luckman Distinguished Teaching Awards.

1961

John F. Barron (Economics)
 Hector E. Hall (Physiology)
 Kenneth N. Trueblood (Chemistry and Biochemistry)

1962

Charles W. Hoffman (Germanic Languages)
 Thomas P. Jenkin (Political Science)
 Ken Nobe (Chemical Engineering)

1963

Carl W. Hagge (Germanic Languages)
 Wendell P. Jones (Education)
 Robert H. Sorgenfrey (Mathematics)
 Saul Winstein (Chemistry and Biochemistry)

1964

Mostafa A. El-Sayed (Chemistry and Biochemistry)
 Leon Howard (English)
 Moshe F. Rubinstein (Civil and Environmental Engineering)

1965

E.A. Carlson (Biology)

W.R. Hitchcock (History)
 Allen Parducci (Psychology)
 William R. Romig (Microbiology and Molecular Genetics)

1966

George A. Bartholomew (Biology)
 William P. Gerberding (Political Science)
 Hans Meyerhoff (Philosophy)
 Joseph E. Spencer (Geography)

1967

Basil Gordon (Mathematics)
 J.A.C. Grant (Political Science)
 William Matthews (English)
 David S. Saxon (Physics and Astronomy)
 E.K.L. Upton (Physics and Astronomy)

1968

Edward W. Graham (Chemistry and Biochemistry)
 W. James Popham (Education)
 Sydney C. Rittenberg (Microbiology and Molecular Genetics)

Robert P. Stockwell (Linguistics)
 Fred N. White (Physiology)

1969

Robert J. Finkelstein (Physics and Astronomy)
 Douglas S. Hobbs (Political Science)
 J.E. Phillips (English)
 Raymond M. Redheffer (Mathematics)
 Margaret I. Sellers (Microbiology and Immunology)

1970

Ehrhard Bahr (Germanic Languages)
 Joseph Cascarano (Biology)
 B. Lamar Johnson (Education)
 Daniel Kivelson (Chemistry and Biochemistry)
 Richard D. Lehan (English)

1971

Vernon E. Denny (Chemical Engineering)
 Peter N. Ladefoged (Linguistics)
 Arthur D. Schwabe (Medicine)
 Duane E. Smith (Political Science)
 Andreas Tietze (Near Eastern Languages and Cultures)

1972

Barbara K. Keogh (Education)
 James N. Miller (Microbiology and Immunology)
 David S. Rodes (English)
 Ned A. Shearer (Speech)
 Charles A. West (Chemistry and Biochemistry)

1973

Kirby A. Baker (Mathematics)
 David Evans (Chemistry and Biochemistry)
 Albert Hoxie (History)
 Nhan Levan (Electrical Engineering)
 Judith L. Smith (Physiological Science)

1974

Robert B. Edgerton (Anthropology, Psychiatry and Biobehavioral Sciences)
 David S. Eisenberg (Chemistry and Biochemistry)
 Victoria A. Fromkin (Linguistics)
 Robert C. Neerhout (Pediatrics)
 Andrea L. Rich (Speech)

1975

Alma M. Hawkins (World Arts and Cultures)
 Morris Holland (Psychology)
 Paul M. Schachter (Linguistics)
 Stanley A. Wolpert (History)
 Richard W. Young (Neurobiology)

1976

Marianne Celce-Murcia (Teaching English as a Second Language and Applied Linguistics)
 Jesse J. Dukeminier (Law)
 George R. Guffey (English)
 Marilyn L. Kourilsky (Education)
 Chand R. Viswanathan (Electrical Engineering)

1977

Michael J.B. Allen (English)
 Henry M. Cherrick (Dentistry)
 Richard C. Maxwell (Law)
 J. William Schopf (Earth and Space Sciences)
 Verne N. Schumaker (Chemistry and Biochemistry)

1978

William R. Allen (Economics)
 Michael E. Jung (Chemistry and Biochemistry)
 J. Fred Weston (Management)
 Thomas D. Wickens (Psychology)
 Johannes Wilbert (Anthropology)

1979

Steven Krantz (Mathematics)
 Paul I. Rosenthal (Communication Studies)
 Christopher Salter (Geography)
 James H. White (Mathematics)
 Stephen C. Yeazell (Law)

1980

A.R. Braunmuller (English)
 Fredi Chiappelli (Italian)
 Kenneth L. Karst (Law)
 Richard F. Logan (Geography)
 Ronald F. Zernicke (Physiological Science)

1981

Arnold J. Band (Near Eastern Languages and Cultures)
 Charles L. Batten, Jr. (English)
 Lucien B. Guze (Medicine)
 Gerald Lopez (Law)
 Andy Wong (Dentistry)

1982

Dean Bok (Neurobiology)
 Robin S. Liggett (Architecture and Urban Design, Urban Planning)
 William Melnitz (Theater)
 Joseph K. Perloff (Medicine)
 Karen E. Rowe (English)

1983

Claude Bernard (Physics and Astronomy)
 Bryan C. Ellickson (Economics)
 Robert S. Elliott (Electrical Engineering)
 Albert D. Hutter (English)
 Charles M. Knobler (Chemistry and Biochemistry)

1984

Robert Dallek (History)
 Hooshang Kangerloo (Radiological Sciences)
 Jeffrey Prager (Sociology)
 Stanley Siegel (Law)
 Sandra A. Thompson (Linguistics)

1985

Patricia M. Greenfield (*Psychology*)
 David F. Martin (*Computer Science*)
 Mark W. Plant (*Economics*)
 Ross P. Shideler (*Scandinavian Section, Comparative Literature*)
 William D. Warren (*Law*)

1986

Roger A. Gorski (*Neurobiology*)
 Patricia A. Keating (*Linguistics*)
 Leonard Kleinrock (*Computer Science*)
 Martin Wachs (*Urban Planning*)
 Scott L. Waugh (*History*)

1987

Lawrence W. Bassett (*Radiological Sciences*)
 E. Bradford Burns (*History*)
 Kenneth W. Graham, Jr. (*Law*)
 Howard Suber (*Film and Television*)
 Richard A. Yarborough (*English*)

1988

Alison G. Anderson (*Law*)
 Ann L.T. Bergren (*Classics*)
 Charles A. Berst (*English*)
 Michael J. Goldstein (*Psychology*)
 Richard L. Sklar (*Political Science*)

1989

John B. Garnett (*Mathematics*)
 Kathleen L. Komar (*Comparative Literature, Germanic Languages*)
 William G. Roy (*Sociology*)
 Stephen Yenser (*English*)
 Eric M. Zolt (*Law*)

1990

Peter M. Narins (*Physiological Science*)
 Gary B. Nash (*History*)
 John S. Wiley (*Law*)
 Merlin C. Wittrock (*Education*)
 Ruth Yeazell (*English*)

1991

Michael R. Asimow (*Law*)
 Edward G. Berenson (*History*)
 Robert A. Bjork (*Psychology*)
 Margaret FitzSimmons (*Urban Planning*)
 Kenneth R. Lincoln (*English*)

1992

Bruce L. Baker (*Psychology*)
 Paul B. Bergman (*Law*)
 Robert B. Goldberg (*Molecular, Cell, and Developmental Biology*)
 Peter E. Kollock (*Sociology*)
 Eugen Weber (*History*)

1993

Calvin B. Bedient (*English*)
 Richard B. Kaner (*Chemistry and Biochemistry*)
 Katherine C. King (*Classics*)
 William G. Ouchi (*Management*)
 Bruce Schulman (*History*)

1994

David A. Binder (*Law*)
 Jon P. Davidson (*Earth and Space Sciences*)
 Melvin Oliver (*Sociology*)
 Barbara L. Packer (*English*)
 E. Victor Wolfenstein (*Political Science*)

1995

Noriko Akatsuka (*East Asian Languages and Cultures*)
 Douglas Hollan (*Anthropology*)
 V.A. Kolve (*English*)
 Jerome Rabow (*Sociology*)
 Paul V. Reale (*Music*)

1996

Walter Allen (*Sociology*)
 Judith A. Carney (*Geography*)
 William M. Gelbart (*Chemistry and Biochemistry*)
 Phyllis A. Guzé (*Medicine*)
 Peter B. Hammond (*Anthropology*)

1997

Uptal Banerjee (*Molecular, Cell, and Developmental Biology*)
 Christine D. Gutierrez (*Education*)
 Susan McClary (*Musicology*)
 Arnold B. Scheibel (*Neurobiology, Psychiatry and Biobehavioral Sciences*)
 Ivan Szelenyi (*Sociology*)

1998

George W. Bernard (*Dentistry*)
 Verónica Cortínez (*Spanish and Portuguese*)
 Wayne A. Dollase (*Earth and Space Sciences*)
 Jayne E. Lewis (*English*)
 Joshua S.S. Muldavin (*Geography*)

1999

Grace Ganz Blumberg (*Law*)
 Alessandro Duranti (*Anthropology*)
 Richard H. Gold (*Radiological Sciences*)
 N. Katherine Hayles (*English*)
 Bernard Weiner (*Psychology*)

2000

Scott H. Chandler (*Physiological Science*)
 Efraín Kristal (*Spanish and Portuguese*)
 Hector F. Myers (*Psychology*)
 David Sklansky (*Law*)
 Robert N. Watson (*English*)

2001

Michael J. Colacurcio (*English*)
 Glen M. MacDonald (*Geography*)
 Kevin Terraciano (*History*)
 James W. Trent (*Education*)
 Brian Walker (*Political Science*)

2002

Christopher R. Anderson (*Mathematics*)
 Steven G. Clarke (*Chemistry and Biochemistry*)
 Anne K. Mellor (*English*)
 Lee Todd Miller (*Pediatrics*)
 Grant S. Nelson (*Law*)

2003

Joseph J. DiStefano III (*Computer Science, Medicine*)
 Robin L. Garrell (*Chemistry and Biochemistry*)
 A.P. Gonzalez (*Film, Television, and Digital Media*)
 Mitchell B. Morris (*Musicology*)
 Kirk J. Stark (*Law*)

2004

David B. Kaplan (*Philosophy*)
 Kathryn A. Morgan (*Classics*)
 Mark R. Morris (*Physics and Astronomy*)
 Jesús Torrecilla (*Spanish and Portuguese*)

2005

Joan Waugh (*History*)
2005
 Roger Bourland (*Music*)
 Robert G. Fovell (*Atmospheric and Oceanic Sciences*)
 Elma González (*Ecology and Evolutionary Biology*)
 Elizabeth A. Marchant (*Spanish and Portuguese*)
 Mike Rose (*Education*)
 Keith D. Stolzenbach (*Civil and Environmental Engineering*)

2006

Robert A. Gurval (*Classics*)
 Patricia M. McDonough (*Education*)
 Albert J. Moore (*Law*)
 Kenneth A. Nagy (*Ecology and Evolutionary Biology*)
 David L. Rigby (*Geography*)
 Geoffrey W. Symcox (*History*)

2007

John A. Agnew (*Geography*)
 Devon Carbado (*Law*)
 Valerie J. Matsumoto (*Asian American Studies, History*)
 Behzad Razavi (*Electrical Engineering*)
 Daniel G. Solórzano (*Education*)
 Blaire Van Valkenburgh (*Ecology and Evolutionary Biology*)

2008

Elizabeth L. Bjork (*Psychology*)
 Peggy M. Fong (*Ecology and Evolutionary Biology*)
 Linda C. Garro (*Anthropology*)
 Teófilo F. Ruiz (*History*)
 Benjamin J. Schwartz (*Chemistry and Biochemistry*)
 Robert S. Winter (*Music*)

2009

Roger Detels (*Epidemiology*)
 Luisa M. Irueña-Arispe (*Molecular, Cell, and Developmental Biology*)
 Yung-Ya Lin (*Chemistry and Biochemistry*)
 Mark B. Moldwin (*Earth and Space Sciences*)
 Susan J. Plann (*Applied Linguistics and Spanish and Portuguese*)

2010

Janice L. Reiff (*History*)
 Katsushi Arisaka (*Physics and Astronomy*)
 Daniel T. Blumstein (*Ecology and Evolutionary Biology*)
 John T. Caldwell (*Film, Television, and Digital Media*)
 Albert J. Courey (*Chemistry and Biochemistry*)
 Jerry Kang (*Law*)
 Steven P. Reise (*Psychology*)

2011

Ann E. Carlson (*Law*)
 Andrew Christensen (*Psychology*)
 Ian Krouse (*Music*)
 Patricia E. Phelps (*Integrative Biology and Physiology*)
 Yahya Rahmat-Samii (*Electrical Engineering*)
 Philip W. Rundel (*Ecology and Evolutionary Biology*)

2012	L. Geoffrey Cowan (<i>Communication Studies</i>) Mary Elizabeth Perry (<i>History</i>) Linda Diane Venis (<i>English</i>)	Emily Schiller (<i>English</i>) Scott Votey (<i>UCLA Emergency Medicine Center</i>)
C. Cindy Fan (<i>Geography</i>) Brandon Koretz (<i>Geriatric Medicine</i>) Mignon R. Moore (<i>Sociology</i>) Claudia Parodi-Lewin (<i>Spanish and Portuguese</i>) Jonathan P. Stewart (<i>Civil and Environmental Engineering</i>) Christopher S. Tang (<i>Management</i>)	David Cohen (<i>Mathematics</i>) Johanna Harris-Heggie (<i>Music</i>) Paul Von Blum (<i>Interdisciplinary</i>)	Nicole Dufresne (<i>French</i>) Thomas Holm (<i>Law</i>) Richard P. Usatine (<i>Family Medicine</i>)
2013	Carol D. Berkowitz (<i>Pediatrics</i>) Jeffrey I. Cole (<i>Communication Studies</i>) Cheryl Giuliano (<i>Writing Programs</i>)	George Leddy (<i>Geography/International Development Studies</i>) Sandra Mano (<i>Writing Programs</i>) L. Jean Perry (<i>Molecular, Cell, and Developmental Biology</i>)
Michael F. Carey (<i>Biological Chemistry</i>) John J. Colicelli (<i>Biological Chemistry</i>) Rachelle H. Crosbie-Watson (<i>Integrative Biology and Physiology</i>) Jonathan H. Grossman (<i>English</i>) Lynn A. Hunt (<i>History</i>) David Delgado Shorter (<i>World Arts and Cultures/Dance</i>) Megan McDonnell Sweeney (<i>Sociology</i>)	Jeanne Gunner (<i>Writing Programs</i>) Art Huffman (<i>Physics and Astronomy</i>) David G. Kay (<i>Computer Science</i>)	Steven Hardinger (<i>Chemistry and Biochemistry</i>) Colleen K. Keenan (<i>Nursing</i>) Cynthia Merrill (<i>Writing Programs</i>)
2014	S. Scott Bartchy (<i>History</i>) Bonnie Lisle (<i>Writing Programs</i>) Kenneth R. Pfeiffer (<i>Civil Engineering, Psychology</i>)	Marjorie A. Bates (<i>Chemistry and Biochemistry</i>) Anita McCormick (<i>Writing Programs</i>) Richard Stevenson III (<i>Dentistry</i>)
Paul H. Barber (<i>Ecology and Evolutionary Biology</i>) Earl G. Freymiller (<i>Dentistry</i>) Neil K. Garg (<i>Chemistry and Biochemistry</i>) Hilary A. Godwin (<i>Environmental Health Sciences</i>) Hiroshi Motomura (<i>Law</i>) Felicity A. Nussbaum (<i>English</i>)	Lisa Gerrard (<i>Writing Programs</i>) Andres Durstenfeld (<i>Biology</i>) Dorothy Phillips (<i>Physiological Science</i>)	Andrew Hsu (<i>Philosophy</i>) Kimberly Jansma (<i>French and Francophone Studies</i>) Jennifer Westbay (<i>Writing Programs</i>)
2015	Marde S. Gregory (<i>Speech</i>) Betty A. Luceigh (<i>Chemistry and Biochemistry</i>) Cheryl Pfoff (<i>Writing Programs</i>)	2005
Robert W. Fink (<i>Musicology</i>) Alan Garfinkel (<i>Integrative Biology and Physiology, Medicine</i>) Thomas W. Gillespie (<i>Geography</i>) Tyrone C. Howard (<i>Education</i>) Daniel T. Kamei (<i>Bioengineering</i>) Joanna C. Schwartz (<i>Law</i>)	Janet Goodwin (<i>Teaching English as a Second Language and Applied Linguistics</i>) Janette Lewis (<i>Writing Programs</i>) Yihua Wang (<i>East Asian Languages and Cultures</i>)	Susan Griffin (<i>Writing Programs</i>) William Grisham (<i>Psychology</i>) Anahid Keshishian (<i>Near Eastern Languages and Cultures</i>)
2016	Stephen Dickey (<i>English</i>) Sondra Hale (<i>Anthropology</i>) Jutta Landa (<i>Germanic Languages</i>)	2006
Joseph E. Bristow (<i>English</i>) Mark S. Goorsky (<i>Materials Science and Engineering</i>) Frank A. Laski (<i>Molecular, Cell, and Developmental Biology</i>) Elisabeth C. Le Guin (<i>Musicology</i>) James O. Lloyd-Smith (<i>Ecology and Evolutionary Biology</i>) Steven A. Margulis (<i>Civil and Environmental Engineering</i>)	1994	Roger E. Bohman (<i>Molecular, Cell, and Developmental Biology</i>) Jo Ann Damron-Rodriguez (<i>Social Welfare</i>) Gerald Wilson (<i>Ethnomusicology</i>)
Non-Academic Senate Recipients	1993	2007
In spring of 1985, the Office of Instructional Development began sponsorship of awards to three instructors who are not members of the Academic Senate. This category includes lecturers and adjunct and clinical faculty members. All non-Academic Senate faculty members who are nominated by their departments are eligible. Recipients are selected by the Academic Senate Committee on Teaching, utilizing the same criteria as that used for Academic Senate members.	Stephen Dickey (<i>English</i>) Sondra Hale (<i>Anthropology</i>) Jutta Landa (<i>Germanic Languages</i>)	Nancy Ezer (<i>Near Eastern Languages and Cultures</i>) Fred A. Hagigi (<i>Health Services</i>) Eric Marin (<i>Film, Television, and Digital Media</i>)
The Luckman Distinguished Teaching Awards Program was established in late 1991 after receipt of a generous gift from Harriet and Charles Luckman. Awards given for 1992 through 1997 were named the Luckman Distinguished Teaching Awards.	1994	2008
	Nicholas Collaros (<i>French</i>) Kristine S. Knaplund (<i>Law</i>) Christopher Mott (<i>English</i>)	Leigh C. Harris (<i>Writing Programs</i>) Chi Li (<i>Ethnomusicology</i>) Robert B. Trelease (<i>Pathology and Laboratory Medicine</i>)
	1995	2009
	Scott Bowman (<i>Political Science</i>) Timothy Tangherlini (<i>Scandinavian Section</i>) G. Jennifer Wilson (<i>Honors and Undergraduate Programs</i>)	Brent Corbin (<i>Physics and Astronomy</i>) Laurence Lavelle (<i>Chemistry and Biochemistry</i>) Fariba Younai (<i>Dentistry</i>)
	1997	2010
	William McDonald (<i>Film and Television</i>) Stuart Slavin (<i>Pediatrics</i>) Sung-Ock Sohn (<i>East Asian Languages and Cultures</i>)	Patrick D. Goodman (<i>Law</i>) Amy H. Kaji (<i>Medicine</i>) Rory M. Kelly (<i>Film, Television, and Digital Media</i>)
	1998	2011
	Paul Frymer (<i>Political Science</i>) George Gadda (<i>Writing Programs</i>) Julie Giese (<i>English</i>)	Latifeh E. Hagigi (<i>Near Eastern Languages and Cultures</i>) Dario Nardi (<i>Anthropology</i>) John (Jay) Phelan (<i>Life Sciences Core Curriculum</i>)
	1999	
	Patricia Gilmore-Jaffe (<i>Writing Programs</i>)	

2012

Stuart Biegel (*Education*)
 Ronald Cooper (*Integrative Biology and Physiology*)
 Michael Lazarus (*Medicine*)

2013

Randall J. Fallows (*Writing Programs*)
 Ganna Kudyma (*Slavic Languages and Literatures*)
 Joan R. Schleper (*Nursing*)

2014

Teddi L. Chichester (*Writing Programs*)
 Robert F. Foster (*Management*)
 Mitchem A. Huehls (*English*)

2015

Mary Paige Greene (*Mathematics*)
 Eric H. Sussman (*Management*)
 Pavel Wonsowicz (*Law*)

2016

Ting-Ling Chang (*Dentistry*)
 Gregory J. Robinson (*Writing Programs*)
 Jeremy D. Smoak (*Near Eastern Languages and Cultures*)

GOLD SHIELD FACULTY PRIZE

The \$30,000 Gold Shield Faculty Prize, an award for academic excellence, was created by the Gold Shield Alumnae of UCLA in celebration of their fiftieth anniversary in 1986. The prize is funded by an endowment of \$250,000 raised by Gold Shield for this purpose, which has grown to over \$450,000. Guidelines provide that the prize “recognize and reward UCLA faculty members who have demon-

strated extraordinary accomplishment in teaching and in research or creative activity...and who have made a significant contribution to undergraduate education.” Preference for recipients is given to faculty members in mid-career who do not often receive the extra professional incentives available to distinguished senior faculty.

The Gold Shield Faculty Prize is awarded to each recipient for scholarly use. The awardee is selected every year by a committee of peers appointed by the Academic Senate. Student and Gold Shield representatives are included. Recipients must come from fields that have undergraduate programs at UCLA.

1986-88

Michael E. Jung (*Chemistry and Biochemistry*)

1988-90

Patricia M. Greenfield (*Psychology*)

1990-92

Jeffrey C. Alexander (*Sociology*)

1992-94

J. William Schopf (*Earth and Space Sciences*)

1994-96

Albert R. Braunmuller (*English*)

1996-98

Peter M. Narins (*Physiological Science*)

1998-00

Robert B. Goldberg (*Molecular, Cell, and Developmental Biology*)

2000-02

Utpal Banerjee (*Molecular, Cell, and Developmental Biology*)

2002-04

Richard B. Kaner (*Chemistry and Biochemistry*)

2004-06

Andrea M. Ghez (*Physics and Astronomy*)

2006-08

Robert N. Watson (*English*)

2007-09

William J. Kaiser (*Electrical Engineering*)

2008-10

Alicia Gaspar de Alba (*Chicana and Chicano Studies*)

2009-11

Robin L. Garrell (*Chemistry and Biochemistry*)

2010-12

David H. Gere (*World Arts and Cultures*)

2011-13

Matthew D. Lieberman (*Psychology*)

2012-14

Kevin B. Terraciano (*History*)

2013-15

Luisa M. Irueña-Arispe (*Molecular, Cell, and Developmental Biology*)

2014-16

Brenda Stevenson (*History*)

2015-17

Neil K. Garg (*Chemistry and Biochemistry*)

2016-18

Charlene Villaseñor Black (*Art History*)

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